SANJIU COOLING EQUIPMENT
A TRUSTED BUSINESS PARTNER!

SANJIU
COOLING

Professional
Cooling Equipment & Solutions

S A N J I U

无锡三九制冷设备有限公司
江苏省无锡市新锦路101号

WUXI SANJIU COOLING EQUIPMENT CO., LTD.

SANJIU COOLING

SOME CUSTOMERS
部分客户

EQUIPMENTS APPLIED SANJIU PRODUCTS
我们的供应商

MATERIALS COOPERATORS
配套设备品牌

中国原子能科学研究院	CIAE	喜来登酒店	Sheraton Hotel
中国中车	CRRC	三得利	Suntory
一汽大众	FAW Volkswagen	达拉斯大学	University of Dallas
扬杰电子	Yangjie Electronics	合康变频	Hekang frequency conversion
上海电气	Shanghai Electric	宝鸡钛业	Baoji Titanium Industry
汇川动力	Inovance Power	清华同方	Tsinghua Tongfang
灿州环境	Canzhou Environment	万向集团	Wanxiang Group
江森自控	Johnson Controls	青岛啤酒	Tsingtao Beer
浙能节能	Zheneng Energy Conservation	常州制药厂	Changzhou Pharm
多氟多	Dofluoroduo	瑞声光电	Ruisheng Optoelectronics
恩捷新材料	Enjie New Materials	杰瑞集团	Jereh group
皇冠假日酒店	Crowne Plaza Hotel	圣山集团	Shengshan group
			...

关于三九
ABOUT SANJIU

追求相关者利益最大化。即力求客户、企业、员工、社会及供应商之间的共赢！

无锡三九制冷致力于闭式冷却塔、钢制开塔及蒸发冷凝设备的研发制造！

公司正快速崛起，以成为中国闭式冷却塔的龙头企业为目标，努力将“三九制冷”筑成中国闭式循环水冷却领域的高端品牌！

公司总部坐落于无锡高新区工业园，主要进行闭式冷却塔研发设计、制造与测试实验，是华东地区行业内率先拥有全天候、多工况模拟热力性能测试平台的企业。

三九制冷已经研发出多种型号的闭式冷却塔，在冷却器的高效节能等多方面获得了37项国家专利。企业先后通过了CTI，CE，ISO9001、职业健康与环境质量体系认证。

三九制冷已在冷却领域服务了数千个优质客户。冷却设备先后被中船重工、国机集团、中科院、上核集团等大型客户采用。同时产品远销海外市场，如加拿大、美国、澳大利亚、沙特、土耳其、东南亚各国等40余个国家和地区！

Wuxi SANJIU Cooling has been committed to the development and manufacture of closed cooling towers, steel open towers and evaporative condensation equipment. The company aims to rapidly rise to become the leading enterprise of closed-circuit cooling towers in China, and strives to make ‘SANJIU Cooling’ a high-end brand in the field of closed-circuit water cooling in China!

The company's headquarters is located in the Industrial Park of Wuxi High-tech Zone. It mainly conducts R&D, design, manufacturing and testing experiments of closed cooling towers. It is the first enterprise in the industry in East China to have multi-condition simulation thermal performance test platform. SANJIU Cooling has developed various types of closed cooling towers, and obtained 37 national patents in terms of high efficiency and energy saving of coolers. The company has successively passed CTI, CE, ISO9001, occupational health and environmental quality system certifications.

SANJIU Cooling has served thousands of high-level customers in the cooling field. The cooling equipment has been adopted by large enterprises such as CSIC, SINOMACH, Chinese Academy of Sciences, Shanghai Nuclear Group and so on. At the same time, the products are exported to overseas markets, such as Canada, the United States, Australia, Saudi Arabia, Turkey, Southeast Asian countries, etc., more than 40 nations and regions!

HM Series Evaporative Cooling Tower
Closed Circuit, Cross Flow
GHM系列闭式横流冷却塔

GTM Series Evaporative Cooling Tower
Closed Circuit, Counter Flow
GTM系列闭式逆流冷却塔

GOM Series Steel Open Tower
Open Circuit, Cross Flow
GOM系列钢制开式横流冷却塔

GKM Series Dry Cooler
GKM系列空冷器

GZM Series Evaporative Condenser
GZM系列蒸发式冷凝器

目录
CATALOGUE

以先进的生产工艺和设施制造一流品质的冷却设备

Manufacturing First Grade Cooling Towers and Equipment with Advanced Technology& Facilities!

PRODUCTION

Standard production facilities with professional and experienced workers, strictly operated according to ISO9001, ISO14000, and 6S management.

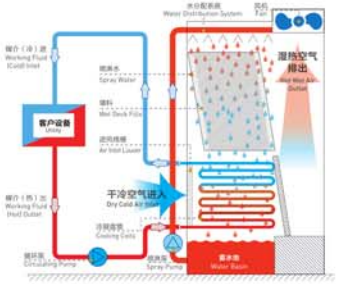
QUALITY CONTROL

Thermodynamic test station designed and developed with joint efforts of Jiang Nan University, used to simulate the different working conditions, to carry out type tests according to CTI directives, ensure the heat exchange capacity and general performance of each tower made by Sanjiu Cooling.

CTI 标准 测试系统

Strict Testing System
According to CTI Standards.

GHM SERIES



闭式横流冷却塔
CLOSED CROSS FLOW

GHM 系列，冷却能力范围 30~366 名义吨，可多台组合满足更大冷却需求，外壳采用覆镁铝锌板或不锈钢板，换热盘管选用不锈钢或紫铜 ，填料使用 PVC。所有原材料均达到工业级要求，具有超强防腐性能。GHM 系列冷却塔换热效率高。

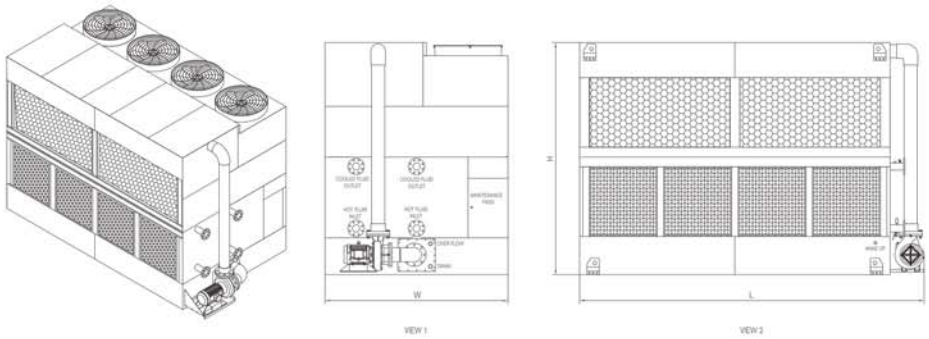
GHM Series are of capacities from 30 to 366 nominal tons, can work in series as a group for larger capacities. Casing made in special Mg-Al-Zn alloy coated steel or stainless steel, Heat exchange coils made in stainless steel or red copper,Wet deck fills made in PVC. All raw materials are of high industrial grade, with superior corrosion resistant features. GHM towers are designed of high efficiency.

工作原理

GHM 系列属于诱导通风型横流冷却塔。在工作中，干燥的冷空气从塔侧进风格栅进入，穿过喷淋水，横向经过冷却盘管和填料，变成湿热空气，最后由冷却塔顶部风机排到大气中。在此过程中，持续进行热交换并带走闭式循环中工作流体的部分热量。

WORKING THEORY

GHM series belong to induced draft type cross flow cooling towers. During the working process, dry cool air is inlet through wide louvers on one side of the tower, then directed through the heat exchange coils and wet deck fills across the spray water, becoming wet hot air, eventually induced draught out of the tower into the atmosphere by the fans on the top. In this process, a part of heat from the fluids inside the closed loop is transferred efficiently, and removed continuously.

