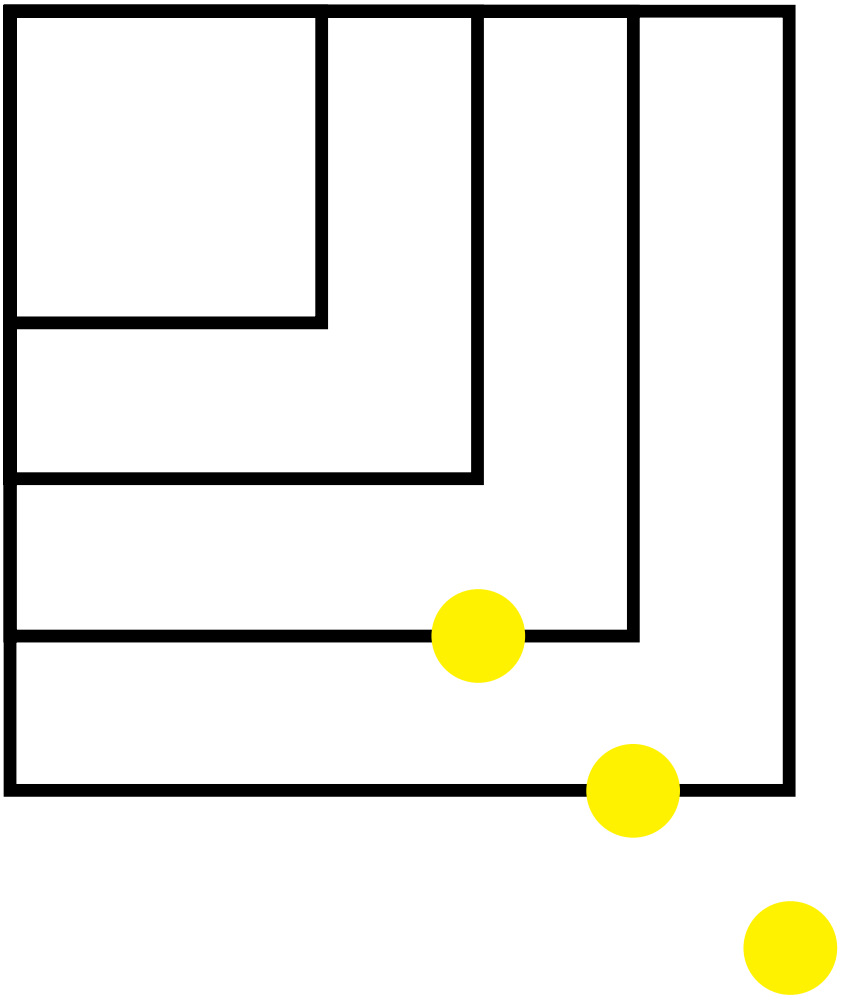
The edrizzi® system

User manual

March 2020/4



edrizzi®

Paint Mist
Separator System.

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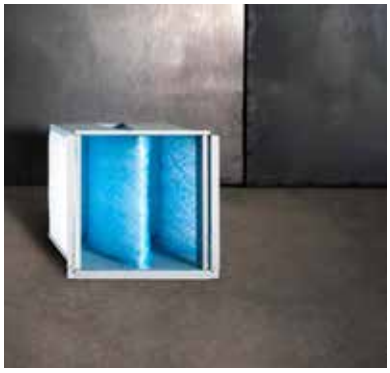

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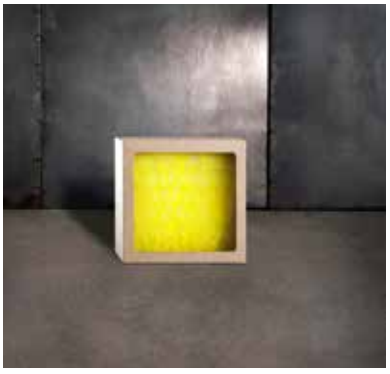

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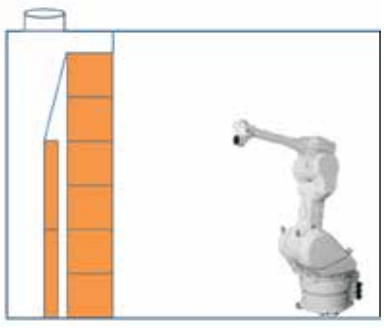

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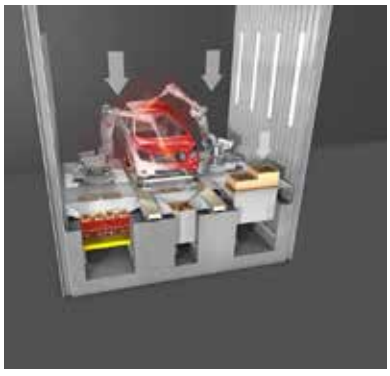

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Introduction

Thank you for deciding to use the edrizzi® system!

The system is based on the patented and popular edrizzi® paint mist separation system, handy boxes made of recyclable cardboard. Brain Flash Patententwicklungs-GmbH in Lienz, Austria is inventor and proprietor of the edrizzi® system. The edrizzi® system is composed of the paint mist separator – the VARIO, the associated absorption systems – the slide-in elements and the secondary filter versions – that are recommended in most applications by the edrizzi® applications laboratory.

The function of the systems is independent of the interaction of these individual system components in coordination with the air management and the surface material applied in the system.

