



## DriSteem and Sima engineer a humidification solution for aircraft paint booths

### RESULTS

- Maintaining required relative humidity without raising the air temperature in multiple, separately controlled paint booths.
- Keeping the customer's operating costs down. Evaporative humidification requires less energy than steam humidification.

### THE JOB

One of Europe's major international airlines with their main service center in Paris, France, built an aircraft maintenance facility near the Charles de Gaulle Airport in 2015. The design called for 16 separate, isolated booths for washing, blasting, and painting aircraft components. With the addition of giant ovens, the facility would be fully equipped to strip and repaint the entire fuselage, wing, and tail sections of commercial jets.

The airline stated, "The new premises must be a centerpiece in ease of use, power efficiency, and reliability. These are the key requirements of this concept."

Headquartered in Belgium, Sima is an international leader in the manufacture and distribution of painting and drying booths for aeronautical, industrial, and automotive applications. Sima's experience in these areas gives them a reputation for designing quality systems with proper ventilation and optimum temperature and humidity, all of which are critical for surface preparation, curing time, and coat adhesion. Sima's reputation won them the job — all prep booths, paint booths, ovens, and paint mixing rooms in the facility.

### THE CHALLENGE

Sima technical manager, Luc Demolder, had a challenge: Find a humidification system large enough for the job, capable of tight relative humidity control, and able to humidify without adding heat to the airstream. Demolder contacted DriSteem European sales manager Marc Briers.

Briers explained how Demolder knew about DriSteem. "Luc and I crossed paths on previous jobs, and he remembered that we can efficiently humidify without heat gain. I knew that our high-pressure system was a sure candidate for the airline's new facility."

### THE SOLUTION

Briers and Demolder worked on a design that incorporates multiple DriSteem high-pressure systems into the facility. Five high-pressure pump stations supply



Aircraft are disassembled, then reassembled after a fresh coat of paint (photo courtesy of Sima: [www.sima.be](http://www.sima.be))

Because heat from the air is used for evaporation, the high-pressure systems add no heat to the airstream.



Aircraft paint booth. Bright, clean, and perfectly humidified and ventilated by DriSteem and Sima.

pressurized reverse-osmosis water to dispersion grids in five, separate air handlers. Hundreds of atomizing nozzles in the dispersion grids break the water into ultra-fine particles (10 microns or smaller).

The atomizing nozzles are located downstream from gas-fired burners that are used in each air handler to preheat air entering the booths. These burners are able to provide all the heat necessary for evaporation. Because heat from the air is used for evaporation, the high-pressure systems add no heat to the airstream.

The facility has been operational since the winter of 2015. DriSteem is proud to play a critical role in a challenging design for Sima, among the top ten paint and drying booth suppliers in Europe, and the largest supplier in the Benelux region.



High-pressure system atomizing nozzles disperse ultra-fine water droplets into five air handlers. Four air handlers move 40 000 cubic meters/hr of air; the fifth air handler moves 28 000 cubic meters/hr.

### **DRI-STEEM Corporation**

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### **RESOURCES**

For more information on DriSteem's evaporative cooling and humidification, go to: [Evaporative cooling humidification](#)

To download DriCalc, DriSteem's free sizing and selection software, go to: [Register for DriCalc](#)

For more information on finding your local DriSteem representative, go to: [Find a rep](#)