

TYSON CATALOG



Low Energy and Water Consumption
Easy Montage

Freva is a Member of **FORM** Group of Companies

ABOUT US

FORM Freva Soğutma Sistemleri A.Ş. with its dynamic engineering and manufacturing team based on more than 20 years of knowledge and experience, provides design, manufacturing and turnkey installation services of process water cooling equipment for the comfort and industrial sector.

The devices subject to activity are open and closed type cooling towers, hybrid type (which can operate as semi-wet-semi-dry) cooling towers, dry and adiabatic coolers, evaporative and adiabatic condensers and industrial type fin fan dry type coolers. Especially in today's conditions where energy and water resources are of great importance, our experienced engineer staff aims to support businesses in the process of deciding on the most suitable device for the future by making the necessary feasibility studies through our state-of-the-art product selection programs in order to minimize both energy and water costs in line with the demands of the sector.

MISSION

As FORM Freva Soğutma Sistemleri A.Ş., our mission is to establish a company that continuously develops itself with its dynamic and experienced engineer and manufacturing team, aims at maximum customer satisfaction, has environmental awareness, and pioneers design, project and production services for the expectations of all sectors.

VISION

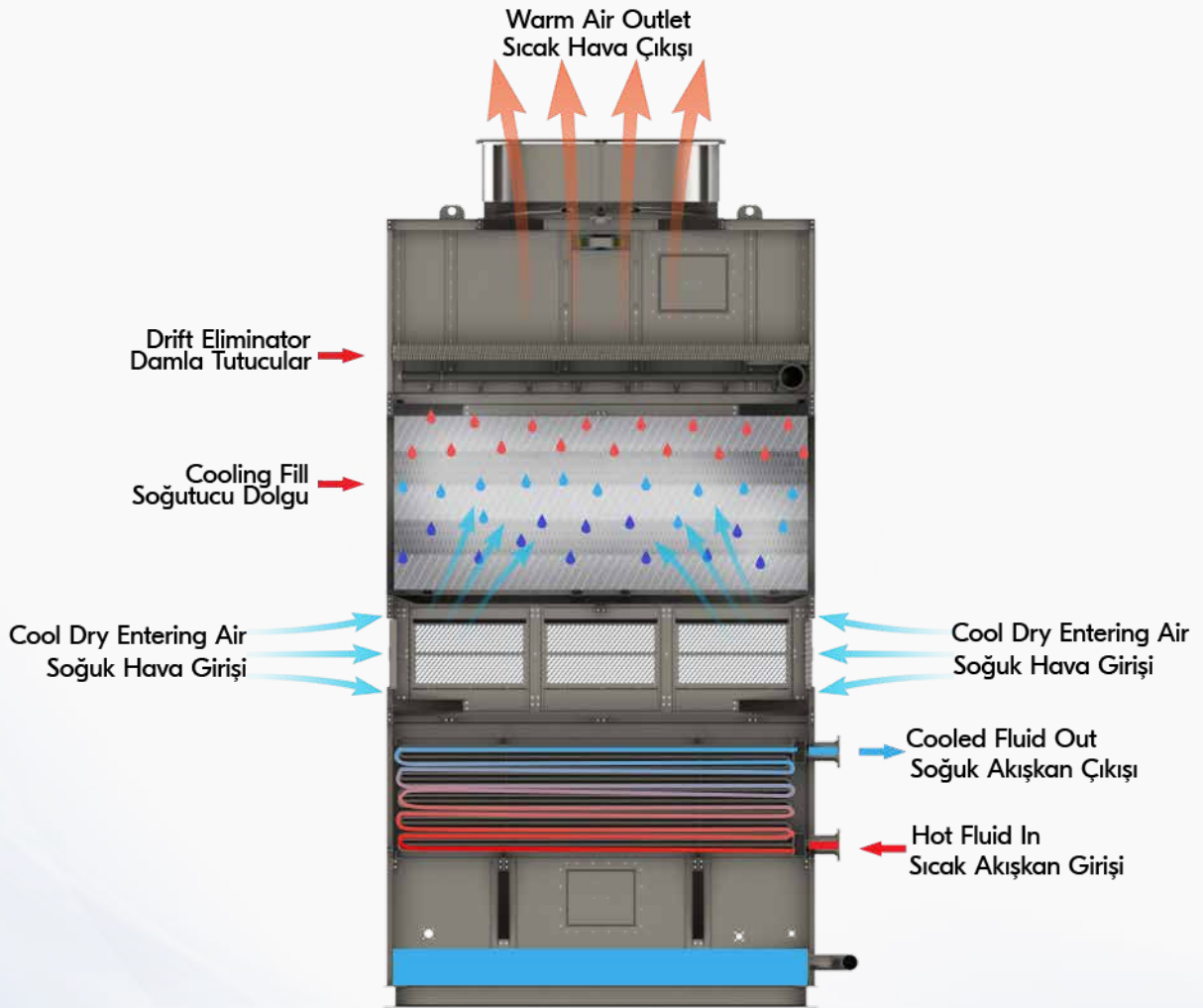
As a result of our R&D activities that we will carry out continuously, to be the leading brand that offers the latest technological products for the needs of the sector and is preferred.