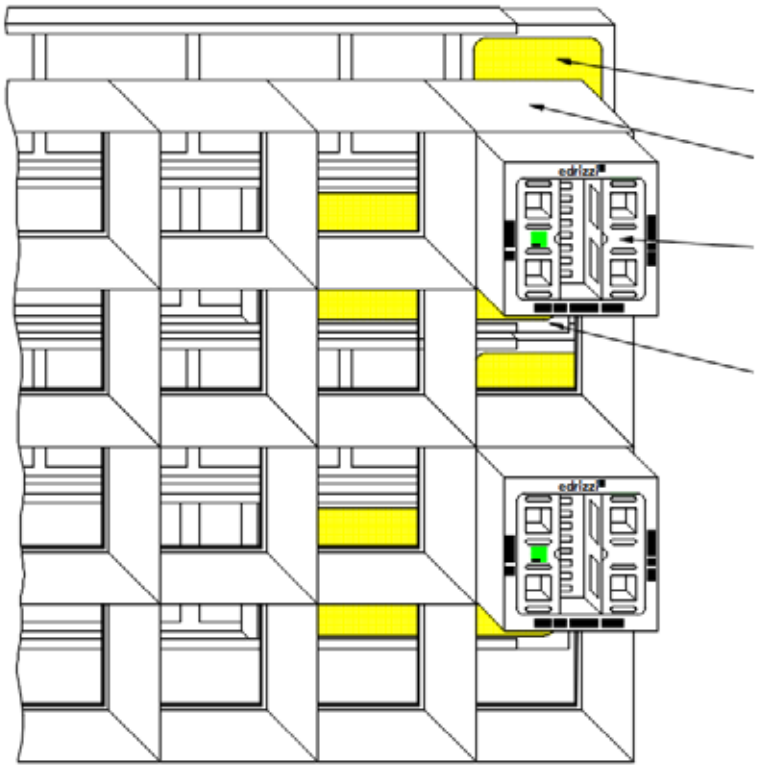


Figure: Schematic representation of an edrizzi® paint mist separation wall

An edrizzi® VARIO is a paint mist separation system – also called labyrinth separator, but not a filter. The VARIOs are assembled according to the principle of a building block system of any size to a complete separation surface. Galvanised metal sheets are used as the sup-porting construction. The master-stroke of the edrizzi® system lies secretly in the inconspi-cuous boxes: The paint mist is guided by a complex system consisting of edges and openings in order to achieve maximum absorption. The potentiating effect of the absorption surface, the arrangement of the various guiding systems and utilisation of centrifugal force facilitate the revolutionary absorption capacity of the system.

The various types of the edrizzi® paint mist separation systems (VARIO fine/medium/rough in different depths) cover a large part of the areas of application of the surface processing industry and, in practice, achieve several times the service life compared to conventional systems.

Version: November 2015/1
www.edrizzi.com
www.brainflash.com

1. edrizzi® VARIO paint mist separators

1.1. Properties

The edrizzi® VARIO systems are offered in depths of 300 mm and 500 mm respectively. Fundamentally, the edrizzi® VARIO should be used with a depth of 500 mm. Its deep construction design ensures extremely high storage capacity and also the necessary degree of separation. An edrizzi® VARIO of the 300 range should be used only in cases of retrofitting existing plants or systems. It is possible too combine edrizzi® cubes of different types and depths. (Air ventilation performance and special slide-in elements must be adapted in these applications). Special shapes are available only in exceptional cases from the manufacturer on request.

The master-stroke of the edrizzi® system lies secretly in the inconspicuous boxes: The paint mist is guided by under-pressure in the complex system consisting of edges and openings in order to achieve maximum absorption. The potentiating effect of the absorption surface, the arrangement of the various guiding systems and utilisation of the centrifugal force facilitate the revolutionary absorption capacity of the system. Three different solutions support the characteristics of different surface materials for the absorption. Every area of application in the coatings industry is covered by this development and the edrizzi® VARIO types supersede the edrizzi® Automotive system used so far.

1.2. The different types of VARIOs

The three types of edrizzi® Vario are the outcome of several years of development and intensive exchange with the paints industry. All types comprise a framework and an external box and are supplied in flat and dismantled condition.

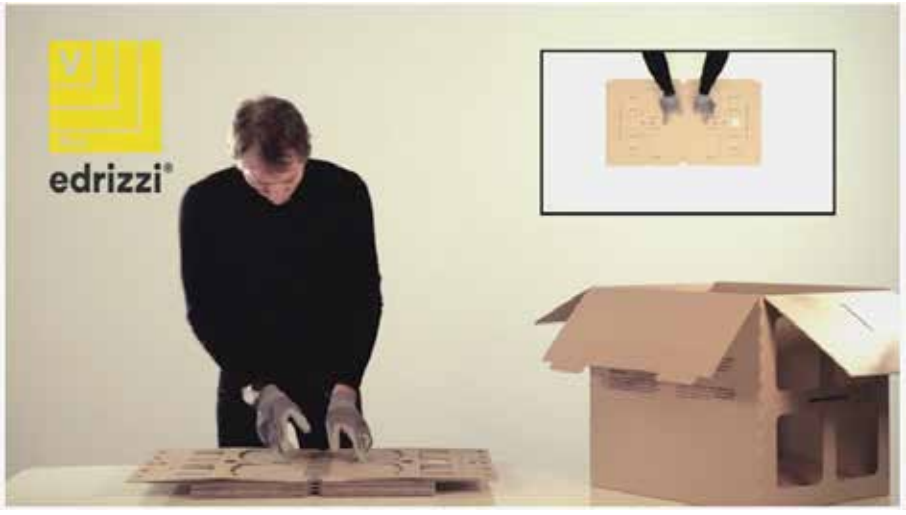


Figure: In this screen shot of a set-up video (www.edrizzi.com) it can be seen clearly that the paint mist separators are two-parts.

