

IHS® - Induction Humidification System



Realized after years of research as a natural evolution of **SWS®** high pressure saturation, today **IHS®** represents the excellence in humidification systems - evaporative cooling, with performances never obtained before: a COPH - Performance Coefficient - higher than 40 and a SEH, Saturation efficiency rate equal to 100%.

By way of comparison, the best results achievable today by other systems available on the market do not exceed COPH 10 and SEH 50%, i.e. while IHS® requires 1kWh of energy consumption to humidify and / or cool an environment, traditional systems require at least 4kWh, four times more, and while IHS® is able to supply the air with 100% processed water, the other systems require more than double quantity to obtain the same result.

IHS® has a specific capacity for humidification and cooling that has no equal, the result of 4 years of research and designed in conformity with the strictest hygiene requirements, **the only** adiabatic saturation system which complies with **VDI 6022**; its operation ensures that the treated air does not contain pathogenic spores or dangerous substances, with a better indoor climate and optimal well-being and performance.

The IHS® cooling and humidification system has been awarded by the **European Community** as part of the **Horizon 2020** project, a European framework program for research and innovation, launched in 2017 to support the best entrepreneurs and scientists in launching their innovative ideas on the market.

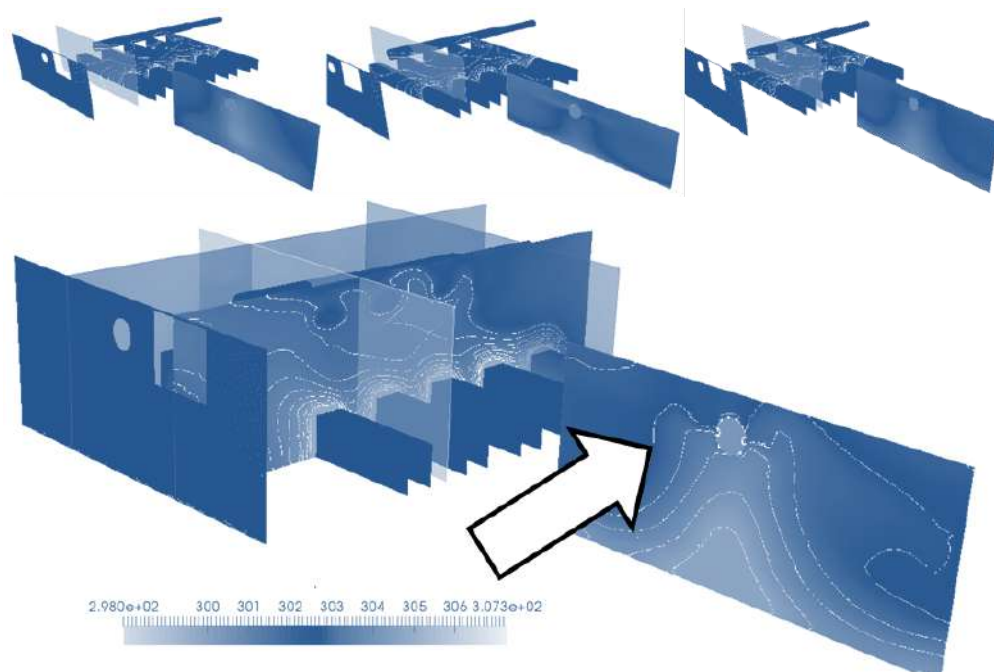
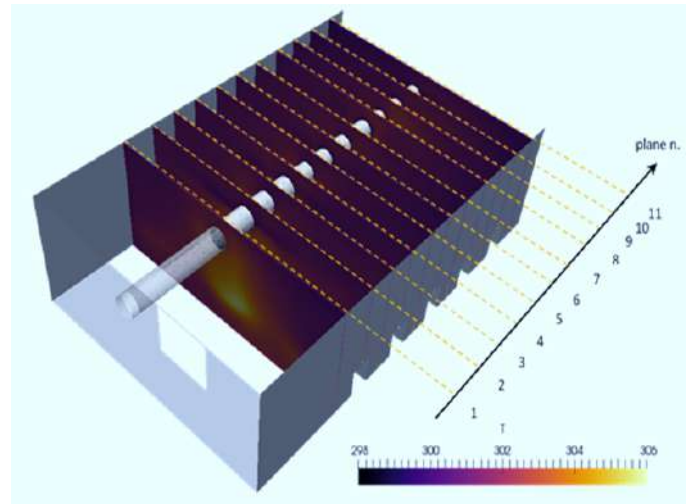
The recognition was awarded after the achievement, following a highly competitive evaluation, of the **"Seal of Excellence"** in which the IHS® project was evaluated as a proposal of high quality and innovation compared to the technologies currently available on the market.



