

Application**brief**

Eclipse Product: Linnox ULE Burners

Submitted by: Dave Kalscheur, Marshall W. Nelson and Associates

Application: Make-up Air for Wash and Paint System

Description:

Weather-Rite LLC, located in Minneapolis, Minnesota, is a leading supplier of industrial grade HVAC and air handling equipment. Utilizing their experienced engineering and applications staff, they are able to customize their air handling products with options not available in mass-produced HVAC equipment. With the spread of low NO_x requirements in the U.S. and abroad, Weather-Rite LLC wanted to be one of the first to market low NO_x solutions.

When Weather-Rite LLC needed to provide two make-up air handling units for a locomotive cab wash and paint system in Fort Worth, TX, they contacted Marshall W. Nelson and Associates for a low NO_x burner solution. Marshall Nelson chose the Eclipse Linnox ULE burner for its ability to meet the 30 ppm

NO_x requirement across the full 10:1 turndown range, and provide even heat distribution across a 12 foot duct section. The process air was to be pulled from the outside, which could range from 20 – 90°F. The required production temperature would range from 70 - 140°F. A 9 foot, 2.4 MM Btu/h Linnox burner was configured for this application. One of the air handlers was a 100% fresh air intake system while the second was a recirculating unit.

When the air handling equipment was commissioned at the customer site, the burners were quickly tuned for optimal performance. The weather on the day of startup was mild, with an outdoor air temperature of approximately 60°F. Achieving the maximum outlet temperature of 140°F was easily accomplished, and the stable low fire performance of the Linnox ULE was demonstrated when the outlet temperature was set to the low end of 70°F. The Linnox ULE was able to heat the process air only 10 degrees, while meeting the emissions requirements.



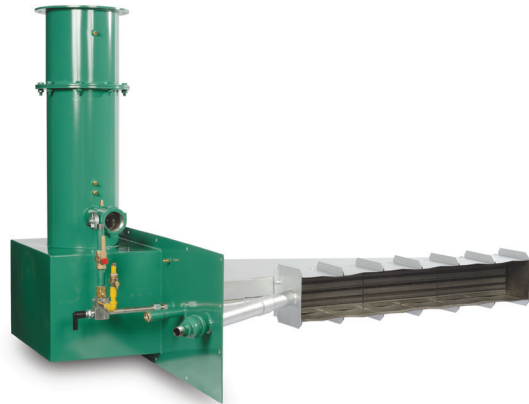
Linnox ULE burner installed inside the air handling unit.



WEATHER-RITE™ make-up air handling system with Linnox ULE burner.



Wash and paint system for locomotive cabs.



Linnox ULE ultra low emissions burner.