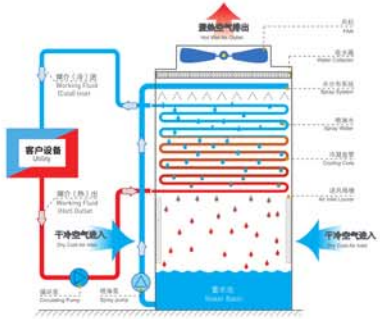


型号 Model No.	名义吨 Nominal Flow Rate (Ton)	风机 Fan		喷淋泵 Circulating Pump		设备接口管径（mm） Connecting Pipe（mm）			外形尺寸(mm) Overall Dimensions(mm)			重量 Weight	
		功率 Power (kW)	风量 Air Volumn (m^3/s)	功率 Power (kW)	水量 Flow Rate (m^3/h)	进出水口 inlet/outlet	补水口 make up	溢流排污 drainage	长 L	宽 W	高 H	自重 Net (kg)	运行重量 Running (kg)
GHM-225	30	1.1×2	3.8×2	1.5	45	DN80	DN25	DN40	2540	1940	2410	1020	1820
GHM-230	37	1.1×2	3.8×2	1.5	45	DN80	DN25	DN40	2960	1940	2410	1050	2020
GHM-235	43	1.1×2	3.8×2	1.5	45	DN80	DN25	DN40	2960	1940	2410	1100	2100
GHM-340	49	1.1×3	3.8×3	2.2	60	DN80	DN25	DN40	3360	1940	2410	1310	2540
GHM-350	61	1.1×3	3.8×3	2.2	60	DN80×2	DN25	DN40	3360	1940	2790	1450	3080
GHM-365	79	1.1×3	3.8×3	2.2	60	DN80×2	DN25	DN40	3360	1940	2940	1520	3200
GHM-380	98	1.5×4	5.6×4	2.2	114	DN80×2	DN25	DN40	4220	2240	2910	2050	4920
GHM-390	110	1.5×4	5.6×4	2.2	114	DN80×2	DN25	DN40	4220	2240	2910	2100	5000
GHM-3100	122	1.5×4	5.6×4	2.2	114	DN80×2	DN25	DN40	4220	2240	3070	2150	5100
GHM-3110	134	1.5×4	5.6×4	2.2	114	DN80×2	DN25	DN40	4220	2240	3070	2250	5250
GHM-5125	152	1.5×4	5.6×4	3.7	140	DN100×2	DN40	DN40	4740	2240	3140	2800	6800
GHM-5150	183	2.2×4	7.8×4	3.7	140	DN100×2	DN40	DN40	5440	2240	3170	3200	7820
GHM-5175	213	2.2×4	7.8×4	3.7	140	DN125×2	DN40	DN40	5440	2240	3170	3300	8000
GHM-7200	244	4×4	16.7×4	5.5	160	DN125×2	DN40	DN50	5840	2900	3355	5000	9000
GHM-7225	274	4×4	16.7×4	5.5	160	DN125×2	DN40	DN50	5840	2900	3355	5500	10000
GHM-7250	305	4×4	16.7×4	5.5	160	DN150×2	DN40	DN50	6420	2900	3555	6500	11500
GHM-7275	335	4×4	16.7×4	5.5	160	DN150×2	DN40	DN50	6420	2900	3555	6800	11800
GHM-7300	366	4×4	16.7×4	5.5	160	DN150×2	DN40	DN50	6420	2900	3555	7000	12000

NOTE

Nominal Tons are based upon temp. drop 35~29.5°C/ 95~85°F, WBT 25.5°C/ 78°F, and 0.681 $m^3/hr/ton$.
名义吨基于工况35-29.5°C，湿球：25.5°C，流量：0.681$m^3/h/ton$

GTM SERIES



闭式逆流冷却塔
CLOSED COUNTER FLOW

GTM 系列冷却范围：6~305 名义吨。外壳采用覆镁铝锌板或不锈钢板，冷却盘管使用不锈钢或紫铜。GTM 系列结构更紧凑，安装空间更少，无预冷填料，更适合冷却更高温度的工作流体。塔体尺寸可非标定制适合集装箱运输，满足特殊项目需求。

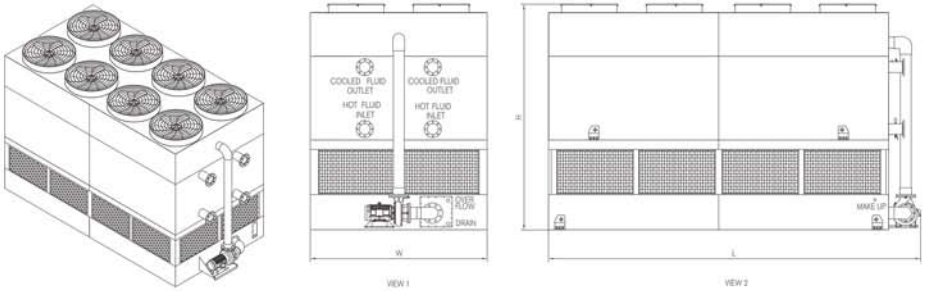
GTM Series are of regular capacities from 6 to 305 nominal tons. Casing made in special Mg-Al-Zn alloy coated steel or stainless steel, Heat exchange coils made in stainless steel or red copper. GTM Towers tend to be more compact, taking less installation space, working without any wet deck fill, more suitable to cool hot fluid of higher inlet temperature. The towers dimensions can be customized to suit standard containers or particular project conditions.

工作原理

在逆流冷却塔中，干冷空气进入冷却塔四周格栅，通过风机的吸力垂直经过巨大换热表面，与喷淋水方向相反，成为湿热空气，由冷却塔顶部风机排到大气中。在此过程中，持续进行热交换并带走闭式循环中工作流体的部分热量。

WORKING THEORY

As counter flow towers, the dry cool air is inlet through louvers on both sides of the tower from the bottom, and drawn upwards passing a large heat exchange surface of the coils section under the induced fans, against the spraying water in the opposite way, becoming hot wet air, induced draught out of the tower into the atmosphere by the fans on the top. During this process, a part of the heat from the fluids inside the closed loop is transferred efficiently, and removed to the outside environment.

