

# SCAM T.P.E.

## DESCRIPTION WATER COOLING TOWER *TAS/TASF* (\*) *SERIES*



The *TAS / TASF SERIES* are dedicated to every industrial sector with a modular conception. These models are characterized by SCAM T.P.E. S.r.l. well defined standards and are supplied with a preassembled structure in hot galvanized steel according to EN ISO 1461 standard. The *TAS / TASF SERIES* are equipped with sandwich insulated walls (22-26 mm thick) made of expanded polymer covered by FRP, which guarantees an excellent aesthetics and a higher durability.

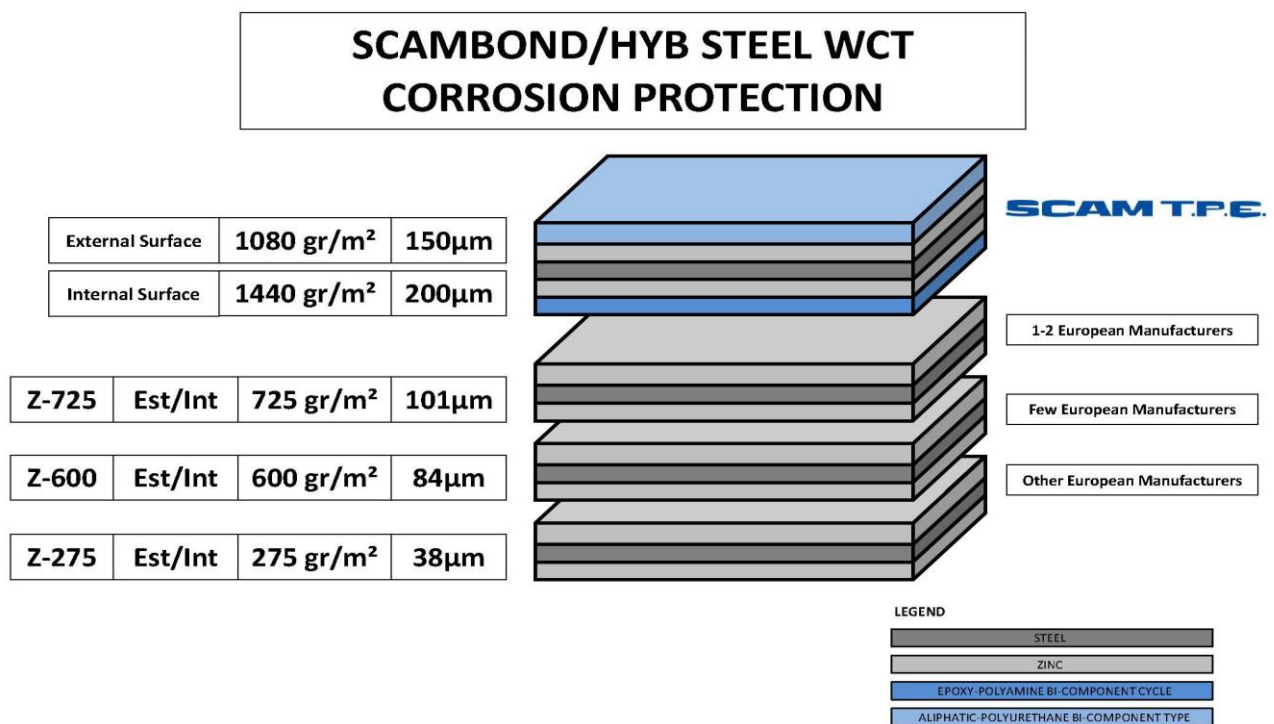
The stacks and the collecting basin are supplied with an hybrid treatment at high thickness (> 1000 gr/m<sup>2</sup>), effected on wrought carpentry SCAMBOND/HYB made up of a first galvanizing coat on blasted surfaces Sa3 ISO8501-1 plus a specific epoxy-polyamidic bi-component cycle and further applying on it another coat of aliphatic-polyurethanic bi-component type.

The *TAS / TASF SERIES* are characterized by dimensions compatible with road and ocean transport. The ordinary maintenance and sometimes even the extraordinary one is ensured by oversized inspection doors placed for every cell / fan unit.

These models can be equipped with completely removable walls, for an immediate and easy inspection.

The fan units are planned for a long life and with components of utmost quality, with a very easy maintenance program.

The SCAMBOND/HYB protection system is among the most complete exterior protection cycle available on the market without having to pass to the stainless steel (which has, in any case, various limitations due to its metallurgy), developed during several decades of experience and many tests on field.



*What is it ?*

It's an hybrid treatment effected on wrought carpentry made up of a first galvanizing coat on blasted surfaces Sa3 ISO8501-1 plus a specific epoxy-polyamidic bi-component cycle and further applying on it another coat of aliphatic-polyurethanic bi-component type.

(\*)*TASF SERIES* is characterized by a basin with DURABOND/HYB protection cycle instead of SCAMBOND/HYB. This protection system, on internal surface, consists of three fiberglass layers on wrought and blast cleaned surfaces, which guarantees an excellent corrosion resistance.