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FREVA TY-SON Series Closed Circuit Cooling Towers with Fill Added

The fluid to be cooled enters through the sub-collectors of the heat exchangers in the Freva TY – SON series cooling tower via pumps and circulates in the heat exchanger pipes. The water in the basin is transferred to the water distribution system by means of the pump. In order to obtain maximum cooling efficiency, pre-cooling is done with the water that will come into contact with the coils, the filling material and the air coming from the louvers. In this process, air and water come into direct contact along the fill surface. A small part of the water sprayed on the fillings evaporates during this heat transfer process. In this way, the heat that is desired to be removed from the system is discarded. The water cooled in the filling material comes into contact with the surface of the heat exchangers and takes the heat of the fluid in the heat exchangers. The cooled fluid is sent back to the system from the collector located at the top of the heat exchanger.



Advantages of TY-SON Series Filled Closed Circuit Counterflow Water Cooling Towers

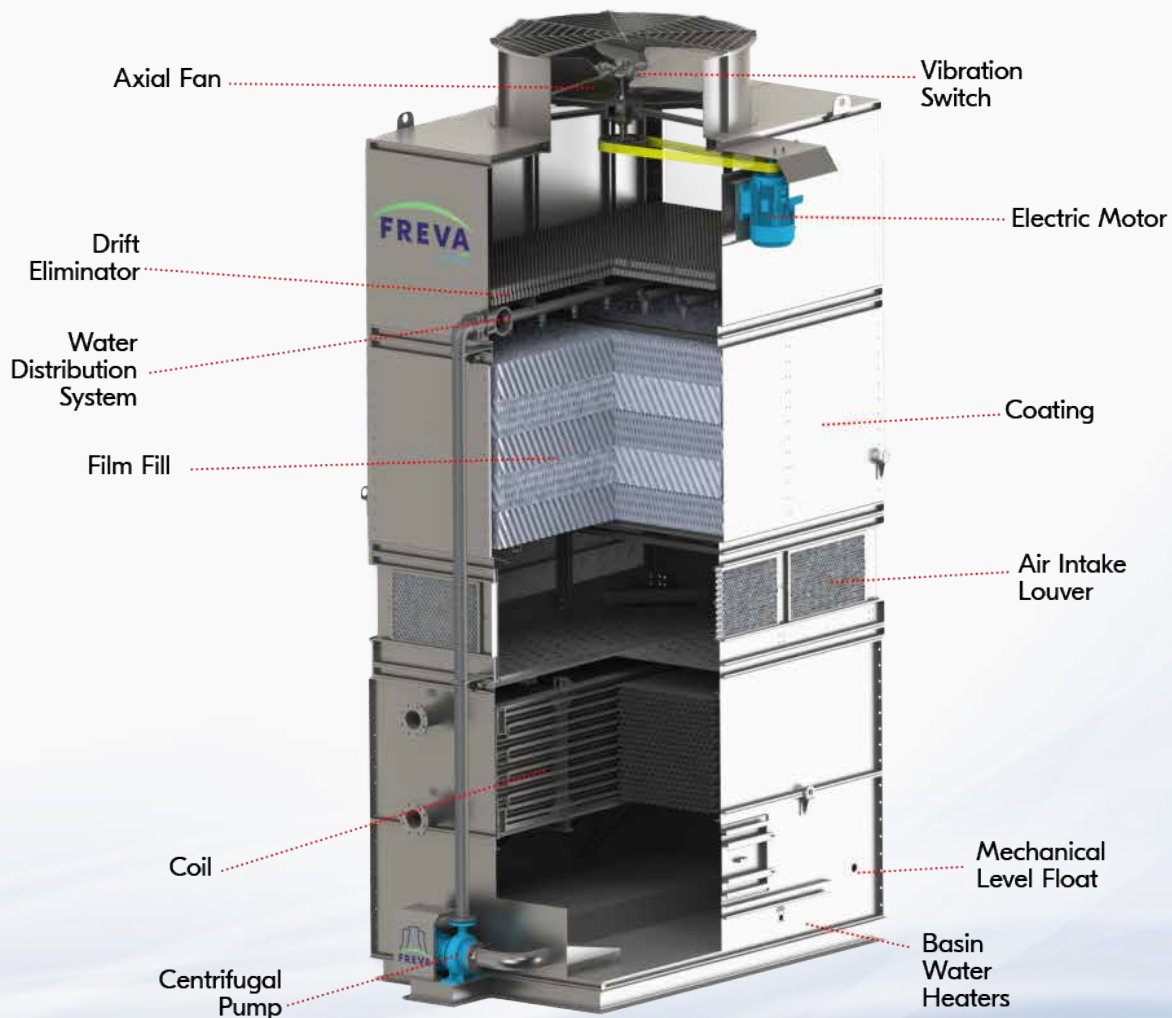


- Low electricity consumption
- High performance heat transfer
- Corrosion resistant
- Low water consumption
- Small footprint requirement
- Low sound levels
- Cleaner process fluid
- Cleaner interior surface area
- Higher efficiency
- Maintaining a clean and reliable system cycle.
- Keeping the system circulated water clean.
- Ease of maintenance, operation and commissioning.
- Reduced water treatment costs for evaporative equipment
- Reduced system maintenance costs

Information About Tower Models

TY-SON series closed circuit counter flow water cooling towers meet all the demands of its customers thanks to its wide product range. The model range includes tower models with low electricity consumption and high efficiency. It has cooling tower models with low sound levels with its ultra-quiet fan option, and container-sized products that offer comfortable transportation between continents.