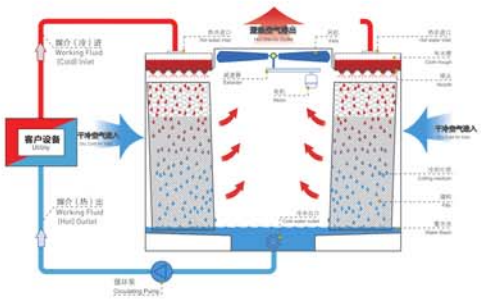


型号 Model No.	名义吨 Nominal Flow Rate (Ton)	风机 Fan		喷淋泵 Circulating Pump		设备接口管径（mm） Connecting Pipe（mm）			外形尺寸 (mm) OverallDimensions(mm)			重量 Weight	
		功率 Power (kW)	风量 Air Volumn (m^3/s)	功率 Power (kW)	水量 Flow Rate (m^3/h)	进出水口 inlet/outlet	补水口 make up	溢流排污 drainage	长 L	宽 W	高 H	自重 Net (kg)	运行重量 Running (kg)
GTM-15	6	0.75	2.8	0.75	20	DN50	DN25	DN40	1390	1000	2045	350	700
GTM-110	12	0.75	2.8	0.75	20	DN50	DN25	DN40	1610	1000	2115	400	800
GTM-115	18	0.75×2	2.8×2	0.75	20	DN65	DN25	DN40	2300	1020	2020	460	1000
GTM-120	24	0.75×2	2.8×2	0.75	20	DN65	DN25	DN40	2300	1020	2120	500	1050
GTM-225	30	0.75×2	2.8×2	1.5	45	DN80	DN25	DN40	2860	1240	2270	730	1650
GTM-230	37	1.1×2	3.8×2	1.5	45	DN80	DN25	DN40	2860	1240	2390	830	1760
GTM-235	43	1.1×2	3.8×2	1.5	45	DN65×2	DN25	DN40	2860	1240	2770	1050	2030
GTM-340	49	1.5×2	5.6×2	2.2	60	DN65×2	DN25	DN40	2860	1520	2810	1280	2500
GTM-350	61	1.5×2	5.6×2	2.2	60	DN80×2	DN25	DN40	2860	1520	2900	1370	2660
GTM-365	79	1.1×4	3.8×4	2.2	60	DN80×2	DN25	DN40	3200	1760	2870	1820	3460
GTM-370	85	1.1×4	3.8×4	2.2	114	DN80×2	DN25	DN40	3200	2120	2870	1930	3970
GTM-380	98	1.5×4	5.6×4	2.2	114	DN80×2	DN25	DN40	3200	2120	3020	2050	4000
GTM-390	110	1.5×4	5.6×4	2.2	114	DN80×2	DN25	DN40	3200	2120	3020	2150	4050
GTM-3100	122	1.5×4	5.6×4	2.2	114	DN80×2	DN25	DN40	3550	2120	3420	2330	4710
GTM-3110	134	1.5×6	5.6×6	2.2	114	DN80×2	DN25	DN40	4150	2120	3420	2650	5550
GTM-5125	152	1.5×8	5.6×8	3.7	140	DN100×2	DN40	DN40	4750	2120	3420	3100	6500
GTM-5150	183	1.5×8	5.6×8	3.7	140	DN100×2	DN40	DN40	5050	2120	3570	3500	7480
GTM-7175	213	1.5×8	5.6×8	5.5	160	DN125×2	DN40	DN40	5480	2120	3570	3800	8240
GTM-7200	244	1.5×8	5.6×8	5.5	160	DN125×2	DN40	DN50	5080	2620	3710	4800	9170
GTM-7225	274	1.5×8	5.6×8	5.5	160	DN125×2	DN40	DN50	5480	2620	3710	5600	11300
GTM-10250	305	1.5×10	5.6×10	7.5	240	DN150×2	DN40	DN50	6230	2620	3710	6000	12560

NOTE

Nominal Tons are based upon temp. drop 35~29.5°C/ 95~85°F, WBT 25.5°C/ 78°F, and 0.681 $m^3/hr/ton$.
名义吨基于工况35-29.5°C，湿球：25.5°C，流量：0.681$m^3/h/ton$

GOM SERIES



开式冷却塔
OPEN COOLING TOWER

GOM 系列横流开式钢塔具有更大冷却能力，可组合使用满足大型项目需求。外壳采用覆镁铝锌板或不锈钢板。GOM 系列结构稳固，效率高，漂水低，不易堵塞。塔体尺寸可非标定制适合集装箱运输和项目要求。

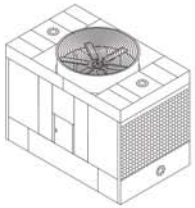
GOM Series cross flow steel open cooling towers are generally of higher capacities, can work in series as a group for large projects. Enclosure made in special Mg-Al-Zn alloy coated steel or stainless steel. GOM towers are of optimized firm structure,high efficiency, low drift rate, and anti blocking. The towers dimensions can be customized to suit standard containers or particular project conditions.

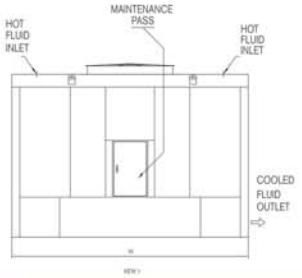
工作原理

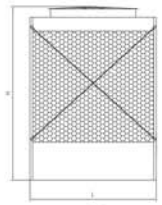
在 GOM 开式冷却塔中，热水先进入塔顶布水盆，通过喷嘴均匀喷淋到填料表面，重力作用下流经填料的各个孔。同时干冷空气从塔两侧格栅进入，横向掠过填料和水流。在此过程中，部分水被蒸发，带走热量。湿热空气通过塔顶风机排到大气中，同时冷却后的水收集到底部集水槽，流回客户的设备。

WORKING THEORY

In GOM open cooling towers, the hot water is inlet to the water distribution basin on the top of the tower firstly, and spread onto the extensive surface of the wet deck fills after flowing through the spreading holes by gravity. Meanwhile the dry cool air is inlet through the side louvers of the tower, passing the fills across the water falls. During this process, a part of water is evaporated, with heat removed. The wet hot air is induced draught out of the tower into the atmosphere by the fans on the top, whilethe cooled water is collected back to the bottom collection basin with the eliminator, flowing back to the equipment requiring cooling water.







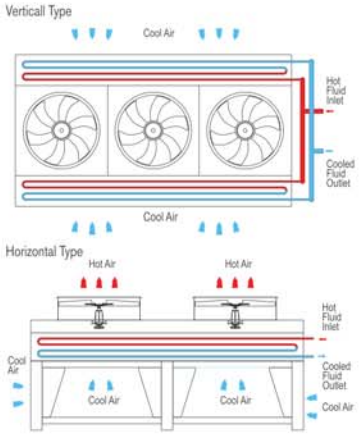
型号 Model No.		名义吨 Nominal Flow Rate	风机功率 Fan Power	设备接口管径（mm） Connecting Pipe（mm）					外形尺寸(mm) Overall Dimensions(mm)			重量 Weight	
			(kW)	进水口 inlet	出水口 outlet	补水 make up	溢流 overflow	排污 drain	长 L	宽 W	高 H	自重 Net (kg)	运行重量 Operation (kg)
GOM0109	S-1	136	3.7	DN150×2	DN150	DN25	DN50	DN50	1980	3910	3200	1800	3500
	Q-1	156	5.5	DN150×2	DN150	DN25	DN50	DN50	1980	3910	3200	1800	3500
	P-1	171	7.5	DN150×2	DN150	DN25	DN50	DN50	1980	3910	3200	1800	3500
GOM0115	Q-1	208	5.5	DN150×2	DN150	DN25	DN50	DN50	2550	4300	3220	2150	4600
	P-1	231	7.5	DN150×2	DN150	DN25	DN50	DN50	2550	4300	3220	2150	4600
GOM0215	Q-1	264	5.5	DN200×2	DN200	DN25	DN50	DN50	2550	5530	3730	3350	7100
	P-1	291	7.5	DN200×2	DN200	DN25	DN50	DN50	2550	5530	3730	3350	7100
	O-1	322	11	DN200×2	DN200	DN25	DN50	DN50	2550	5530	3730	3350	7100
	N-1	363	15	DN200×2	DN200	DN25	DN50	DN50	2550	5530	3730	3350	7100
	M-1	383	18.5	DN200×2	DN200	DN25	DN50	DN50	2550	5530	3730	3350	7100
GOM0120	Q-1	312	5.5	DN200×2	DN200	DN40	DN65	DN50	3010	6070	3750	3850	8500
	P-1	347	7.5	DN200×2	DN200	DN40	DN65	DN50	3010	6070	3750	3850	8500
	O-1	395	11	DN200×2	DN200	DN40	DN65	DN50	3010	6070	3750	3850	8500
	N-1	433	15	DN200×2	DN200	DN40	DN65	DN50	3010	6070	3750	3850	8500
	M-1	460	18.5	DN200×2	DN250	DN40	DN65	DN50	3010	6070	3750	3850	8500
	L-1	481	22	DN200×2	DN250	DN40	DN65	DN50	3010	6070	3750	3850	8500
GOM0126	P-1	393	7.5	DN200×2	DN200	DN40	DN65	DN50	3620	6400	3750	4850	11200
	O-1	449	11	DN200×2	DN250	DN40	DN65	DN50	3620	6400	3750	4850	11200
	N-1	490	15	DN200×2	DN250	DN40	DN65	DN50	3620	6400	3750	4850	11200
	M-1	529	18.5	DN200×2	DN250	DN40	DN65	DN50	3620	6400	3750	4850	11200
	L-1	560	22	DN200×2	DN250	DN40	DN65	DN50	3620	6400	3750	4850	11200
	K-1	610	30	DN200×2	DN250	DN40	DN65	DN50	3620	6400	3750	4850	11200
GOM0132	O-1	513	11	DN250×2	DN250	DN40	DN65	DN50	4230	6830	3750	5750	13600
	N-1	563	15	DN250×2	DN250	DN40	DN65	DN50	4230	6830	3750	5750	13600
	M-1	605	18.5	DN250×2	DN250	DN40	DN65	DN50	4230	6830	3750	5750	13600
	L-1	637	22	DN250×2	DN250	DN40	DN65	DN50	4230	6830	3750	5750	13600
	K-1	700	30	DN250×2	DN300	DN40	DN65	DN50	4230	6830	3750	5750	13600
	J-1	753	37	DN250×2	DN300	DN40	DN65	DN50	4230	6830	3750	5750	13600
GOM0226	O-1	555	11	DN250×2	DN250	DN50	DN65	DN65	3620	6830	4970	7250	15200
	N-1	608	15	DN250×2	DN250	DN50	DN65	DN65	3620	6830	4970	7250	15200
	M-1	654	18.5	DN250×2	DN250	DN50	DN65	DN65	3620	6830	4970	7250	15200
	L-1	694	22	DN250×2	DN250	DN50	DN65	DN65	3620	6830	4970	7250	15200
	K-1	757	30	DN250×2	DN300	DN50	DN65	DN65	3620	6830	4970	7250	15200
	J-1	811	37	DN250×2	DN300	DN50	DN65	DN65	3620	6830	4970	7250	15200
GOM0326	N-1	658	15	DN250×2	DN250	DN50	DN65	DN65	3620	6830	5840	7950	16900
	M-1	703	18.5	DN250×2	DN300	DN50	DN65	DN65	3620	6830	5840	7950	16900
	L-1	741	22	DN250×2	DN300	DN50	DN65	DN65	3620	6830	5840	7950	16900
	K-1	805	30	DN250×2	DN300	DN50	DN65	DN65	3620	6830	5840	7950	16900
	J-1	857	37	DN250×2	DN300	DN50	DN65	DN65	3620	6830	5840	7950	16900
GOM0332	N-1	742	15	DN250×2	DN300	DN50	DN65	DN65	4230	6830	5840	8650	19400
	M-1	791	18.5	DN250×2	DN300	DN50	DN65	DN65	4230	6830	5840	8650	19400
	L-1	835	22	DN250×2	DN300	DN50	DN65	DN65	4230	6830	5840	8650	19400
	K-1	907	30	DN250×2	DN300	DN50	DN65	DN65	4230	6830	5840	8650	19400
	J-1	968	37	DN250×2	DN300	DN50	DN65	DN65	4230	6830	5840	8650	19400
	I-1	1017	45	DN250×2	DN350	DN50	DN65	DN65	4230	6830	5840	8650	19400

