

# CONSTRUCTION DETAILS

## FAN

Axial fan type with variable-angle blades, constructed in aluminium or Fibreglass reinforced polyester (FRP) and special protection against erosion on the attack side. The fan is selected so as the speed at the edge of the blade is in accordance with the noise level required.



## TRANSMISSION SYSTEM UNIDRIVE

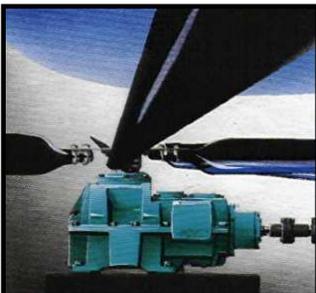
The transmission system UNIDRIVE developed by UNICLIMA consists of a set of pulleys and belts actuated by an electric motor.

It is characterized by:

- High energy efficiency electric motor, mounted inside of the airflow and with easy access for maintenance.
  - Drive pulley operating within box thus being protected from humidity.
- It is standard in models equipped with electric motors up to 37 kW.

## GEAR SPEED REDUCER

The Gear Speed Reducer is designed specially for Cooling Towers and is usually fither of angular or coaxial type. It is designed to absorb the static and dynamic effects as well as withstand the operating adverse conditions. The selection of the Reducer follows the recommendations of AGMA (American Manufacturers Association) in particular as regards to duty factor which is always greater than 2. It is normal for models equipped with electric motors above 37 kW.



## MOTOR

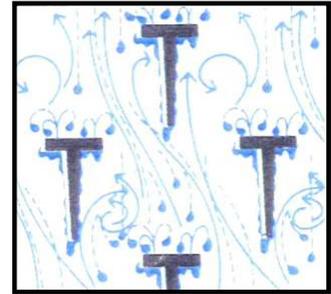
The electric motor used in this series is totally enclosed and autoventilated with IP55 protection. It is mounted on top of the tower inside or outside of the air flow.

It is dimensioned with a safety margin of around 20%. On request, it may have 2 speeds and prepared for the application of Frequency Converter which will allow to follow the heat load of the Tower and save energy.

## WATER DISTRIBUTION

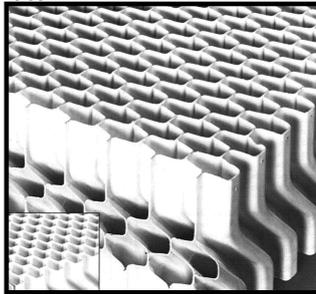
The water is distributed evenly over the surface of the Fill by an Evaporative Water Distribution System. This system consists of main and secondary tubes in PVC or GRP. The sprays of water are made of ABS and have low pressure. The sprayers are easily dismantled for inspection and cleaning. The connections of water inlet are equipped with standard flanges. Optionally they can be equipped with Open Channel and gravity flows with easy access for cleaning. This is recommended for waters with high levels of suspended solids, disposable and Towers with Block Evaporative type SPLASH.

formed by Plastic Grids USPP 43 model, in polypropylene, with high mechanical and thermal strength and with special design in order to drip and splash the lower grills, mounted alternately. The grids may be supported by stainless steel rod and plastic parts of high resistance. The geometry of the system can assemble and disassemble for cleaning the grids.



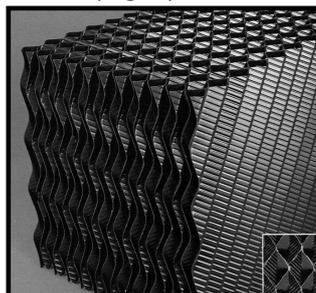
## DRIFT ELIMINATORS

The drift eliminators are manufactured with PVC sheets with three changes of direction. Drift losses shall be limited to less than 0,002% of the circulating water rate.



## FILM FILL

For clean waters the Fill is formed of PVC sheets with ribbed waves and embossed in vacuum which are overlaid with diagonal alternating tilt to cause turbulence in the two fluids (water and air) in counterflow. For water with low concentration of dirt passage, the aperture is greater and they stand in upright position.



## SPLASH FILL

For waters with high dirt concentrations, the Fill may be of the SPLASH type

## DRIVE SHAFT

Drive shafts are manufactured in carbon fiber with components in stainless steel AISI 316 resistant to corrosion caused by chemicals from the water and the industrial environment. Its light weight contributes for a very good balance over the years. The stainless steel shafts due to its weight may present disturbances of balance resulting in vibration after some time.



## VIBRATION SWITCH

The set of Motor, Gearbox and Fan is equipped with a Vibration Switch. If there is abnormal vibration the Electric Motor will shut down automatically resulting in a visit to the Cooling Tower by operating staff to detect the cause of the vibration, thus sparing any equipment damage.

