

# 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。

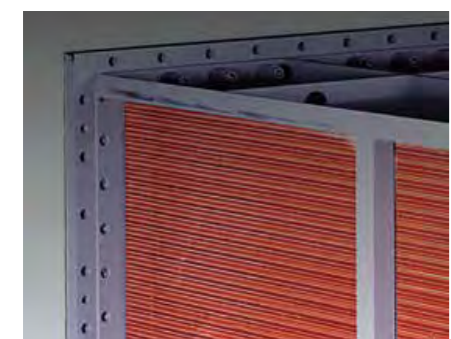
The standard enclosure is made of highly corrosion-resistant Mg-Al-Zn alloy coated steel, originally imported from Nippon Steel or Posco. The panels are sheared and folded precisely in whole cold machining process. Firm structure, preventing deforming during hoisting process in fields.



### 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 speed 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, with TECO motor, specially designed for evaporative cooling equipments, large flow rate but low head. Mechanic seals 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。

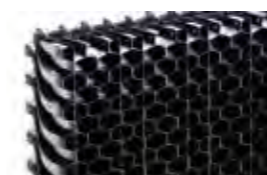
The fills are flame-retardant PVC with a special herringbone shape, to distribute water evenly over the entire fill area for maximal thermal performance. The raw materials are trusted 100% of virgin grade, with long service life in tough environment.



### 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，近水场损坏以及不必要的水损失。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 design restrict sunlight into the tower to impede algae growth, reduce noise and improve the appearance.

# 基本配置

## BASIC CONFIGURATIONS

# 选配件

## OPTIONAL CONFIGURATIONS



### 开塔喷嘴 SPRAY NOZZLES FOR OPEN TOWERS

GOM 系列专用螺旋式喷嘴，聚丙烯注塑而成，包含两部分，主体包含喷洒器和卡槽。喷嘴安装在布水盆的底部，通过重力使水覆盖填料，喷嘴更换安装方便快捷，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 Spiral Target Nozzles for GOM Series, injection molded in PP. The nozzles installed in bottom of the distribution basins, fully covered the fills by gravity, removable, replaceable, and long service life.



### 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 pressure 1.0 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.



### 机械式自动浮球阀 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，放旋涡布置，防止气泡吸入泵内，与外壳使用相同材质，高效防腐。

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



### 紧固螺栓 FASTNERS

顶级品牌紧固螺栓，标准螺栓采用达克罗处理，可选不锈钢。紧固强度高于平均水平。

Fastners of leading brands, standard materials in steel dacromet treated, stainless steel on options. Intensity of fastners is higher than average.



### 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 appointed brand (ABB,TECO, AB etc.) is acceptable.



### 循环辅助设备 CIRCULATION AUXILIARY SECTION

循环泵和水箱一体化设计，可根据要求进行管路设计。

Circulation Pumps with Transfer Water Tank, as an integrated solution of circulating system, with PID design on request.



### 变频控制 FREQUENCY 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.



### 护栏和扶梯 PROTECTIVE GUARDS AND MAINTENANCE LADDER

提供维修方便和安全，材质选用热镀锌钢或不锈钢。

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



### 超低噪风机 Ultra LOW NOISE FANS

超低噪风机设计，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.