TY-SON Series Closed Circuit Counterflow Cooling Tower Equipment



Centrifugal Pump



In all our models, volute, single-stage, end-suction, closed impeller and monoblock centrifugal pumps are used.

Coil



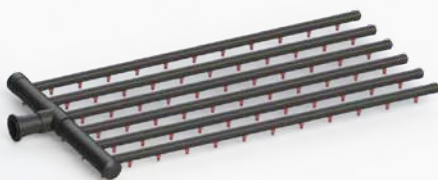
TY-SON series tower coils will be manufactured from high quality steel pipes with hydrostatic test and are subjected to hot dip galvanizing process after manufacturing. At the same time, we have stainless steel applications depending on the request of our customers. The coils are placed horizontally in the tower and are tested with 10 bar compressed air in the test pool.

Film Fill



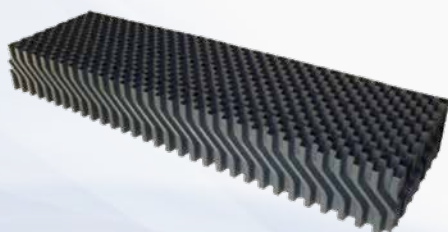
The fillings used in the TY-SON series are of our special design, and they are designed for maximum heat and mass transfer between air and water. Thanks to its special form, it delays contamination. Except for special cases, it is manufactured from PVC material. It has an operating resistance up to $-5 / 55^{\circ}\text{C}$ and is "ASTM E84 Cls. It is in the A" non-flammability class.4.3. Water Distribution System

Water Distribution System



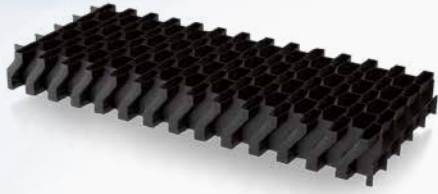
It consists of PVC process water distribution pipes and PP sprinkler groups. It is designed to distribute the process water evenly over the entire surface. Developed for high water delivery performance at low pressure. In this way, it provides energy savings in pump lines. It can be easily disassembled and mounted with the threaded connection.

Drift Eliminator



The drift eliminator used in the TY-SON series prevent the process water from leaving the circuit by air, up to 0.02% of the cycle water. This reduces water and chemical consumption. It is very light as it is made of PVC material. In this way, the water distribution system can be easily disassembled in case of maintenance.