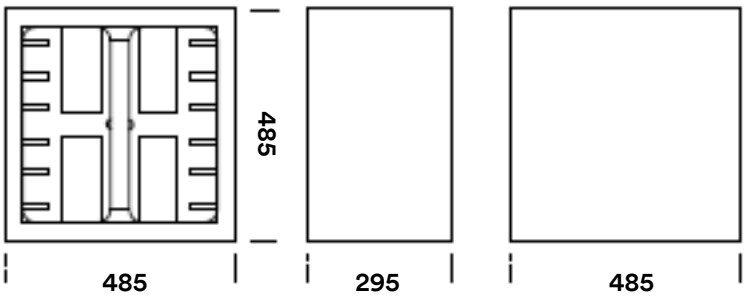
The processing of fire-retardant corrugated cardboard (Certification DIN4102, testing for non-flammability, construction material class B1) makes the edrizzi® VARIO system safe and robust in application. Proper construction and set-up of the individual elements and correct use or installation in the system are important for the working of the paint mist separation system.

edrizzi® VARIO fine 300 and 500

V fine

The edrizzi® VARIO fine is used wherever the proven edrizzi® VARIO medium reaches its limits with respect to the degree of separation. Examples of application include high-speed rotating bells, very finely atomised solvent-based paints, quick-drying systems and nano paints. Available in the depths 300 and 500 in which the depth 500 is always to prefer.

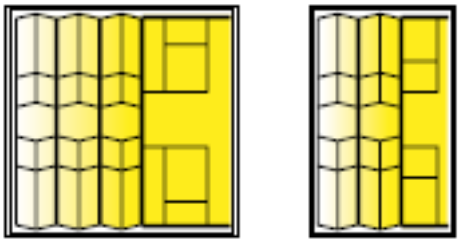
- Filter class: Paint mist separator
- Absorption capacity up to 100kg/m²
- Degree of Separation up to 97%
- Nominal volume flow rate: 2000-3000 m³/h per m² filtersurface
- Ultimate pressure: System dependent, point of reference: 400 Pa
- Recommended inflow speed 0,25 - 2 m/s
- Initial pressure difference with nominal volume flow rate
  VARIO 300: 105 Pa, VARIO 500: 110 PA
- Temperature resistance up to 80 °C
- Recommended storage conditions: Temperature 15 – 25 °C,
  Rel. humidity 45 – 65 %
- Weight when empty: VARIO 300: ≈ 1,400 g. VARIO 500: ≈ 2,200 g.
- Reaction to fire: Certification DIN4102, testing for non-flammability,
  construction material class B1: fire-retardant



front
VARIO 300/500

side
VARIO 300

side
VARIO 500



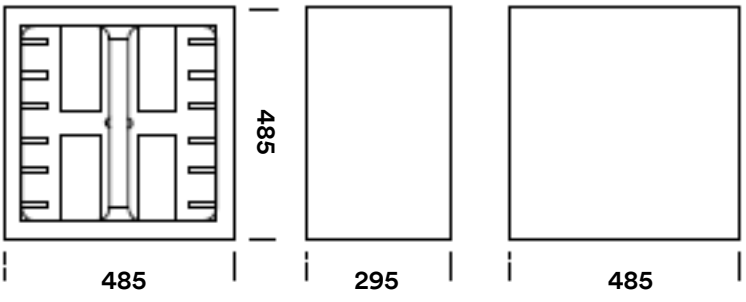
Majority of saturation happens in the first third of the VARIO paint mist separators.

edrizzi® VARIO medium 300 and 500 and VARIO medium 300 und 500 hydro

The edrizzi® VARIO medium offers the solution for the majority of all surface materials and has been tested and used successfully since 2003 in all industries. Available in the depths 300 and 500 in which the depth 500 is always to prefer.

The VARIO medium is also available in performance hydro. The edrizzi® VARIO medium hydro is the solution for equipment with high humidity and for applications where the paint mist separators are sprayed with very wet surface materials directly at very short distance. Painting of small parts is an example. In order to ensure the highest possible stability at high humidity, the design edrizzi® VARIO medium hydro is made from wet-strength paper rather than flame resistant paper. All other features of VARIO medium hydro are the same as VARIO medium standard.

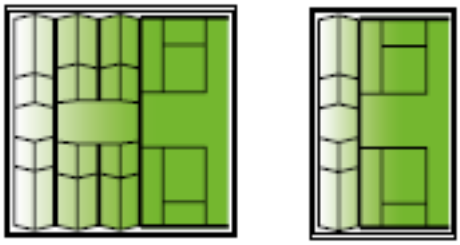
- Filter class: Paint mist separator
- Absorption capacity up to 100kg/m²
- Degree of Separation up to 97%
- Nominal volume flow rate: 2000-3000 m³/h per m² filtersurface
- Ultimate pressure: System dependent, point of reference: 400 Pa
- Recommended inflow speed 0,25 - 2 m/s
- Initial pressure difference with nominal volume flow rate
  VARIO 300: 68 Pa, VARIO 500: 88 PA
- Temperature resistance up to 80 °C
- Recommended storage conditions: Temperature 15 – 25 °C,
  Rel. humidity 45 – 65 %
- Weight when empty: VARIO 300: ≈ 1,100 g. VARIO 500: ≈ 1,900 g.
- Reaction to fire: Certification DIN4102, testing for non-flammability,
  construction material class B1: fire-retardant. Not valid for VARIO medium hydro.



