

Overspray Filtration with Cardboard Filter Boxes

Three Filters for All Applications

For the environmentally friendly and economical dry filtration of paint overspray, one of the solutions that has become established in recent years is a modular “building block” system based on cardboard filter boxes. Three further developed overspray filtration systems are now claimed to cover all application areas in the painting industry.

The so-called Edrizzi System has proven itself for many years and in many applications in the surface processing industry. The cardboard filters ensure economical, environmentally friendly and ergonomics dry filtration of paint overspray. Independent of the application process, the system can be used in any painting line – from a small manual painting booth to an automated finishing line, either horizontally or vertically or a combination of both. Existing systems can also be retrofitted easily and cost-effectively.

As the result of many years of development work and an intensive exchange of information and experience with the coating industry, three new box types are now available: Vario fine, medium and rough in depths of 300 or 500. The new boxes will replace the existing Automotive types from 2015.

The system is based on the Edrizzi paint overspray filtration system. It uses handy-sized boxes made of renewable cardboard. The boxes are assembled as a modular “building block” system to produce a filter surface of any size required. The boxes are supported on



The new filters cover a broad range of applications



The filter boxes are also used for overspray filtration in the automotive supply industry

galvanised metal frames as a supporting structure.

The paint overspray is guided at negative pressure through a complex system of edges and openings in order to achieve maximum separation. The potentiation of the filter surface, the arrangement of the different guidance systems and the use of centrifugal force ensure a very high filtration capacity. The overspray filtration system can be optionally extended by the addition of post-filtering stages, which are designed and recommended according to the particular application.

Three versions for different applications

Every application represents an individual painting situation. The key variables are the material, the size of the painting line, the application and the air system. These factors influence the degree of separation and the filtration capacity of the Edrizzi system, which can filter out up to 99 percent of the overspray.

Research results and experience have shown that, depending on the composition of the material being sprayed, the overspray is deposited in different areas of the overspray filtration system. These values were the key to designing the different new types. As the three types support the properties of all surface materials during filtration, they cover all application areas of the surface processing industry. The use of flame-retardant cardboard folding boxes (certification according



Slide-in element with overspray separation and post-filtering. Depending on the application, five different post-filter versions are available.



Comparison of saturated and unsaturated overspray filters. Paint deposits on the front, however, are by no means a sign of saturation, as most of the filter uptake occurs in the first third of the boxes and the depths have the purpose of achieving the degree of separation. For simple monitoring, a sheet of paper is held in front of the input opening while the system is in operation. If the sheet is held in place by the air being drawn in, the filter boxes are still functional.

to DIN4102, flammability test Material Class B1) makes the system safe and stable in application.

Type fine 300/ 500 is used wherever the previous Vario medium filter reaches its limits with regard to the degree of separation. Examples of applications include high-speed rotational bells, very fine atomising solvent-based coatings, fast-drying systems and nano-paints.

Filter boxes with numerous advantages

Cost-effectiveness: Converting from liquid to dry coatings significantly reduces paintshop costs due to recirculating air operation:

- The use of water for overspray filtration is no longer necessary
- Disposal of paint sludge as special waste is no longer required
- Costly and time-consuming removal of paint sludge is eliminated
- No chemicals (coagulating agents, defoamers and bactericides) are required
- Corrosion of the spray booth equipment is reduced
- No pumping equipment means no maintenance costs
- Costs of cleaning the equipment are reduced
- Cost-saving delivery and storage due to space-saving folding boxes

Uptake capacity: 100 kg/m² or more depending on the surface material being sprayed

Degree of separation: 97 % with correct application and edrizzit post-filtrating

Sustainability: Low-cost disposal of the dry paint, no chemicals

Ergonomics: The noise level in the painting zone is reduced by between 15 and 20 dB; no unpleasant odours caused by wet filtration

Flexibility: Simple conversion of existing systems; can be used for all types of coatings and most adhesives; possibilities for adding to and expanding the unit; wide range of variants of the corresponding post-filtration systems

Type medium 300/500 is a solution for the majority of surface finishing materials and has been tried and tested and successfully used in all sectors of industry since 2003.

Type rough 300/500 is suitable for those applications in which the previous Vario medium filter did not reach its full service life because the input openings became clogged too quickly and paint deposits formed on the front

area. This is the case with surface finishing materials that have a tendency towards foaming. ■

The Author:

Michael Eder, Managing Director,
Brainflash Patententwicklungs GmbH, Lienz, Austria,
Tel. +43 4852 72674,
office@brainflash.at, www.edrizzit.com