Air Intake Louver



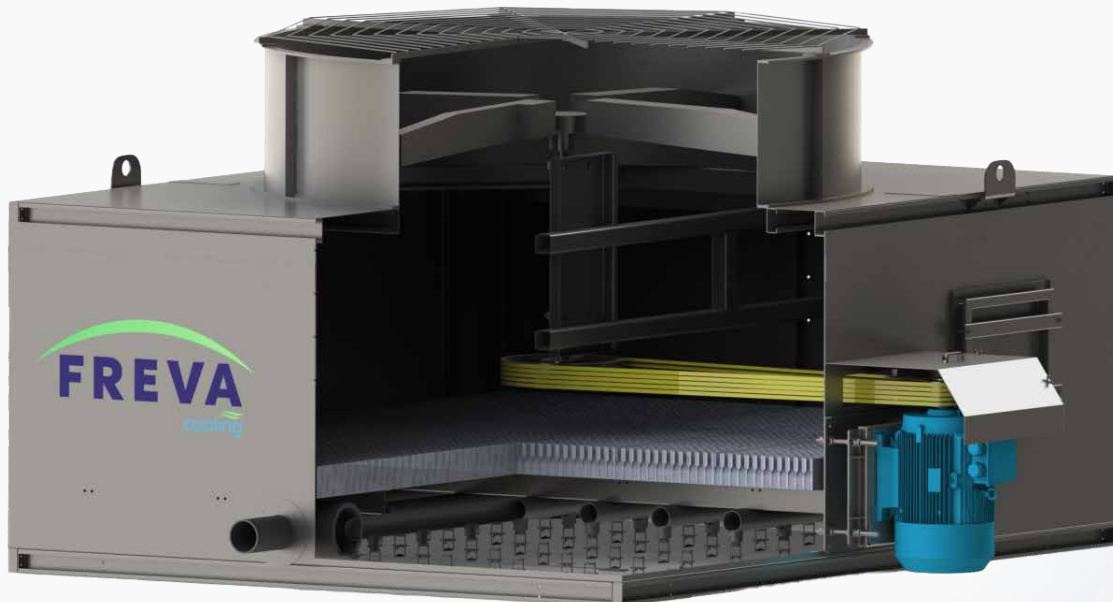
The louvers used in the TY-SON series allow to keep the water in the cooling tower inside and to keep the external pollution out. The design of the louver has been designed in such a way that it takes the fresh air into the tower in the most efficient way. Thanks to its special form, it minimizes the formation of algae by not letting the sunlight in.

Axial Fan



Fans in different models and material classes can be used in the TY-SON series. All fans used are manufactured according to the latest generations of their design classes. Silent, Ultra-quiet options and different material options are available for corrosion resistance.

Belt Driven Fan System



Belt driven systems are used in applications requiring lower fan speeds. It is generally used in applications with a fan diameter of 1800 mm and larger fan diameters. The system is driven by belts specially designed for the TY-SON series cooling tower. It provides long life with its multi-channel and high hardness. Belt drive system provides ease of maintenance. It provides low noise level on first take offs.

Direct Drive Fan System



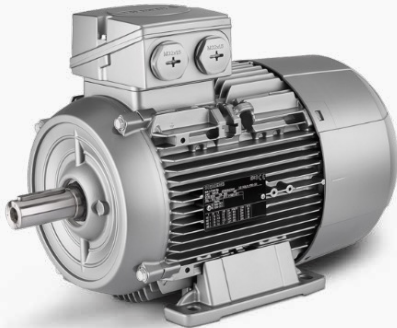
These are the systems in which the fan motors are directly coupled to the fan. It is the drive system applied for low fan diameters. It is easy in terms of maintenance and operation.

Gear Driven Systems



In gear driven motor systems, the motor and gearbox are on the same axis. Power transmission is provided by gears. The main component of the gearbox is gears, and the engine rotation speed is reduced by these gears

Electric Motor



An electric motor is a device that converts electrical energy into mechanical energy. Electric motors generate force by the interaction between the magnetic field and the winding current and are positioned above the carrier base. The motors used in closed-loop water cooling towers have IE3 or higher energy class. The electric motor is the component that creates the fan torque. The torque of the motor is transmitted to the fan by belt or gear.

Coating



The outer body material is generally produced from sheet metal containing 600 grams of zinc per Z600 square meter. The inner and outer surfaces of the sheets are coated with polymer-based epoxy paint. Stainless steel applications are also made according to the customer's request.

Basin Water Heaters



Required for cooling tower operation in winter conditions. The temperature of the basin water is controlled with the help of a temperature transmitter. This prevents the basin water from freezing. Copper and stainless steel materials can be used.

Mechanical Level Float



The float level valve is used for basin water level control, the float height can be adjusted with the horizontally designed arm. When the liquid level rises, the valve closes, or on the contrary, with the rise in the liquid level, the valve opens and begins to discharge.