front
VARIO 300/500

side
VARIO 300

side
VARIO 500

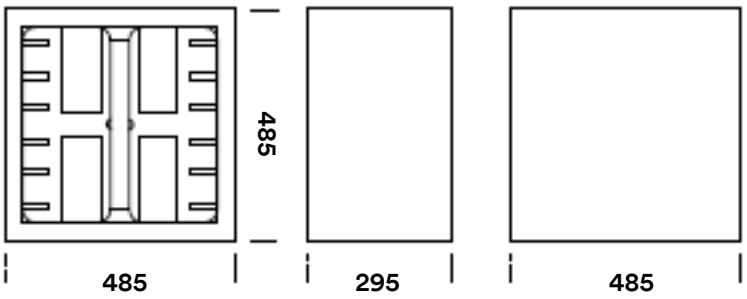


Majority of saturation happens in the first third of the VARIO paint mist separators.

edrizzi® VARIO rough 300 and 500

Der edrizzi® VARIO rough is the solution for those applications in which the VARIO medium does not achieve the service life as a result of fast displacement of the inlet openings, i. e. cakes of paint form on the front side. This happens with surface materials that tend to foam up. Available in the depths 300 and 500 in which the depth 500 is always to prefer.

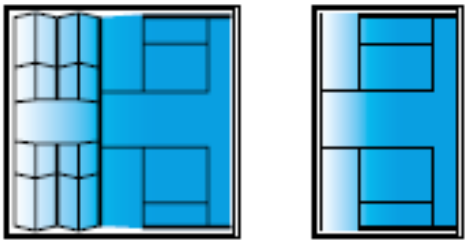
- Filter class: Paint mist separator
- Absorption capacity up to 100kg/m²
- Degree of Separation up to 97%
- Nominal volume flow rate: 2000-3000 m³/h per m² filtersurface
- Ultimate pressure: System dependent, point of reference: 400 Pa
- Recommended inflow speed 0,25 - 2 m/s
- Initial pressure difference with nominal volume flow rate
  VARIO 300: 21 Pa, VARIO 500: 56 PA
- °C Temperature resistance up to 80 °C
- Recommended storage conditions: Temperature 15 – 25 °C,
  Rel. humidity 45 – 65 %
- g Weight when empty: VARIO 300: ≈ 800 g. VARIO 500: ≈ 1,600 g.
- Reaction to fire: Certification DIN4102, testing for non-flammability,
  construction material class B1: fire-retardant



front
VARIO 300/500

side
VARIO 300

side
VARIO 500



Majority of saturation happens in the first third of the Vario paint mist separators.

1.3. Selection criteria - which type of edrizzi® for which application

In practice, every coating system is distinctive. In every application, there is a different coating situation depending on the material, plant size, application and air management.The material of the surface is critical for the choice of the type of edrizzi® paint mist separation system: Clarify the details with your plant builder, filter dealer or the manufacturer edrizzi®.

Surface material: The type of the surface material is decisive for the type of the edrizzi® paint mist separation system. You need to differentiate between water-based or solvent-based paints, fast-drying or slow-drying paint, tacky or powdery, 2-component system or burn-in system, UV paint etc. as well as properties such as dry or wet, fine or rough, frothy or not. At the time of planning the system, you can conduct a paint test in the edrizzi® applications laboratory of Brain Flash Patententwicklungs-GmbH .

Kind of application: Another factor for the selection of the type is the kind of application with which the surface material is applied. Depending on the application method, overspray/paint mist, different edrizzi® paint mist separation systems may behave differently with the same surface material but with different application. Example: The degree of separation is lower for very small particles (e.g. high-speed rotating bells) than when using airless systems, for example.

For the initial equipment, it is always recommended to use the edrizzi® VARIO medium 500. It covers the majority of the needs and thus achieves the maximum efficiency. If after the first use it is established that the service life and associated with it, the absorption capacity is very high, the degree of separation, however, does not meet the expectations, you can respond as follows:

a) Since almost every use of the edrizzi® system represents a combination of the edrizzi® paint mist separator and the secondary filter element, the secondary filter condition should be checked first. In most cases, replacing the type of secondary filter or increasing the area of the secondary filter is an efficient method for enhancing the standard of the edrizzi® paint mist separation system.

b) Only if improving the secondary filtration does not achieve the desired level of success, should you use the edrizzi® VARIO fine. This edrizzi® cube has the advantage that it achieves a significantly higher degree of separation and thus, extends the service life of the secondary filter. Conversely, it behaves here with the service life of the edrizzi® VARIO fine. With splashing here using very fast-drying materials, the service life gets reduced by its lower storage capacity.

