

## Paint shop operations

The appearance of a finish depends not only on the paint materials and how they are processed but also on the condition of the spraying and drying booths and that of the other equipment. Paints should be applied at an ambient temperature of between 18°C and 25°C (64-77°F). The air used for spraying must be free of oil and water (check the oil separator daily). The spraying pressure must be constant. The choice of the correct nozzle and the cleanliness of both the nozzles and the air caps are also important since there will not be an even spraying pattern otherwise.

Spraying and drying booths are kept free of dust mainly by means of an efficiently functioning ventilation system, which is also necessary for safety reasons, in order to avoid build-ups of explosive mixtures of solvent vapour and air.

The result of a repair job depends not only on the spraying technique, but to a great extent on a proper ventilation system. The volume of air needed in a spray booth is approx. 20,000 m<sup>3</sup>/hour (700,000 cu.ft/hour). The air used for spraying should not be drawn from the workshop because this would require a higher level of dust filtering.

The air drawn in from outside must be filtered and warmed. This applies particularly in the colder seasons and especially in the case of combi-booths, i.e. spray booths that also serve as drying booths.

The amount of air to be drawn in depends on the size of the spray booth and is also directly related to the amount of air extracted. In all cases, however, enough air must be drawn in for the pressure in the spray booth to be higher than the pressure outside.

A ratio of exhaust air to incoming air of approx. 1:1.05 is sufficient.

Negative pressure inside the booth will inevitably lead to defects in fresh finishes because the air coming in from outside around doors and through other openings carries dirt particles that will contaminate fresh paintwork. This is why overpressure in the spray booth, combined with efficient filters in the ventilation system, play a particularly important part for a flawless finish. The above does not apply in the UK, where pressure in the spray booth is required to be lower than the pressure outside the booth. If there is a drying oven connected to the spray booth, pressure in the oven must be higher than that in the booth in order to prevent contamination of the objects being dried by overspray from the spray booth, for example.

The filters used must of course be adapted to this purpose and kept clean at all times. The fine filters should remove at least 99.8% of the dust contained in the air being filtered. It is particularly important that the incoming air be directed through a suitable system of distributors that can prevent the creation of excessively strong air currents. Such air currents would not only inconvenience the spray-painter, but also form vortexes that retain the paint dust longer. This paint dust would then gradually be deposited on the freshly painted surface and spoil it.

The air speed should not be too high either since the paint applied would then dry too quickly on the surface. The result would be poor flow and also the formation of specks due to insufficient overspray absorption. Furthermore, if the surface dries too rapidly, this can lead to loss of gloss and wrinkling. Wherever possible, the incoming air ducts or distributors should be spread over the whole ceiling area.

An air speed of 0.3 m/sec (which means that the air is renewed approximately 350 times per hour), measured right across the spray booth, is generally sufficient.

### Safety advice:

The products are suitable for professional use only.

It cannot be ruled out that this product contains particles < 0.1 µm.

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The air is best extracted via outlet ducts down near the floor of the spray booth (separation by means of filtering).

### Employee safety and operating regulations

Finally it should be noted that installations of this kind must be designed, set up and operated in accordance with the applicable rules on the prevention of accidents, in Germany in accordance with BGV D24 and D25.

The storage of paints, solvents and thinners is subject to the regulations concerning flammable liquids.

Applicable MAC values (maximum allowable concentrations of substances that are hazardous to health) must be observed in all work areas. Noise pollution from the equipment used can be avoided if all machines and tools comply with the maximum levels laid down in the accident prevention regulations concerning noise (in Germany, BGV B3).

### Remark:

All nationally and/or locally applicable working directions, operating instructions and safety regulations as well as existing rules for the prevention of accidents and regulations on dangerous substances must be observed. The laws and regulations referred to in this manual are applicable to the Federal Republic of Germany only.

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