

BASIC CONFIGURATIONS

STRUCTURE & CASING



The standard enclosure is made of the latest type of Highly Corrosion-resistant coated steel sheet with a coating composition consisting of Zn+Al(11%)+Mg(3%), and a trace amount of silicon, originally imported from Nippon Steel or Posco. The panels are sheared and folded precisely in whole cold machining process, then densely bolted and sealed for water tightness, with sufficient reinforcing bars, preventing deforming during hoisting process in fields. Each tower is completed with maintenance access and doors of maximized size, for internal inspection convenience. Heat exchange section is firmly supported by frame made in stainless steel, or H.D.G steel plated entirely after welding.

EVAPORATIVE COOLING COILS



The water cooling 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 304/316, or red copper and titanium ally on option. Different wall thickness can be met on request. Each coil is tested under continuous nitrogen gas pressure of 30 bar for 24 hours, ensure no leaking or weak point, with guarantee provided for 18 for both raw material and design of this critical section of an evaporative cooler.

DRY/AIR COOLING COILS



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. Dry cooling coils with suitable fin gaps can also work with spray water in cases the temperature drop becomes a challenge in the hot season, and save operation power greatly. Rest of specifications is common to above evaporative cooling coils.



DIRECT-DRIVE AXIAL FANS

The standard closed loop series adopt direct-drive axial fans, fitted with resin or al-alloy airfoil blades perfectly balanced and coupled to a weather proof TEFC three-phases electric motor. The fan casing is a galvanized steel cylinder to draw the air vertically and avoid the risk of recirculation. The tip speed of the impeller is limited to keep the noise level within acceptable limits.



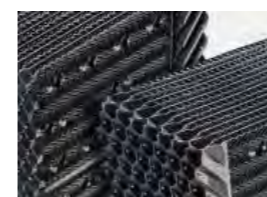
NON-DIRECT DRIVE AXIAL FANS

A part of open loop 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, to a weather proof TEFC three-phases electric motor. The fan casing is a galvanized steel cylinder to draw the air vertically and avoid the risk of recirculation. The tip speed of the impeller is limited to keep the noise level within acceptable limits.



SPRAY PUMP

Standard spray pumps are of GZ horizontal centrifugal series from GSD brand, with motor of brand TECO, specially designed for evaporative cooling equipments, of generally large flow rate but low pumping head. The selected pumps are of dynamic-static balance, with shaft as an extended section from the motor, for most reliable concentricity. With first grade bearings, the pumps runat minimized vibration and low noise. Mechanicseals avoids abrasion to shaft, no leakage in long term service life. Overload protected on any point of the performance curve, not exceeding the rated power during the whole working period. Enclosure materials and installation arrangement can be optional and modified to suit different projects requirements.



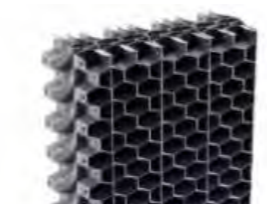
WET DECK FILL

The fills are formed in flame-retardant PVC sheets with a special shape design of herringbone surface, to distribute water evenly over the entire fill area for maximal thermal performance, can be integrated with air inlet louvers and drift eliminators. For medium fouled water, fill types with enlarged grids are available to reduce the chances of blocks. All the raw materials are of virgin grade from approved suppliers, with long service life in tough environment.



DRIFT ELIMINATOR

Cellular Drift Eliminators are specifically designed to achieve maximum drift removal, with significantly lower pressure drop. The modules are constructed of a series of sinusoidal-shaped, corrugated PVC sheets that are mechanically assembled to mating sinusoidal structural waves, forming closed cells. These cells force the drift droplets being carried in the leaving airstream to make three distinct changes in direction. When the air is forced to change direction, the inertia of the water droplets keeps them moving in a straight line, causing them to impact the wall of the drift eliminator and drain back into the wet section of the tower.



AIR INLET LOUVERS

Cellular air Inlet louvers with advaned design improve air flow into the cooling tower, keep out debris, eliminate water splash-out, which otherwise can cause icing, near-site water damage, and unnecessary water loss. The deign restrict the amount of sunlight into the cooling tower to impede algae growth, reduce noise from the tower, and improve the tower's appearance.

BASIC CONFIGURATIONS



SPRAY NOZZLES FOR OPEN TOWERS

The Spiral Target Nozzles used for GOM Series open towers, injection molded in polypropylene unit consisting of two parts, main body with integral target diffuser and a snap-on insert or orifice cap. The nozzles installed in bottom of the hot water distribution basins, to eliminate water diffusion decks below the hot water basins, provide full water coverage of the fills by gravity flow, removable and replaceable but of long service life. Sizes and variety depends on the tower size, water flow rate and water quality.



SPRAY PIPE

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.



FLOAT VALVE

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



ANTI-EDDY FILTER

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.



FASTNERS

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

OPTIONAL CONFIGURATIONS



CONTROL PANEL

The control panel is optional for each cooling tower, or a group of towers can share a central control station. The enclosure can be made in powder coated carbon steel, or stainless steel on options, with or without weather proof arrangement.



PLC DIGITAL CONTROL

In cases digital or remote control function required, the PLC can be applied and programmed according to the project demands, with or without PC connection terminal, usually of brand Simens or AB.



CIRCULATION AUXILIARY SECTION

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



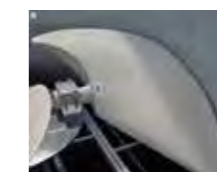
FREQUENCY CONTROL

An optional part to adjust the frequency of power supply.



PROTECTIVE GUARDS AND MAINTENANCE LADDER

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



LOW NOISE FANS

Fans with low noise design, suitable for installation locations with strict noise limit, 6 to 12 db(a) lower than standard fan system.



VIBRATION REDUCER

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



VIBRATION LIMIT SWITCH

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



ELETRICAL HEATER

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



AUTO MAKE UP UNIT

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