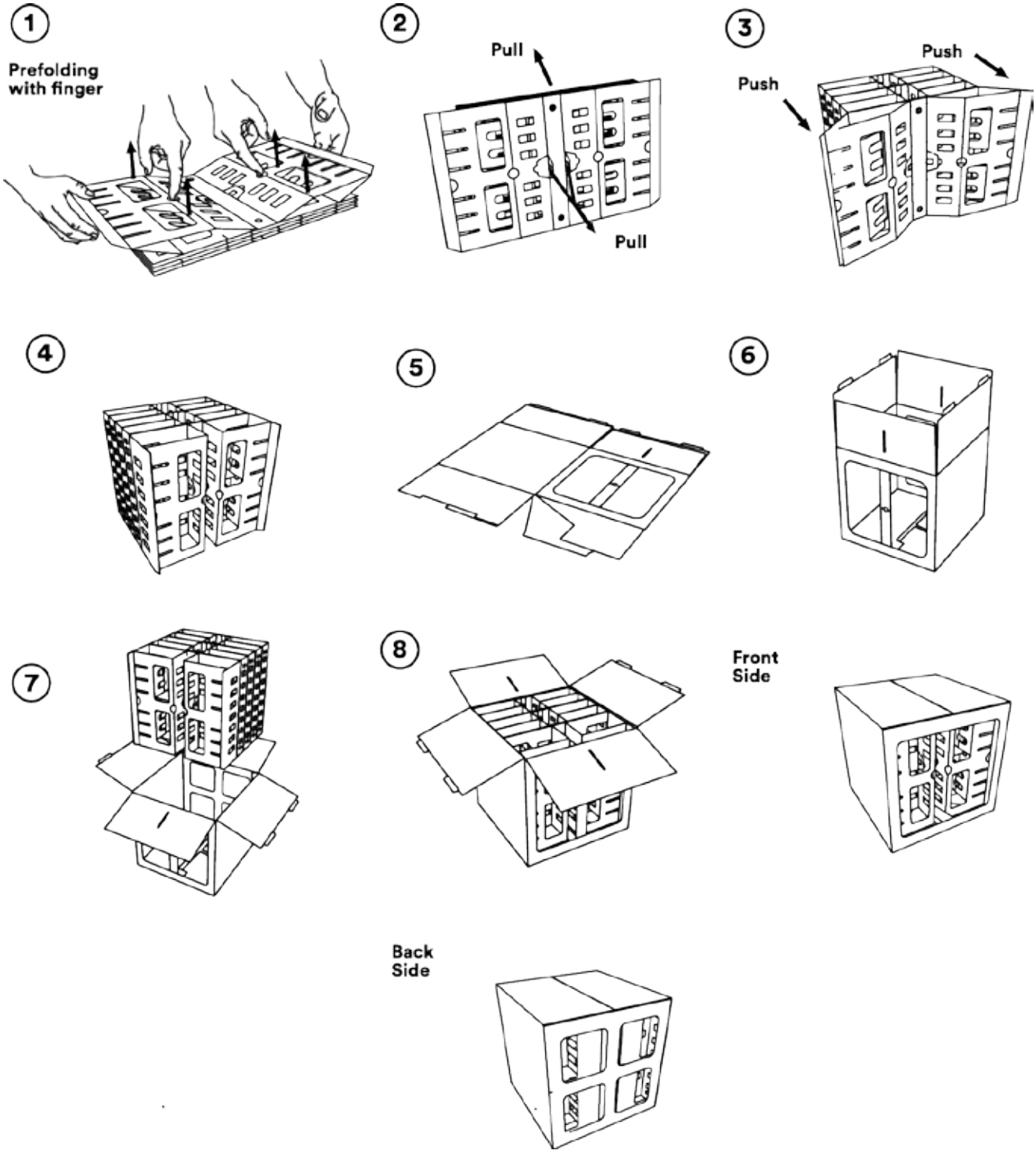
c) If surface materials are sprayed that tend to foam or froth in the edrizzi® cube, or they get converted within the least time to so-called „limestone caves“, they can be extracted only with the edrizzi® VARIO rough system. Only this type is constructed in such a manner that despite the absorption properties of the surface material, desired service life periods can still be achieved.

d) The edrizzi® VARIO medium hydro is the solution for equipment with high humidity and for applications where the VARIO paint mist separators are sprayed with very wet surface materials directly at very short distance. Painting of small parts is an example. In order to ensure the highest possible stability at high humidity, the design edrizzi® VARIO medium hydro is made from wet-strength paper rather than flame resistant paper.

1.4. Set-up

The edrizzi® paint mist separation systems are supplied in flat condition to save costs and conserve space, and are set up easily and quickly at site. The prerequisite for the function is correct assembly of the cardboard boxes.

The set-up videos are available here:
www.edrizzi.com
www.youtube.com/c/edrizzi



In certain cases – especially with recumbent installation – it is important to fold the strap and to latch it on the top of the edrizzi® VARIO paint mist separation system in order to ensure stability in this manner:

Step 1:
The marked and perforated straps are located on the top of the VARIO paint mist separator.

Step2:
The box straps are simply pressed in ...

...and thus fix the framework in the outer box.

Step 4:
Seal the paint mist separator as usual and install it in the system.

1.5. Installation of the edrizzi® VARIO paint mist separator in the system - vertical insertion

The paint mist separators must be used in standing position with vertical insertion:

Figure: The correct installation of the edrizzi® paint mist separator in the slide-in elements for standing application.

The edrizzi® paint mist separators are 50 mm deeper than the slide-in elements in order to avoid adherence of paint in the paint mist separator to the slide-in elements. The edrizzi® VARIO are pushed upright into the slide-in elements with the lettering legible. The gaps on the front side are sealed off with a foam rubber band. In order to facilitate the replacement of individual edrizzi® VARIOs after saturation, it is beneficial to use the foam rubber band. If all edrizzi® paint mist separators are always replaced simultaneously, it is recommended to seal them off with adhesive tape (Refer to chapter 3.4. Paint mist separator wall).

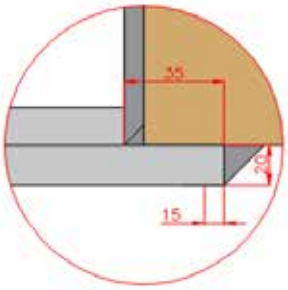
Figures: Left an adhesive tape and right a rubber band are used to seal off the paint mist separators.

1.6. Installation of the edrizzi® VARIO paint mist separators in the system - horizontal insertion

For „recumbent installation“ of the edrizzi® systems, no slide-in elements are used for the edrizzi® paint mist separators, and instead, prefabricated sheet metal troughs or rails are used. These devices are constructed in such a manner that they form a surface for depositing the edrizzi® paint mist separators and facilitate access during replacement.