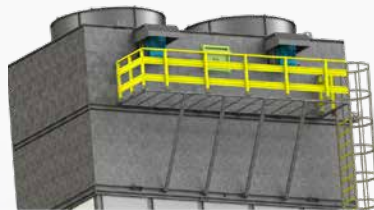
Vibration Switch



It is located at the top of the tower right next to the fan chimney. It detects the vibration in case of working with vibration in the fan group and ensures that the electric motor is deactivated.

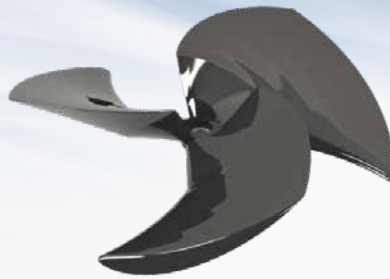
Our Optional Equipment

Maintenance Platform



We have specially designed platforms for the maintenance and repair of cooling towers. It is produced from FRP material as standard. It can also be produced as galvanized steel or stainless on special request.

Ultra Quiet Fan



Ultra-quiet fans are very quiet compared to expensive and bulky sound-damping equipment. Specially manufactured ultra-quiet fans produce a noise level of 20 db lower than conventional fans. Ultra-quiet fans are manufactured from 710 mm to 10.400 mm.

Different Color Options



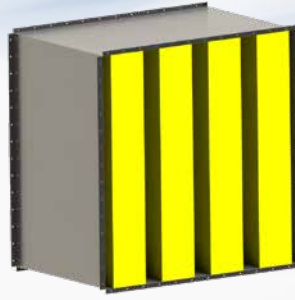
Desired color applications are available according to the needs of our customers. Different color options are offered after our customer specifies the color code they want.

Basin Sweeping System



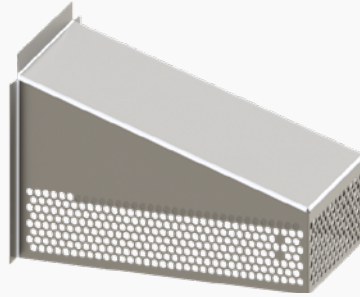
Thanks to our specially designed sweeping system installed in the tower basin, continuous water circulation is provided on the basin floor. In this way, the formation of sediment on the bottom of the tower basin is prevented, and the tower basin remains clean at all times. By preventing tower performance degradation, your tower will always remain clean.

Silencer



Desired sound level values are provided with special silencers designed to provide the desired sound levels in cooling towers.

Antivortexhood



If the pump is not supplied with enough water, it will run dry. As a result, unhealthy operation and malfunctions are inevitable. The main purpose of Antivortexhood is to protect the circulation pump against dry running and cavitation.

MCC ve DDC Elektrik Panosu ve Otomasyon Sistemleri



Su soğutma kulesi otomasyon panosu kule üzerinde bulunan Fan, Pompa ve Elektrikli ısıtıcıların çalıştırılmasını sağlamaktadır. Bu ekipmanların çalışması için pano iç öretme saçıında bulunan motor sürücü ekranları, butonlar ve sinyal lambalarından yararlanılır. Birinci fan sürücü sistemde Master olarak adlandırılır. Tüm kontrol senaryosu bu sürücü üzerinden çalışır. Kule çıkış su sıcaklık algılayıcı PT100 bağlanır. Sıcaklığa bağlı olarak PI kontrol ile hem kendini hem diğer sürücülerini çalıştırır. Kendi çalışması esnasında Pompa motoruna da çıkış vererek çalışmasını sağlar. Titreşim anahtarlarından alınacak sinyal ile çalışma ve durma işlemlerini gerçekleştirir. Elektrikli ısıtıcıya pano güç çıkışı sağlar ve bu çıkışın açılıp kapanması butonlar ile yapılır. Elektrikli ısıtıcı kendi termostatına bağlı çalışmasını gerçekleştirir.

Electronic Water Level Control



It is designed to control the pool water level electromechanically. Unaffected by variable environmental conditions, the water level in the basin is measured magnetically and brought to the desired level with a solenoid valve. The mains pressure should be at most 10 bar. Electronic equipment is also available for overflow or low water level alarms. In this way, the operation of the cooling tower is facilitated and the basin water level can be monitored from the central systems.

Filtration System



The water cooling tower filtration system filters the particles in the water cooled in the cooling tower and removes them from the cooling tower. In this way, the performance of the cooling tower will be increased. The risk of corrosion is reduced. It will provide low energy and chemical consumption.



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