NOTE

Nominal Tons are based upon temp. drop 35~29.5°C/ 95~85°F, WBT 25.5°C/ 78°F, and 0.681 m^3/hr/ton.

名义吨基于工况35-29.5°C，湿球：25.5°C，流量：0.681m^3/h/ton

GKM SERIES



空冷器
DYR AIR COOLING TOWER

GKM 空冷器开发于 2012 年，冷却范围：90℃ -55℃工艺流体。外壳使用覆镁铝锌板或不锈钢板。冷却盘管采用铜管或不锈钢管，管外覆盖铝翅片或铜翅片。进出水口位于同侧，安装更方便。外部尺寸能够定制适合集装箱运输或特定项目要求。

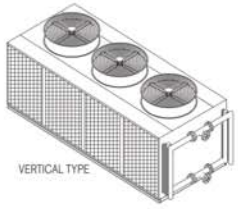
GKM Dry Cooling Series have been developed since 2012, with a wide range of cooling capacities. Enclosure made special alloy coated steel, or stainless steel optional. Heat exchange coils made in copper tube or stainless steel tubes fitted with aluminum or copper fins around the tubes. The fluid inlet and outlet are set on the same side, easy in installations. The overall dimensions can be tailor-made to suit standard containers or particular project conditions.

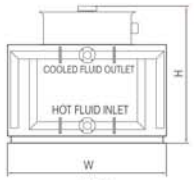
工作原理

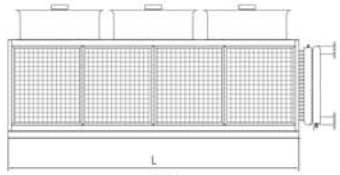
空冷器中无喷淋水。大量的空气持续进入格栅，经过覆有翅片的表冷器，热量从盘管内的工作流体有效转移到高速流动的气流中，被顶部的风机排进大气。

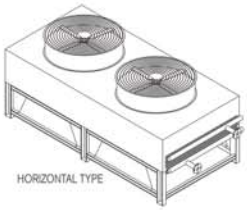
WORKING THEORY

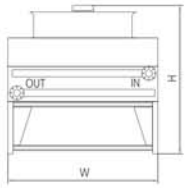
Dry cooling towers work without spray water. High volume of air is inlet continuously through the louvers, going through the large surface of heat exchange coils with intensive fins. Heat from the process fluid inside the coils is transferred to the high speed flowing air efficiently, and induced draught out of the tower into the atmosphere by the strong fans on the top.

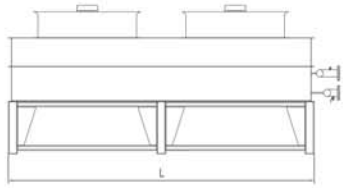










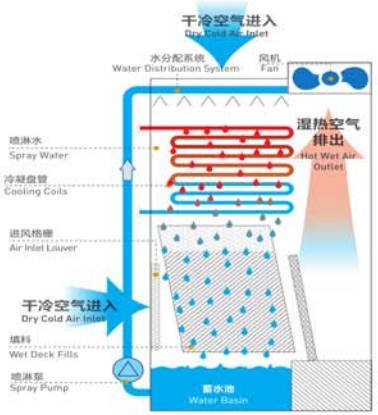


型号 Model No.	名义吨 Nominal Flow Rate (Ton)	风机 Fan		进水口 Water inlet/outlet	外形尺寸 (mm) Overall Dimensions(mm)			重量 Weight (kg)
		功率 Power (kW)	风量 Air Volumn (m^3/s)		长 L	宽 W	高 H	
GKM-90H	16	6	15	DN65	3200	1240	2350	950
GKM-110H	20	9	18.3	DN65	3900	1240	2350	1050
GKM-135H	25	9	22.5	DN65	4200	1392	2350	1250
GKM-160H	30	12	26.7	DN65	4500	1544	2350	1500
GKM-185H	35	12	30.6	DN65	4700	1696	2350	1700
GKM-200V	40	16.5	33.3	DN80	4500	2200	2150	2200
GKM-220V	45	16.5	36.1	DN80	4500	2200	2260	2500
GKM-250V	50	16.5	41.7	DN80	4500	2200	2420	3000
GKM-280V	55	16.5	47.2	DN100	5000	2200	2500	3800
GKM-315V	60	22.5	52.8	DN100	5000	2200	2650	4300
GKM-355V	65	22.5	61.1	DN100	5400	2200	2650	4950
GKM-400V	75	22.5	66.7	DN100	5400	2200	2780	5250
GKM-450V	85	30	75	DN100	5500	2200	2920	5800
GKM-500V	94	30	83.3	DN100	5600	2200	2800	6500

NOTE

Nominal Tons are based upon temp. drop 47~41°C/ 117~106°F, DBT 35°C/ 95°F.
名义吨基于工况47~41°C，干球：35°C