In recumbent systems the air guide plates are masked off, grease or strippable varnish applied to them in order to protect them against dirt or impurities. See also chapter 3.5. edrizzi® system underfloor page 38.

Since the paint mist separators increase in weight as they absorb the paint mist, they must be placed in the sheet metal troughs or rails in such a manner for the sake of stability that their top and bottom side – as illustrated in this picture – in any case lie against the rails/ troughs.



Picture detail: Sheet thickness at least 2 mm! Bend the joint in order to avoid injuries.

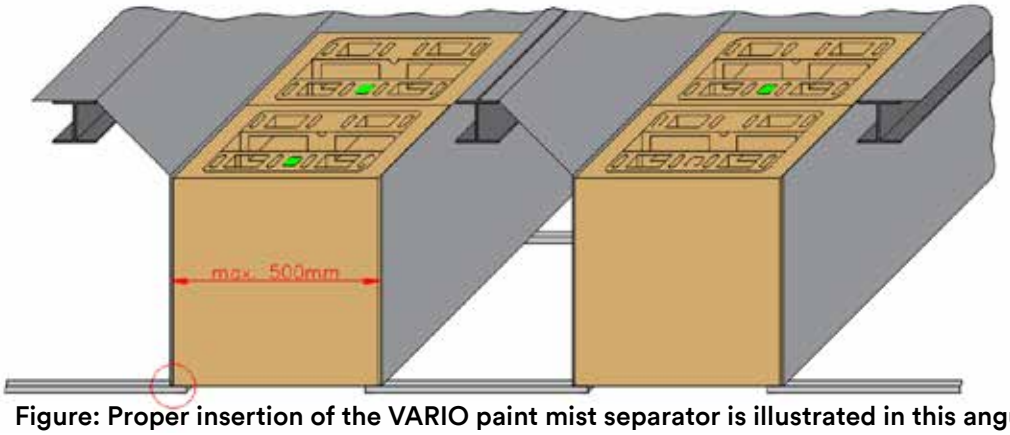


Figure: Proper insertion of the VARIO paint mist separator is illustrated in this angular cross-section: The base and cover of the VARIOs lie against the side walls of the sheet metal rails.

1.7. Replacement of paint mist separators

The point of reference for the ultimate pressure of edrizzi® paint mist separators is around 400 Pa. As ultimate pressure is dependent on application, this is a point of reference and has to be determined in every single system! The U-pipe pressure gauge (chapter 3.6. differential pressure gauge page 39) illustrates the reference value of the ultimate pressure differential from the time of the initial saturation in the edrizzi® system. Cakes of paint on the front side, however, do not mean saturation by a long shot, since the majority of the absorption takes place in the first one third of the boxes and the depths are used to achieve the maximum degree of separation. For simple checking, a sheet of paper is held at the inlet opening while the system is running. If the sheet of paper is held in place by the extraction, it means that the boxes are still functional.

If the ultimate pressure differential is reached, then replacement of the paint mist separator is due. The replacement is done from the front – the painting zone. Only those VARIOS must be replaced that are actually saturated. VARIOs that are located outside the main effective area rarely need to be replaced! Individual and saturated paint mist separators can be replaced. After replacement the joints are again sealed off with adhesive tape or foam rubber.

You should check the degree of saturation of the secondary filters with each replacement of the edrizzi® boxes. Simultaneous replacement of the edrizzi® boxes and secondary filters is optimal and avoids high down times.

1.8. Air flow in the painting zone

The edrizzi® method is used in air circulation or exhaust air mode. The nominal volumetric flow must be at least 2000 – 3000 m³/h per m² filtersurface. A minimum inlet flow of 0.25 m/sec. is recommended for horizontal deployment. Regardless of this, the working of the system is ensured up to 2 m/sec. The initial pressure differential varies depending on the edrizzi® VARIO paint mist separator system used, and lies between 21 and 110 Pa at 2000 m³/h per² m filter surface area (Refer to Overview of the system components chapter 1.2.).

All ultimate pressure differential values of the filter stages used must be taken into consideration for designing the performance of the exhaust air fan! The ultimate pressure differential of the edrizzi® VARIO is application-dependent. The empirical value for the ultimate pressure differential of the edrizzi® paint mist separation system is 400 Pa.

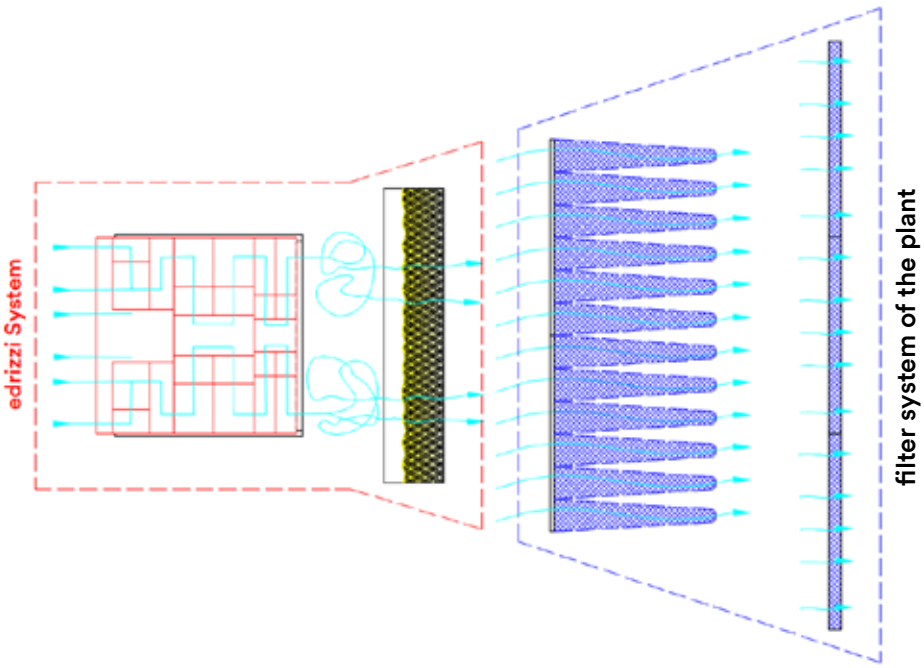


Figure: In this schematic figure, the paint mist separators are supplemented with one secondary filter stage plus two optional secondary filters and thus present optimal installation conditions.

