

## DRY FILTRATION OF OVERSPRAY DURING AUTOMOTIVE FINISHING

# It's all in the box!



At first glance, it does not look like a technical innovation. It looks more like an idea from an environmental action group: boxes made of corrugated cardboard for the dry filtration of overspray. But the system has proven successful in practice and is now being used in the automotive industry.

Especially in times of crisis, many companies increasingly make investments that would be difficult or even impossible during full operation. It comes as no surprise, therefore, that more and more car makers are now taking the step to replace their Venturi scrubbers with dry filtration systems. What used to be extremely time-consuming and expensive is now a matter of just a few days and usually pays for itself in a very short time. Provided that enough space is available for retrofitting, the existing equipment requires little or no modification. The only important requirement is that there is sufficient distance between the grating and the

filtration system, as it is precisely in this area that it is possible to install the „Edrizzi“ overspray filter.

The filter is installed using pre-manufactured steel frame support structures which, when the plant is converted, are simply hung in place to hold the filter boxes. The support structure is either greased or masked. The grating can then be replaced and painting can continue.

The time required for converting a body finishing booth is between one and one-and-a-half days per booth and costs around 4,000 euros per running metre. Many users who do not want to take any risks use the first conversion of a booth as a test run to ensure that the service

life and degree of filtration meet their requirements – and especially to make sure that the quality of the coating is high enough. In most cases, it is not even necessary to switch off the water running under the filter system. To begin with, it can be used as a secondary filter, and can be switched off a few weeks later when all measurements have been taken.

Before any conversion can take place, all the dimensions and above all the exact air flow velocities have to be determined. A precise measurement of the dimensions makes it possible to pre-manufacture the steel frame support structures for the Edrizzi overspray filter. Air flow measurements show that, after installation of the dry filtration system, a much more uniform air flow velocity is achieved over the entire booth surface. When the system has been in operation for several weeks, a secondary filter that complies with the required exhaust values can be installed as a second step if necessary after the water has been drained.

This efficient overspray filtration system can also be used vertically or in the

### PAINT OVERSPRAY FILTER MADE OF CORRUGATED CARDBOARD

The Edrizzi paint filter system is used in manual and automatic painting booths to filter overspray from the exhaust air. It can also be used in adhesive spraying booths. The main component of the technology is a conveniently sized box with an internal labyrinth. The entire paint overspray filter is made of corrugated cardboard, a naturally renewable raw material, or recycled fabric. Compared to conventional paint filters, Edrizzi features a high loading capacity, low-cost retrofitting, fast filter changes and simple waste disposal. For tacky coatings, the overspray loading capacity can be up to 100 kg/m<sup>2</sup>.



A Venturi scrubber system can be replaced by an Edrizzi dry filter system in only a few days



The dry filter system is installed in pre-manufactured steel frame support structures that are hung into place before a conversion is carried out

Figures: Brainflash

form of so-called swivelling filters, which are similar in appearance to a Venturi scrubber and guarantee optimum user-friendliness. In any case, they save a lot of space if one does not use water as a separation medium. They also avoid high energy requirements for operation as well as the use of coagulating agents and constantly increasing waste disposal costs. When the Edrizzi overspray filter boxes are fully loaded paint dust, they can in most cases be disposed of free of charge in incineration plants just like household waste.

The advantages of the dry filtration system for the automotive and supply sectors:

- Conversion from wet scrubber systems within a few days
  - Costs per running metre approximately 4,000 euros (booth width 5 m)
  - Better and more constant air flow in the booth
  - Reduction in the noise level
  - Recirculating air operation possible
    - CO<sub>2</sub> emission reduced by approximately 40 %
  - No waste disposal costs
- Drastic reduction in energy and maintenance costs
  - For new systems, up to 30 % lower investment compared to conventional systems
  - Filter lifetimes generally 7 to 10 days longer (in two-shift operation)

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