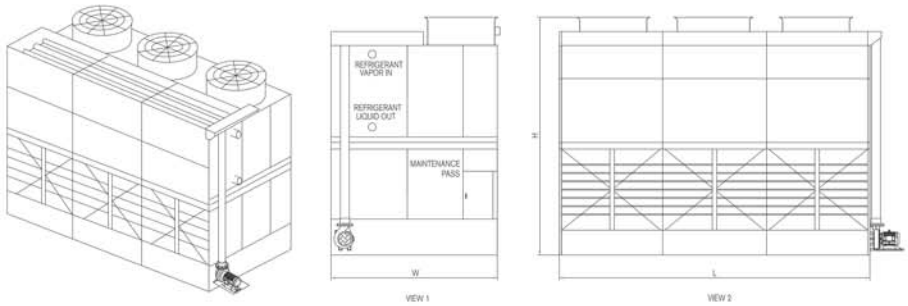
GZM SERIES



蒸发式冷凝器
EVAPORATIVE CONDENSER

GZM 系列蒸发式冷凝器材质与 GHM 和 GTM 系列相同，工作原理相似，但是蒸发式冷凝器用于冷却制冷剂，在此过程中，制冷剂产生相态的变化。在一个完整的蒸发式冷却系统中，压缩机排放出高压气态制冷剂，流入蒸发式冷却器盘管中，与盘管外的喷淋水进行热交换。在从盘管入口进入后，气态制冷剂在从上到下的过程中逐渐冷却成液态。风机强大的吸力使喷淋水均匀覆满冷却盘管，显著增加换热效率。部分受热后的水汽化后与气流一起带走大量热量。热空气中的小水滴被高效收水器有效拦截，收集并与受热后的热喷淋水一起落回填料，然后被流动的空气冷却，最终在降温后回到喷淋水槽。蒸发掉的喷淋水由水位调节器自动补水。

GZM Series Evaporative Condensers are made in the same types of materials as GHM and GTM Series, and of similar working theory as a type of Evaporative Coolers, but designed dedicatedly to cool process fluids of refrigerant, of which the forms are changed during the process.
In a complete evaporative cooling system, compressor discharges high pressure evaporated refrigerant in gas form, which passes through the heat exchange coils of evaporative condenser, and exchanges heat with spray water outside the heat exchange coils. After entering heat exchange coils from upper inlet, gaseous refrigerant is gradually cooled to be liquid form from top down. The strong wind of fans makes spray water fully cover the heat exchange surface of the coils evenly, and this tremendously increases the heat exchange efficiency. Partial calefactive spray water gets vaporized and takes away massive heat with the air flow. Small water drops in hot air are intercepted by high efficient drift eliminator, collected and fall back to wet deck fills together with hot spray water, then gets cooled by flowing air, eventually return to the spray water basin after temperature decreased. The evaporated spray water is made up automatically by water level regulator.



型号 Model No.	名义工况排热量 Nominal Heat Rejection (kW)	风机 Fan		喷淋泵 Circulating Pump		外形尺寸（mm） OverallDimensions(mm)			重量 Weight	
		功率 Power (kW)	风量 Air Volumn (m^3/h)	功率 Power (kW)	水量 Flow Rate (m^3/h)	长 L	宽 W	高 H	自重 Net (kg)	运行重量 Running (kg)
GZM-CX345C	345	4×1	65000	1.5	60	2740	1820	4105	1935	4035
GZM-CX460C	460	5.5×1	70000	1.5	60	2740	1820	4105	2085	4335
GZM-CX575C	575	5.5×1	78000	1.5	60	3210	1920	4145	2435	4985
GZM-CX690C	690	4×2	105000	2.2	130	3060	2240	4145	3315	5345
GZM-CX805C	805	4×2	105000	2.2	130	3460	2240	4145	3635	5885
GZM-CX920C	920	4×2	105000	2.2	130	3600	2240	4145	3785	6145
GZM-CX1035C	1035	5.5×2	120000	2.2	130	4360	2240	4145	4395	7355
GZM-CX1150C	1150	5.5×2	120000	2.2	130	4760	2240	4145	4745	8005
GZM-CX1265C	1265	5.5×2	120000	2.2	130	5160	2240	4145	5075	8645
GZM-CX1380C	1380	5.5×3	180000	2.2	130	5560	2240	4145	5855	9735
GZM-CX1495C	1495	5.5×3	180000	2.2	130	5960	2240	4145	6175	10365
GZM-CX1610C	1610	5.5×3	180000	3.7	170	5650	2240	4880	6535	10415
GZM-CX1725C	1725	5.5×3	180000	3.7	170	6000	2240	4880	6855	11005
GZM-CX1840C	1840	5.5×3	180000	3.7	170	6350	2240	4880	7175	11595
GZM-CX1955C	1955	5.5×3	180000	5.5	192	6800	2240	4880	7635	12335
GZM-CX2070C	2070	5.5×4	240000	5.5	192	7150	2240	4880	8405	13375
GZM-CX2185C	2185	5.5×4	240000	5.5	192	7500	2240	4880	8725	13965
GZM-CX2300C	2300	5.5×4	240000	5.5	192	7850	2240	4880	9035	14545
GZM-CX2415C	2415	5.5×4	240000	5.5	192	8200	2240	4880	9355	15135
GZM-CX2530C	2530	5.5×4	240000	5.5	192	8500	2240	4880	9665	15725
GZM-CX2645C	2645	5.5×4	240000	2.2×2	130×2	9070	2240	4880	9985	16315
GZM-CX2760C	2760	5.5×5	300000	2.2×2	130×2	9420	2240	4880	10765	17365
GZM-CX2875C	2875	5.5×5	300000	2.2×2	130×2	9770	2240	4880	11075	17955
GZM-CX2990C	2990	5.5×5	300000	2.2×2	130×2	10120	2240	4880	11395	18545
GZM-CX3105C	3105	5.5×5	300000	2.2×2	130×2	10470	2240	4880	11715	19135
GZM-CX3220C	3220	5.5×5	300000	2.2×2	130×2	10645	2240	4880	11875	19435
GZM-CX3335C	3335	5.5×6	360000	3.7×2	170×2	11000	2240	4880	12505	20195
GZM-CX3450C	3450	5.5×6	360000	3.7×2	170×2	11350	2240	4880	12905	20865

NOTE

Nominal Tons are based upon temp. drop 35~29.5°C/ 95~85°F, WBT 25.5°C/ 78°F, and 0.681 $m^3/hr/ton$.
名义工况基于冷凝温度36℃，湿球：26℃

SANJIU

产品优势
PRODUCTS ADVANTAGES

多种工艺冷却介质（水，水/乙二醇，油，其他液体）
Compatible with numerous process fluids (water, water/glycol, oil, other fluids)

- 产品塔体结构坚固
  Solid structure
- 各种部件的选择使用超耐腐蚀材料
  Super corrosion resistance of each component
- 采用国际知名品牌喷淋泵，风机直联连接，达到全行业最优耗电比
  Top brand of spray pump, Direct-drive fan, reach most optimum EER in industry.
- 公司所有系列塔型均通过 CTI 测试，且具有专业选型软件确保客户选型精准
  All series cooling towers passed CTI tests, professional software ensure precise model selction.
- 公司有强大 技术团队，可根据客户现场场地要求、防爆、噪音、颜色等要求定制化生产
  Powerful technical team can design customized solution match the particular site conditions, anti-explosion , noise, color requirements, etc.