IHS® has an easy and safe operating principle: one or more air distribution ducts in the dept., with a circular section, are equipped with suitable holes placed on the circumference in such quantity, size and position as to create an inductive phenomenon, a recall of air from the dept. that amplifies the circulatory movement of the air ambient.

The design software, created in cooperation with the Aerospace division of the **University Politecnico di Milano** -, allows to define the correct sizing of inductive ducts and their effect on the complete treated volume.

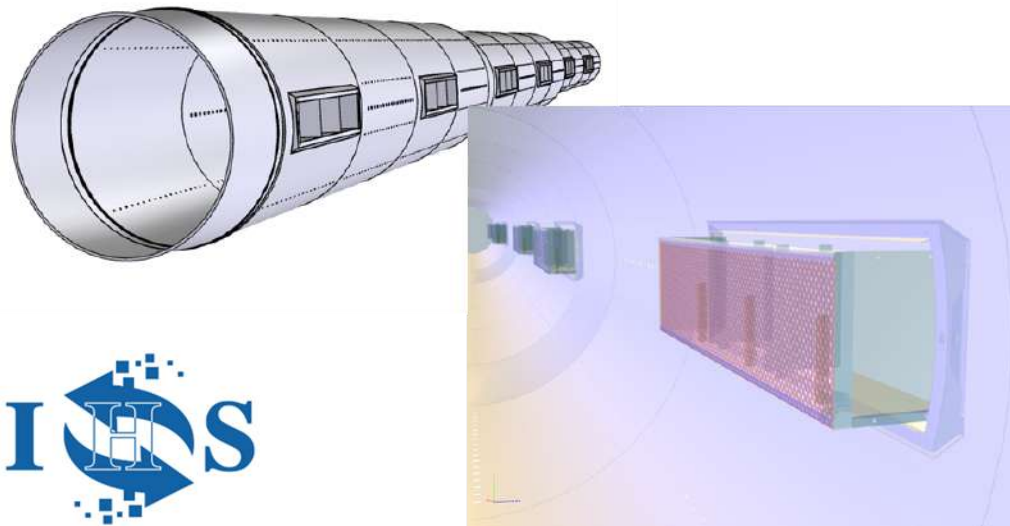
This ensures that whatever the layout of the production machines, the overall dimensions and thermal loads, with IHS® the complete air volume will be treated uniformly, with a residual ground speed lower than the most strictest values required.



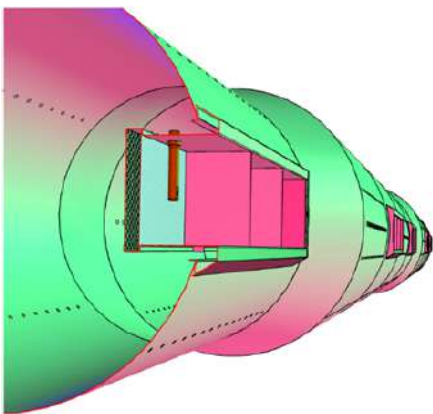
The modelling software is not limited to the realization of the mathematical model of the air flows in the production area but represents the thermo-hygrometric conditions of the treated area, useful for defining the position, number and total capacity of the nebulization system to ensure the homogeneity of the required thermo-hygrometric conditions in every position.