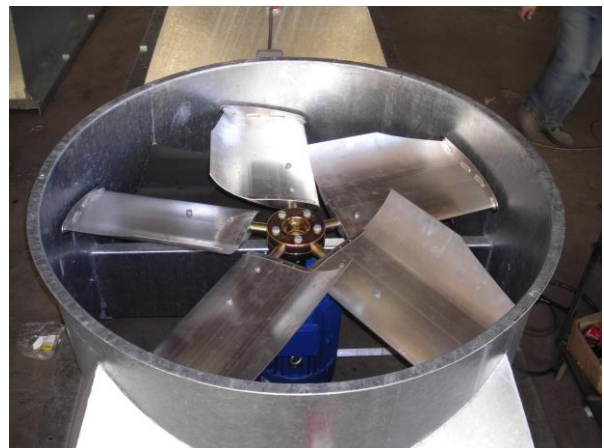
## FAN UNIT

For *TAS / TASF SERIES* of classic induced execution towers, the choice concerning the type of fan is almost obliged. The electric motor is placed inside the saturated air flow, the motor foreseen for utilization in saturated ambient is asynchronous three-phase TEFC with SKF bearings type 2RSC3, with watertight oiled, IP55 + SCAM T.P.E. S.r.l. specifications which ensure durability. On the same an axial fan in fiberglass or in aluminum alloy is placed. The main characteristics are the stacks with or without dynamic pressure recovery.



Axial fans : With multiblade solution, have the function to ensure the cooling tower with the necessary air volume. The axial fan is placed on the cell high section (levelled with tower planking level) and it is directly coupled on the motor drive shaft. The high efficiency blades are of asymmetric profile “NACA” aeronautic type, balanced with “PALA MASTER” system; all the blades are equipped with the adjustable incidence solution with still fan in order to better optimize the tower performances and the electric power consumption. The constituent materials are the galvanized steel for the hub and the 6060T5 aluminum (or FRP) for the blades.

Electric motors : are planned for severe conditions with continuous working type S1 asynchronous three-phase TEFC with SKF bearings type 2RSC3 with watertight oiled IP55 + SCAM T.P.E. S.r.l. specifications. They are placed inside the flow crossing the truncated cone stacks for a better fluo-dynamic distribution. The electric motors frames are designed to transfer the dynamic loads to the cooling tower structure, minimising vibrations and allowing an easy and intuitive maintenance.



All the rotating parts outside the stack are protected against accidental interferences in accordance with the most updated safety standards.

### Unexpected vibration switch :

All the fan cells / groups are equipped with a switch cutting the motors power in case of excessive vibrations and it is contained outside the fan duct.



## STACKS

All the mechanical groups in each cooling tower cell has an high thickness steel stack with SCAMBOND/HYB protection. Each stack has a circular inlet junction and a pyramidal section, the outlet section is designed to reduce pressure and at the same time recover pressure obtaining an high efficiency of the axial fan. The stacks are fixed to the structure through dedicated bolts by securing them to the tower planking level.

## WATER DISTRIBUTION SYSTEM

Inside the cooling tower upper section is placed the distribution system of “pressure” type. It is composed by a main channel connected to secondary ones whereon the spray nozzles are placed to ensure a water uniform distribution upon all the dispersion section.



The a.m. nozzles are of **Eco** type. This innovative spray nozzle has been designed to reach the following main goals:

- ✓ Large square water distribution (approximately 1 m<sup>2</sup>) in order to avoid any possible overlapping of the nozzles distribution on the same dispersion surface.
- ✓ Uniform hydraulic load in order to avoid any air bypass where the load is low and not equally supplied.
- ✓ Lower distance between nozzle and filling (600mm) in order to reduce the pumping elevation.
- ✓ Low pressure of utilization in order to reduce the pumping elevation.



- ✓ Self cleaning surface by means of dedicated hydraulic impeller.
- ✓ Anti clogging.

## TECHNICAL DATA SHEET ECOJET S-L

MATERIAL :	PP
DIAMETER RANGE:	23 to 40 mm
OPERATING PRESSURE:	0,03 to 0,3 bar-g
WEATER DISTRIBUTION:	Static cone + impeller
CONNECTIONS :	PE Adaptor

## COOLING TOWER STRUCTURE

The structure is characterized by profiles made of galvanized steel using hot immersion process according to UNI EN ISO 1461 standard. The main features are stainless steel bolts, lightness and solidity of the main structure.



## LADDERS AND HANDRAILS

All cells of *TAS / TASF SERIES* are equipped with the following items, designed in accordance with the most updated safety regulations and to satisfy the most demanding plant standards:

- ✓ Back-up frame to mechanical groups.
- ✓ Safety handrails.
- ✓ Access ladder to deck.



## INCLUSIONS AND EXCLUSIONS

## INCLUSIONS

- ✓ Thermal and hydraulic design.
- ✓ Basic design and water collecting tank loads design.
- ✓ Detailed calculation of the back-up frame.
- ✓ Internals and equipments drawing.
- ✓ Mechanical groups drawing.
- ✓ Quality Certificates.
- ✓ Structure.
- ✓ Casing.
- ✓ Fan Stack.
- ✓ Internal dispersion.
- ✓ Drift eliminators.
- ✓ Distribution system.
- ✓ Spray nozzles.
- ✓ Accessories (Vibration switches).
- ✓ Electric motors.
- ✓ Axial fans.
- ✓ Ladder from the basin to the tower planking level (optional).
- ✓ Inspection ladder to the drift eliminators (optional).
- ✓ Inspection doors.

## EXCLUSIONS

- ✓ Location.
- ✓ Spare parts for 2 years operation.
- ✓ Water treatment.
- ✓ Hot water supply pipe from ground to cooling tower (expansion joint, risers, valves).
- ✓ Chemical products and chlorine injection.
- ✓ Make up blow down connections (valves excluded).
- ✓ Pumps.
- ✓ Lightning and grounding.
- ✓ All that was not specifically listed in the inclusions chapter.

## BATTERY LIMITS

HYDRAULIC : Water inlet flanges.

ELECTRICAL: IP66 terminal boxes placed on the ventilation ducts ( wired vibraswitch in the same box to flow into a unique point of electric connection).

INSTRUMENTATION : Not wired equipment inside a dedicated external box.