五大顶尖设计 & 质量特点
TOP DESIGN&QUALITY FEATURES

1 全方位防腐保护 / Entirely& Corrosion Proof

- 外壳采用新日铁 / 浦项特殊合金镀层钢板，或不锈钢板
- 冷却盘管采用不锈钢，紫铜或适用化学流体冷却的钛合金管
- 框架结构和吊耳采用热镀锌板，螺栓紧固采用不锈钢或热镀锌

Enclosure made in Special Alloy Coated Steel from Nippon Steel/POSCO, or Stainless Steel; Heat Exchange Coils or Condenser Coils made in Stainless Steel, Red Copper, or Titanium Alloy Tube for Chemical Fluid Cooling; Structure Frame and Lifting Lug in H.D.G Steel, Fasteners in Stainless Steel, or H.D.G Steel

2 100%冷却能力保证 / Heat Exchange Performance Ensured

- 公司产品全系列通过CTI认证

All Series Passed CTI Tests

CTI CERTIFIED

3 稳固的塔体结构 / Solid Structure

- 合理的加强筋布置
- 塔体紧固螺栓紧密排布
- 冷却器下置，低重心，更稳固

Strong Reinforcing Bars
Intensive Fasteners
Low Gravity Center with Heat Exchanger in Bottom Section

4 便捷的维护&清洁 / Maintenance& Cleaning Convenient

- 宽敞的检修门
- 可视化的冷却盘管
- 集水槽高效排污
- 无需整塔拆卸，只需冷却器两端面板拆卸即可维修

Large Entering Access
Cooling Coils Section Visible
Water Basin with Efficient Drain
Easy maintenance only with taking down the side pannels of heat exchanger , without disassembling whole tower. Drain

5 单位效率高 / High Unit Power Efficiency

- 先进的系统设计
- 高效率直联风机，无减速机及皮带轮带来的能效损耗

Advanced System Design
Highly efficient direct-drive fan, without energy consumption of gearbox and belt

三九标准冷却塔采用最新高防腐镀层钢板，镀层主要含锌，2. 5%铝，3%镁和少量的硅。这种特殊材料被浦项成为“Posco”

Sanjiu standard cooling tower adopts the latest high anti-corrosion coating steel plate, which mainly contains zinc, 2.5% aluminum, 3% magnesium and a small amount of silicon. This special material is called "Posco" by Posco



超强防锈 EXCEPTIONAL RUST RESISTANT

表面防腐性能对比 Corrosion Resistance of Flat Surfaces

Conventional hot-dip Zn-coated steel sheets also produce a protective film. However, this film is rough in texture, allowing the penetration of moisture and oxygen and a resultant growth of corrosion.

By contrast, the dense protective film formed on the surface of Posco arrests the corrosion process and stabilizes corrosion behavior

Corrosion Resistance of Flat Surfaces (Salt Spray Tests)

Test time	Before test	500 hours	1,000 hours	2,000 hours
POSCO Thickness: 3.2 mm Coating mass symbol: K12 Special chromate treatment				

Specime	Type of coating	Coating mass	Surface treatment	Thickness
Hot-dip Zn-coated sheet	Zn	Z27	Special chromate treatment	1.6mm
POSCO	−3%Mg−0.2%Si Zn−2.5%Al	K18		
Galvalume Steel Sheet	Zn−55%Al	AZ150		

Test conditions:
Cyclic corrosion test (JASO M609-91 method)
Repetition of ① to ③ as a cycle
① Salt spray: 2 hours (5% NaCl, 35℃)
② Drying: 4 hours (60℃)
③ Wetting: 2 hours (50℃, humidity 95% or more)

Corrosion Resistance of Flat Surfaces (Results of JASO)

	90 cycles	180 cycles
Hot-dip Zn-coated sheet		
POSCO		
Galvalume Steel Sheet		

- 不仅表面具有超强防锈能力
- 板截面也具有卓越的防腐性能和自愈功能
- 而且有极高的抗碱性能
- Not only highly rust resistant on flat surfaces
- But also superiorly corrosion proof on cut-end surfaces, self 'recovered'
- In additional, of extremely high alkaline resistance

The corrosion resistance of this innovative alloy coated steel is enhanced by the composite effect of adding aluminum, magnesium and silicon to the conventional zinc coating. Silicon, among other elements, is highly effective in inhibiting corrosion when combined with Magnesium.

Corrosion Resistance at Cut-end Surfaces (Results of Salt Spray Tests)

Specimen conditions Thickness: 3.2 mm Surface treatment: No treatment	Hot-dip Zn-coated sheet Coating mass: 100 g/m²/side	POSCO Coating mass: 90 g/m²/side	Galvalume Steel Sheet (Laboratory trial-made sample) Coating mass: 90 g/m²/side
Salt spray test: 500 hours			

板截面防腐性能对比 Corrosion Resistance at Cut-end Surfaces

Results of Outdoor Exposure Tests

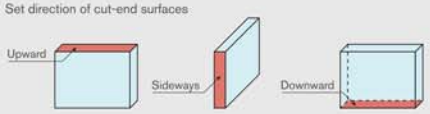
- In the actual exposure environment outdoors, a slight degree of initial red rust occurs on cut-end surfaces, but, after a while, a stable protective film covers the cut-end surface, thus virtually arresting further progress of corrosion in the long run.
- Red rust which occurs in the initial phase is arrested in progress, with time, by the effect of the protective film and, soon entirely covered by the film, becomes quite inconspicuous.

Corrosion Resistance at Cut-end Surfaces: Middle an d Latter Periods
(Results of Outdoor Exposure Tests)

Specimen conditions
POSCO
Thickness: 3.2 mm
Coating mass: 90g/m² /side (K18)
Surface treatment: No treatment

Exposure site: Nippon Steel & Sumitomo Metal's weathering site at Futtsu

Set direction of cut-end surfaces



Corrosion Resistance at Cut-end Surfaces: Initial Period

Specimen conditions
POSCO
Thickness: 3.2mm
Coating mass symbol: K27
Surface treatment: Special chromate treatment (Y treatment)
Exposure site: Urayasu Plant of KANEYASU Co.

	Downward
Original	
7 days	
14 days	
1 month	
2 month	
3 month	

	Upward	Sideways (The left is the underside in the photo)	Downward
8 months			
20 months			

优质原材料，领先技术设计，精密组装工艺，造就品质可信赖的三九冷却塔！
Superior Raw Materials, Advanced Tech Design, Precise Fabricating Equipments, All These Created Reliable Cooling Towers of SANJIU!

基本配置
BASIC CONFIGURATIONS

外壳 CASING

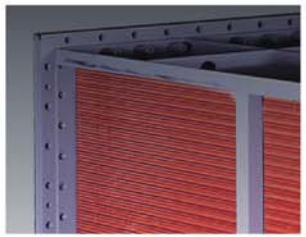
标准外壳采用原装进口覆镁铝锌板，经全自动数控机床加工，超强防腐。稳固的塔体，防止吊装时变形。

The standard enclosure is made of highly corrossion-resistant Mg-Al-Zn alloy coated steel, originally imported from Nippon Steel or Posco. The panels are sheared and folded precisely in whole cold machining process. Firm structure , preventing deforming during hoisting process in fields.

闭塔冷却器 CLOSED COOLING COILS

GHM/GTM 系列使用高效换热盘管。优化后的盘管有效减少空气侧的阻力，配合大量喷淋水工作，显著提高换热效率。冷却器包含一个或多个盘管，由钢结构支撑，坚固耐用。此部分是三九独有专利倾斜设计，方便排尽冷却流体。标准盘管使用不锈钢 304/316L 管，可选紫铜管。不同壁厚可满足客户各种需求。

GHM/GTM series adopt high efficient heat exchange coils. Optimized coils has effectively reduced air-side resistance, suitable to work with larger amount of spray water, and significantly improved heat transfer efficiency. The heat exchanger combines one or more coils supported by steel structure, firm and durable.This whole section is of patented design, easy to eliminate cooling medium fluid. Standard coils tube made in stainless steel 304/316L, or red copper on option. Different wall thickness can be met on request.



空冷器表冷器 DRY/AIR COOLING COILS

GKM 系列专用干式冷却盘管经特殊设计适用于干式冷却，盘管外壁环绕特殊形状铝或钢翅片，使换热表面和换热效率最大化。相间翅片间距可根据环境和项目现场情况定制。

The dedicated dry cooling coils in GKM Series is used exclusively for the purpose of dry cooling, fitted with particularly shaped aluminum or steel fins around the coils tubes, to maximize heat transfer surface and efficiency. The gap between the neighbouring
fins can be customized and depends on the environment and other working conditions of the project sites.

直联式轴流风机 DIRECT-DRIVE AXIAL FANS

GHM/GTM 系列采用直联式轴流风机，选用工程尼龙或铝合金叶片，达到完美平衡。向上垂直排出空气，避免空气回流。限制叶轮的叶尖速度，保证噪音在可接受范围。

GHM/GTM series adopt direct-drive axial fans, fitted with resin or al-alloy airfoil blades perfectly balanced . The fan draw the air vertically and avoid air recirculation. The tip speed is limited to keep the noise level acceptable.