1.9. Storage conditions

edrizzi® VARIO paint mist separation systems are supplied in flat and un-installed condition to conserve space. Recommended storage and processing conditions: Temperature 15-25°C, relative atmospheric humidity 45-65%.

1.10. Disposal

Saturated edrizzi® VARIO paint mist separators with dried surface material can be disposed in incineration plants in most cases. Consultation of surface material supplier is urgently demanded previously.

2. edrizzi® secondary filter types

2.1. General requirements

The functional requirement for the edrizzi® system is the careful coordination of the secondary filtering to the paint mist separation stage and the exclusive use of the edrizzi® slide-in elements. These have the necessary constructive requirements for the respective secondary filter. In general, the manufacturer recommends a secondary filter stage with side or rear entry such as the elements NFEWP02, NFEWP03 and CUBE01, in order to avoid large down times for replacement. Only for retrofitting and space constraints may the elements NFEWP01 or NFE02 be used as an alternative. The area of the secondary filtering must be as large as possible depending on the space in the painting zone, but it must be at least as large as the surface area of the paint mist separator.

What needs to be observed and followed:

- Between the edrizzi® paint mist separators and the secondary filters NFEWP02/03, a slow-down zone of at least 200 mm must be incorporated into the planning.
- Depending on the pit depth and accessibility, the secondary filter stages may be installed in the exhaust air zone or in the reduction tower.
- For new systems, generally, CUBE01 or NFEWP02/03 is included in the planning.
- For retrofitting, if the use of secondary filtration is possible only from the front, the manufacturer recommends CUBE01 or NFE02.
- NFEWP01 is only an „EMERGENCY SOLUTION“ for extreme space constraints in case of retrofitting, since it is only somewhat suitable for very dry over-spray based on the low absorption surface area.
- For large quantities of extremely dry over-spray, the manufacturer offers the fully automatic secondary filter solution edrizzi® ULF or edrizzi® and ABRO on request.
- Fibre glass mats are the optimal secondary filter medium in the edrizzi® system as the first secondary filter stage. The ULF system is an exception. (refer to chapter 2.8 edrizzi® and ULF page 27).

The functional requirement of paint mist separation – slow-down zone – secondary filter
The function of the edrizzi® paint mist separator is based on the principle of inertia and is applicable only if the air can flow freely through the edrizzi® cube and then meets the secondary filtration stage after being distributed and slowed down. This is why the air slowing-down zone between the paint mist separator and secondary filtering is a functional requirement just like the careful coordination of the secondary filtering with the paint mist separation. If the secondary filter gets affected very quickly, the function of paint mist separation is no longer ensured. Hence the selection of the secondary filter medium and the type of secondary filter is critical in the planning stage. The down time of secondary filtering affects the down time of the edrizzi® paint mist separation system.

2.2 Coordination with the system

The interaction between paint mist separation - secondary filtering for functional requirement and prevention of longer downtimes for filter replacement:

1. Replacement of the secondary filtering system independent of the edrizzi® cubes is the ideal situation in the edrizzi® system.

2. If this is not possible (replacement possible only from the front on account of space constraints in the coating booth), simultaneous replacement of the paint mist separator and secondary filtering system is ideal - by careful adjustment of the secondary filtering to the paint mist separation stage.

3. In any case, premature clogging of the secondary filter must be avoided since this reduces the function of the edrizzi® paint mist separation system.

Please note: The secondary filtering stage is generally necessary only if the paint mist separation does not achieve the statutory values. The manufacturer always recommends planning space for secondary filtering system especially for new systems. If needed – e.g. change in the surface material being used – the system can be supplemented easily and quickly.

Clarify the use of too fine pocket filters as a secondary filtration with your plant engineer. Pocket filters with too fine fabric could impair the function of the paint mist separation system considerably due to their low dust storage capacity and high degree of separation.

2.3. CUBE01

surface area CUBE01 0,5m²

Property

The filter surface area of CUBE01 is 1180 × 420 mm and can be fitted with any filter medium. CUBE01 has an integrated air slowing-down zone of 400 mm depth in one chamber. The filter box made of cardboard is fixed with a frame made of galvanized sheet steel to the slide-in element. The filter replacement can be done either from the front or behind, depending on the two metallic constructions offered. Based on its low weight, CUBE01 is particularly easy to handle: Important for replacement at inaccessible locations and at a large height. The CUBE01 as well as the slide-in frame are supplied in flat condition and by conserving space.

Versions

CUBE01 in a holder frame with front access

Version of CUBE01 with rear access on request

Set-up of the CUBE01 box and filter medium





Step1: the box is prepared and folded. The superfluous box straps are removed.



Step 2: The filter medium is inserted: Coloured side inside, and exact fit in the box.



Step 3: The filter medium is fixed with a tacker, the straps at the top are latched for stability and the box is closed. The completely ready box is pushed into the holding frame.

