The Art of Atomization: Thermo Regulated Compressed Air and Atomization

by Robert Mercier, Walcom Thermo Dry Technology Specialist

The coatings industry is constantly formulating new ways to adapt their products to new environmental standards, ease of use, and color match. The atomization of these coatings through the spraygun nozzle is an ongoing challenge for paint and spraygun manufacturers alike and is ever-changing. It only makes sense that the physical application side of the process, i.e., compressed air delivery-spraygun specifications and spraybooth design, change with it.

A painter is faced with a different set of circumstances to take into consideration, depending on changing environmental conditions in order to adapt accordingly each day, especially with the new generation waterborne coatings.

The tools provided to him are an essential part of his success rate and cycle time. The spraybooth is meant to provide a clean, consistently heated, filtered work environment so the technician can prevent contamination of the job. The demand is the same of the compressed air delivery system. It is equally important to the application process and performance of the spraygun.

Compressed air used in paint booths is negatively influenced by low temperatures in the winter and by high relative humidity in the summer. Even with adequate booth heating or, in the summer, cooling dryers, the temperature of compressed air entering the spraygun stock has a hard time reaching 20 °C (68 °F). Remember also that air expansion causes temperature to drop an addition 10–12 °C (50 °F–54 °F), lowering paint atomization air to a temperature under 10 °C (50 °F). With relative humidity under room temperature “dew point,” a micro-mist that mixes with the paint may be generated. Therefore, the ideal 20 °C (68 °F) conditions indicated by paint manufacturers for satisfactory results are not met, with corresponding loss of brilliancy, orange peel effects and poor distribution.

Thermody Technology heats and maintains the set compressed air temperature regardless of climate/room conditions. This allows the painter to use filtered, heated and thermo regulated compressed air, which maximizes results by eliminating environmental factors both in the booth and from external weather conditions. The operator can set temperatures from 20 °C to 50 °C (68 °F–122 °F) for the painting phase and up to 70 °C (158 °F) for the drying phase. The PID retroaction system (proportional-integrated-derivative) and instant regulation of the heating power at SCR (wave cut) keeps the temperature set by the operator constant. The IPH heating system has the same heating element features as the equipment, thus providing both tube heating and internal temperature control, keeping it constant during the entire paint cycle.

A Heated and Thermo Regulated air delivery system that maintains 68 degree nozzle temperature free of humidity and gaseous impurities guarantees the technician superior atomization at the spray gun nozzle. This results in faster drying times, better paint flow out, lower paint consumption, and the elimination of imperfections or die back (loss of gloss.)

Painters will immediately feel the difference in terms of faster drying time, better paint flow-out, lower paint consumption and higher application speed. In addition, painters can expect significant improvement in the quality of work when using both waterborne and solvent based paints.

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2. Material savings from 15% to 30% due to higher transfer efficiency with maximum coverage
3. Reduce cycle times & operating temperatures of your existing spraybooth saving time and energy (additional cycles)
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5. Simple installation works with your existing compressed air system and 110volt outlet
6. Superior atomization with zero impurities equals the “Quality in the finish” your customers deserve

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