非直联式轴流风机 NON-DIRECT DRIVE AXIAL FANS

GOM 系列使用非直联式轴流风机，选用铝合金叶片，机翼型设计，达到完美平衡，配合齿轮减速箱或皮带轮减速器。

GOM series adopt non-direct drive axial fans, fitted with al-alloy airfoil blades perfectly balanced and coupled with gear box or belts with spead reducer.

喷淋泵 SPRAY PUMP

标准喷淋泵采用川源卧式离心泵，电机产自 TECO，专为蒸发式冷却设备设计，大流量，低扬程。机械密封，不损轴心，不漏水，使用寿命长。全线不过载，泵在其性能曲线上任意工作点运转时，泵的消耗功率均不超过额定功率。外壳材质和安装方式可根据项目要求定制。

Standard spray pumps are of GZ horizontal centrifugal series from GSD brand, withTECO motor , specially designed for evaporative cooling equipments, large flow rate but low head. Mechanicseals avoid abrasion to shaft, no leakage in long service life. Overload protected on any point of the performance curve, not exceeding the rated power. Enclosure materials and installation arrangement can be customized .

预冷填料 WET DECK FILL

填料采用防火 PVC，特殊鱼脊形设计，喷淋水能均匀分布整个填料区域，使换热性能极致发挥，与进风格栅和收水器一体成型。100% 原生等级材料，产自可信赖供应商，恶劣环境下使用寿命长。

The fills are flame-retardant PVC with a special herringbone shape, to distribute water evenly over the entire fill area for maximal thermal performance. The raw materials are trusted 100% of virgin grade , with long service life in tough environment.

收水器 DRIFT ELIMINATOR

特殊设计的蜂窝状收水器达到完美收水效果，显著降低压降。由正弦波纹 PVC 片机械压型成波浪，构成封闭单元。这些细胞状单元迫使漂水滴液被流动气流带动形成三次显著方向变化。当空气迫使改变方向，惯性使水滴直线移动，导致撞击收水器并排回冷却塔。

Cellular Drift Eliminators are specifically designed to maximize drift removal, with significantly lower pressure drop. Sine-corrugated PVC sheets are pressed to mating waves, forming closed cells. When the air is forced to change direction, the inertia keeps droplets moving in a straight line, to impact the drift eliminator and drain back into the tower.

进风格栅 AIR INLET LOUVERS

先进设计蜂窝状进风格栅可改善进入冷却塔的气流，有效过滤杂质，防止水飞溅，否则可导致结冰，近水场损环以及不需要的水损失。设计限制阳光进入冷却塔，防止滋生藻类，减少噪音，美化冷却塔外观。

Advanced cellular air Inlet louvers improve air flow into the tower, avoid debris, water-splash, icing, near-site water damage, and unnecessary water loss. The deign restrict sunlight into the tower to impede algae growth, reduce noise and improve the appearance.

基本配置
BASIC CONFIGURATIONS

喷嘴 SPRAY NOZZLES FOR TOWERS

冷却塔专用喷嘴，聚丙烯注塑而成，喷嘴更换方便快捷，且使用寿命长。喷嘴的尺寸和种类选择根据塔的尺寸，流量和水质。

The special nozzle for cooling tower is made of polypropylene injection molding. The nozzle is easy to replace and has a long service life. The size and type of nozzles are selected according to the size, flow and water quality of the tower.

喷淋管 SPRAY PIPE

喷淋管采用 U-PVC 材质，产自台塑集团，具有机械韧性高，使用寿命长的特点，承压 1.0Mpa. 可直接从塔外检修，运行时也可方便检视。

Spray Pipes made in U-PVC from FPC, of high mechanical strength and long service life, holding pressure1.0 Mpa, accessible to inspect and maintain from outside of the tower, convenient to check with when running fully, completed with buttonholes for quick and tight installations of spray nozzles.

机械式自动浮水阀 FLOAT VALVE

耐用浮球阀，不锈钢材质，浮球采用塑料或不锈钢，使用寿命长。具有调节水位的功能。

Heavy duty floating valve, made in stainless steel, floating ball in engineering plastic or stainless steel, with long service life. Water level adjustable.

防旋涡滤芯 ANTI-EDDY FILTER

有效过滤杂质，防旋涡布置，防止气泡吸入泵内，与外壳使用相同材质，高效防腐。

Effectively filting the sundries, with anti-eddy arrangement, preventing air bubbles sucked into the pumps, punched in the same material as the enclosure, highly corrossion resistant.

紧固螺栓 FASTNERS

顶级品牌紧固螺栓，标准螺栓采用晋亿热镀锌处理，可选不锈钢。紧固强度高于平均水平。

Top brand fastening bolts, standard bolts adopt Jinyi hot galvanizing treatment, and stainless steel is optional. The fastening strength is higher than the average level.

选配件
OPTIONAL CONFIGURATIONS

控制柜
CONTROL PANEL

外壳板材采用粉末镀层碳钢或不锈钢，可选防雨设计。

The enclosure can be made in powder coated carbon steel, or stainless steel on options, with or without weather proof arrangement.

PLC 及触摸屏
PLC CONTROL

采用西门子 PLC 及触摸屏，如客户有定制化需求可采用用户指定品牌（如 ABB，台安或 AB）。

Siemens PLC control is available, customer apponted brand (ABB,TECO, AB etc.) is acceptable.

水处理装置
Water treatment unit

根据需求对水进行过滤净化除垢处理。

The water shall be filtered, purified and descaled as required.

变频控制
FREQUESNCY CONTROL

采用台安变频器，如客户有定制化需求可采用用户指定品牌（如 ABB 或三菱）。

TECO VFD is available, customer appointed brand (ABB, Mitsubishi etc.) is acceptable.

护栏和爬梯
PROTECTIVE GUARDS AND MAINTENANCE LADDER

保证维修方便和安全，材质选用热镀锌钢或不锈钢。

For maintenance convenience and safety, made in HDG steel or stainless steel.

超低噪音风机
Ultra LOW NOISE FANS

超低噪音风机设计，适合噪音敏感地区，可比标准风机系统降低6-12dB(A)。

Ultra LOW NOISE FANS

Fans with ultra low noise design,suitable for area with strict noise limit,6 to 12 dB(A) lower than standard fan system.

减震器
VIBRATION REDUCER

作为可选部件，在必须时有效降低震动，自然频率 2.16Hz-4.79Hz。

An optional part applied to reduce running vibration when necessary, of nature frequency 2.16Hz ~ 4.79Hz

防震开关
VIBRATION LIMIT SWITCH

当冷却塔异常工作产生异常震动时，可自动关闭冷却塔。

Used to switch off the tower automatically when the vibration is out of limit when the tower is working abnormally.

电加热器
ELETRICAL HEATER

用于某些地区和国家在冬季启动塔时加热结冰的水。

Applied to heat the freezing water when restarting the tower during winter season in some area

自动补水装置
AUTO MAKE UP UNIT

可选部件，用于自动补水，可与液位控制器配合使用。

An optional part to make up the liquid automatically, to be working together with liquid level controller.