Each duct is sized for an inductive factor equal to 10/1, induction which brings the air in continuous circulation in the department to a value 10 times higher than what is conveyed through the supply air fans.

In the positions defined by the software, a set of pulse diffusers supply into the treated area the quantity of water required for the process.



The pulse diffusers have a dual purpose, to move the air flow inducted near the IHS in the required direction, and to supply water for humidification and / or evaporative cooling, finely atomized in a flow of laminar air, protected by turbulence in its first supply section and before being captured by an enormous flow of ambient air recalled by inductive ducts with patented technology.



Already at two meters distance from the diffusers and under normal department load conditions, the water is completely evaporated and absorbed by the ambient, with levels of over-saturation never obtained before and, for the first time, with completely dry air distribution ducts.

Any possible dripping into the ambient is avoided thanks to a sophisticated control system for the atomization pressures, modulating but always at the optimal operating conditions, and with the use of automatic valves that close the hydraulic circuit when the pressures are not in the desired range.

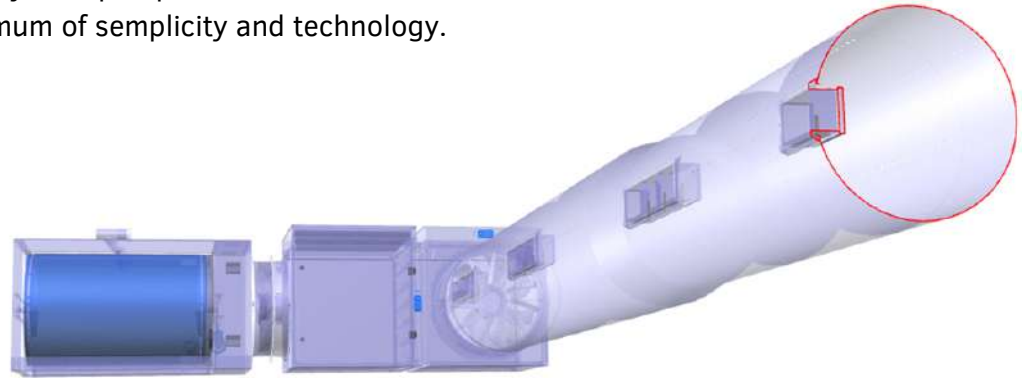
The quantity of nebulized water is constantly calibrated by a new volumetric pump characterized by the total absence of maintenance, supplied in a pre-assembled skid, completely made in stainless steel, water lubricated without any valve, mechanical seal or oil sump. The skid includes zone and partialization valves, all necessary sensors for the process, electric motor and on-board driver.

Powered by a reverse osmosis water treatment system, IHS is practically free from any maintenance.

SUPRA® II

The new hanging units type **SUPRA® II** are the ideal engine for IHS® humidification systems, designed to realize easy but sophisticated air conditioning systems.

Powered by brushless motors in IE5 efficiency, with variable capacity and built-in driver, the same used for the IHS® system pump drive, today they present the maximum of simplicity and technology.



The **SUPRA® II** units are wired in a simple and economical way, the power supply alone is reserved for motor drivers, field sensors, servomotors, they are all inter-connected with Modbus technology, an economical single-wire system able to conveying field feedback for a careful and complete system monitoring; also the pump and fan motors ensure economical and easy-to-make wiring, a simple “shieldless” cable for power supply as the driver is on board the motor, can be monitored and configured also via Bluetooth through a dedicated App supplied together with the regulation system.

The heart of the system is the new fan heads **ecoBlu** which represent the best of the state of the art in ventilation technology; a pressure die-cast fan with sickle profile and serrated air outlet to limit acoustic resonances.

The brushless motor with IE5 efficiency, the driver on-board, the thread rectifier placed at the fan outlet and housed in a diffuser for the recovery of the dynamic pressure, make the ecoBlu ventilation units the most efficient equipment for air supply actually on the market.