定制化方案
CUSTOMIZED SOLUTIONS

不锈钢外壳（全塔不锈钢）
Casing in Stainless Steel

外壳喷塑
Surface Finish with Paint

一体化设计
Integrated Solution with Frame and Circulation System

防爆设计
Explosion Proof Treatment

钛合金换热器，超强防腐
Heat Exchange Section in Titanium for Superior Corrosion Resistant

干湿两用盘管
Water/ Air Cooling Hybrid

自动防冻设计
Auto Anti- Freeze Structure

防雾化型设计
Fog Dissipation Treatment

现场安装
Fabricating at Project Site

典型项目
TYPICAL PROJECTS

空压机冷却
Air Compressor Cooling

◆ 一汽集团 (四期)　First Auto Works (Stage IV)

◆ 一期　Stage I

◆ 二期　Stage II

◆ 三期　Stage III

高温合金
High Temperature Alloy

◆ 图南股份-高温合金特冶炉配套　Tunan- High Alloy Smelting Furnacesmelting furnace

典型项目
TYPICAL PROJECTS

真空炉冷却
Vacuum furnaceCooling

◆ 今飞集团--配套易普森工业炉　For Jinfei Holding Group

◆ 宁波合力--配套丰东工业炉　For IHI Feng Dong

注塑行业
Injection Industry

◆ 爱好笔业注塑机　Aihao Pen Injection Machine

典型项目
TYPICAL PROJECTS

电镀液冷却
Electroplate Liquid Cooling

◆ 嘉兴金鹰电镀　Jiaxing Jinying Electroplate

污水冷却
Sewage Cooling

◆ 污水系统冷却　Sewage System Cooling

典型项目
TYPICAL PROJECTS

高压机冷却
High-pressure Machine Cooling

◆ 洞庭山矿泉水　Dontingshan Spring Water

◆ 农夫山泉矿泉水　Nongfu Spring Water

冷水机冷却
Chiller Cooling

◆ 嘉善嘉源饮用水　Jiayuan Potable Water

典型项目
TYPICAL PROJECTS

新能源行业
New Energy Industry

◆ 锂电池隔膜用户　Lithium Battery Diaphragm User

◆ 锂电池电解液用户 Lithium Battery Electrolyte User

太阳能光伏行业
Solar Photovoltaic Industry

◆ 常州太阳能用户　Changzhou Solar energy User

典型项目
TYPICAL PROJECTS

钢铁行业(高炉、结晶器冷却)
Iron and Steel Industry (Blast Furnace, Crystallizer Cooling)

◆ 大型电炉冷却 Large Electric furnace Cooling

◆ 结晶器冷却 Crystallizer Cooling

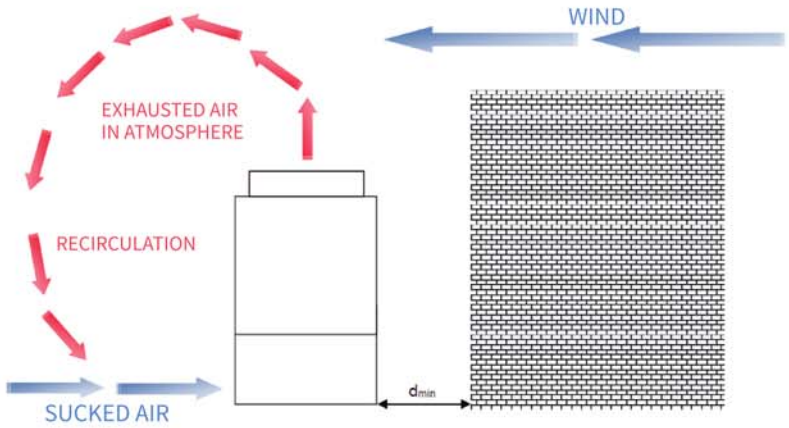
石化行业(甲醛、甲醇等)
Petrochemical Industry (Formaldehyde, Methanol etc.)

◆ 甲醛冷却 Formaldehyde Cooling

全新型
主动防冻节能闭式冷却塔

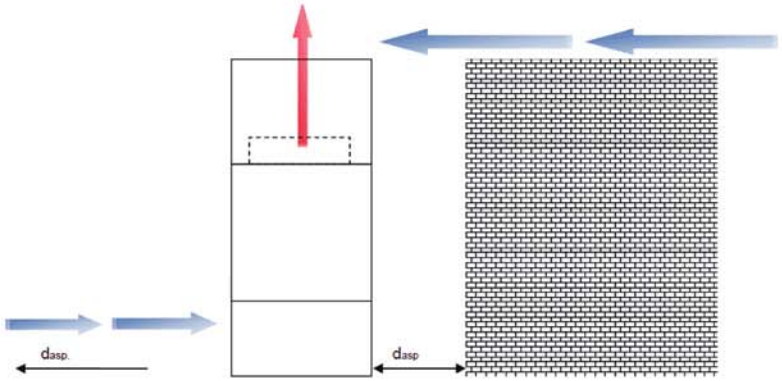
NEW
ENERGY -SAVING ACTIVE ANTI-FREEZE CLOSED COOLING TOWER

布置注意事项
INSTALL LOCATION SELECT



冷却塔安装位置不能靠近与塔等高或高于冷却塔的障碍物，防止热气回流，如图所示：

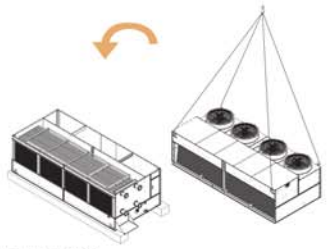
The Cooling Tower must be not installed near a wall higher than the tower, otherwise possible exhausted air recycling could be caused, and reduce the cooling efficiency.



如不能安装在空旷位置，为减少热气回流的影响，建议使用抽气罩增高排气区域高过障碍物。

In cases no better optional location to place the tower, advised solution is to apply an additional suction hood above each fan, as indicated in the above picture, to raise the expulsion level above the top of the obstacle.

拼装注意事项
REASSEMBLE GUIDES

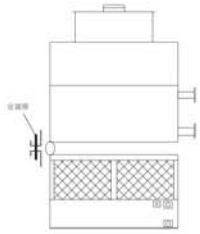


上下箱体拼装

吊起上箱塔体，对齐孔眼，使用金属棒插入四角相邻孔眼。

Reassemble of Top Section and Bottom Section

Lift the Top Section, position onto the Bottom Section precisely, with guide pins to adjust the positioning.



1. 金属棒用于定位，放于四角位置。
Metal guide pins for position matching adjusting
2. 密封条 Seal glue
3 板材折边 Mating flanges

喷淋水水质要求表
SPRAY WATER CONDITION

水质检测项目 Water Quality Measure	新一代复合涂层 New Generation Hybrid Coating	不锈钢304L Stainless Steel 304L	镀锌钢 Galvanized Steel
pH 值	6.5 to 9.2	6.5 to 9.2	6.5 to 9.0
钝化初期 pH 值 pH During Initial Passivation	below 8.2 (for units with HDG coil only) <8.2 仅冷却器材质为镀锌钢时	below 8.2 (for units with HDG coil only) <8.2 仅冷却器材质为镀锌钢时	below 8.2 (for units with HDG coil only) <8.2 仅冷却器材质为镀锌钢时
总硬度 Total hardness (as CaCO3)	50 to 750 mg/l	70 to 750 mg/l	50 to 600 mg/l
总碱度 Total alkalinity (as CaCO3)	600 mg/l max.	600 mg/l max.	500 mg/l max.
总溶解固体物 Total dissolved solids	2050 mg/l max.	2050 mg/l max.	1500 mg/l max.
氯化物离子 Chlorides	300 mg/l max.	300 mg/l max.	250 mg/l max.
硫化物离子 Sulfates*	350 mg/l max.*	350 mg/l max.*	250 mg/l max.*
电导率 Conductivity	3300 μS/cm	3300 μS/cm	2400 μS/cm
总悬浮固体物 Total suspendid solids	25 mg/l max.	25 mg/l max.	25 mg/l max.

* 允许使用更高浓度的硫化物，前提是氯化物 + 硫化物参数的总和不超过 500 mg/l（针对镀锌钢材质），650 mg/l（针对Baltibond材质和不锈钢304L）
注意：对于臭氧水处理应用，需要不锈钢 316L材质。臭氧水平应在至少 90% 的时间内保持在 0.2 ppm +/- 0.1 ppm，绝对最大峰值为0.5 ppm。

* Higher concentrations of sulfates is allowed, provided the sum of Chlorides +Sulfates paramaters does not exceed 500 mg/l for galvanized steel, 650 mg/l for Baltibond/SST 304L
Note: For Ozone water treatment applications, Stainless Steel 316L execution is required. Ozone levels are to be maintained to 0.2 ppm +/- 0.1 ppm for at least 90% of the time, with absolute maximum peaks of 0.5 ppm.