Setting up the CUBE01 holding frame with replacement from the front side

Step 1: The base and cover of the holding frame are prepared.

At first, the brackets at the base of the holding frame are fixed with rivets.

Step 2: After all 2 brackets are joined to the base, fix the cover with rivets.

Step 3: The ready frame is pushed from the front by the appropriate slide-in element and then fixed with the self-tapping screws.

Step 4: The box is pushed in front of the VARIO paint mist separator into the ready holding frame.

Setting up the CUBE01 frame with replacement from the back side

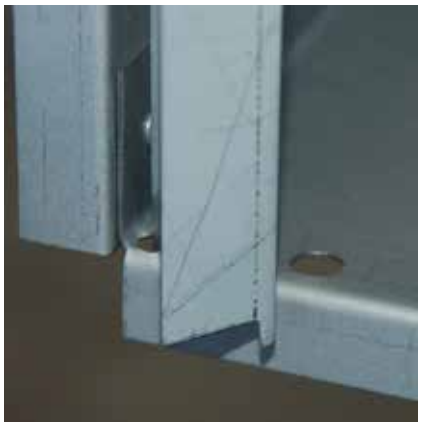
Step 1: The base is inserted and connected from inside to outside with self-tapping screws.

Step2: The brackets are fixed with rivets to the base.

Step 3: The cover is pushed in and fixed with rivets to the upper end of one bracket.

Step 4: The cover is fixed with self-tapping screws to the slide-in element.

Step 5: Attention: Before the last bracket is fixed with rivets, hook the locking bar behind at the top and bottom of the holes provided for this purpose.



Open locking bar.

Step 6: The last bracket is fixed with rivets only at this stage.

Step 7: Push the cube into the holding frame and fix the locking bar.

The closed locking bar holds the CUBE01 in its frame.

CUBE01 is inserted into its holding frame backwards, independently of the paint mist separator.

2.4. NFE02

surface area NFE02 0,77m²

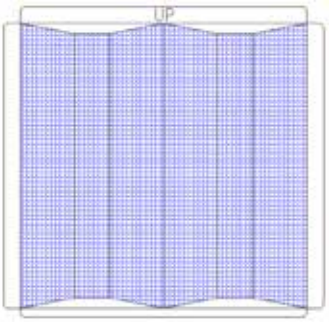
Property

As far as the filter surface area and depth are concerned, NFE02 is similar to the secondary filter of type CUBE01. However, in contrast to CUBE01, NFE02 is reusable. The filter surface area of 0.77 m² can be fitted and replaced with any filter medium. All spray media are suitable for this secondary filter version. NFE02 can be replaced either from the front or from the back in exceptional cases (with an additional mounting frame). The secondary filtering system NFE02 has an optimally integrated slow-down zone of 400 mm depth in two chambers.

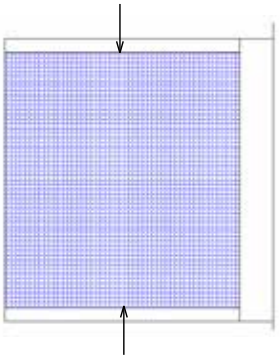
Set-up

The set-up video is available here:
www.edrizzi.com
www.youtube.com/c/edrizzi

To note during the set-up: Insert the filter medium with the coloured side inside. Correct and completed insertion and tensioning of the filter medium ensures leak tightness and hence, proper working. Attention: Glass filter mat must be inserted properly – the fleece must be located within the metallic bracket.



Glass filter mat
single colored side



Attention!

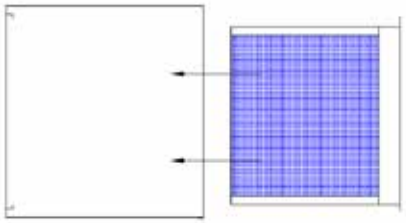
Step 1: To insert the filter medium, fold it exactly in the middle and pull it with the colour inside through the clamp in the frame.

Step 2: The filter medium is disguised with the coloured side inside over the outer edges of the frame.

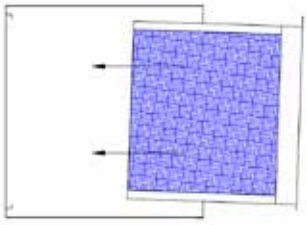
Step 3: Now, adjust the filter medium exactly in the frame and fix it with the clamp lock. In doing so, pay attention to ensure that the filter medium is clamped such that it is closed and aligned.

Installation in the edrizzi® system

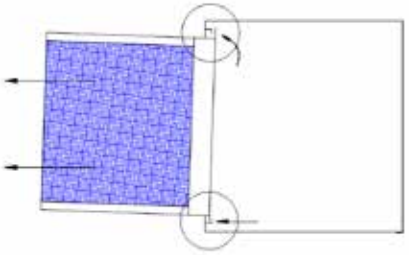
NFE02 is pushed with the narrow frame side down through the slide-in element and hooked in, as a result of which it is fixed with its self-weight. You need to pay special attention to hooking it properly which is why this is explained here in detail. The complete function is ensured only when you use original edrizzi® slide-in elements.
In exceptional cases, the installation may be done in the system with separate mounting frames, which enables access to and replacement of the NFE02 from behind.



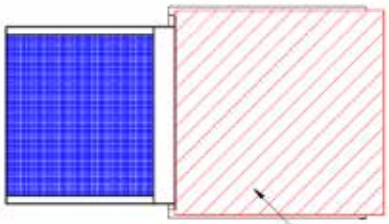
Step1: Lift NFE02 into slide-in element.



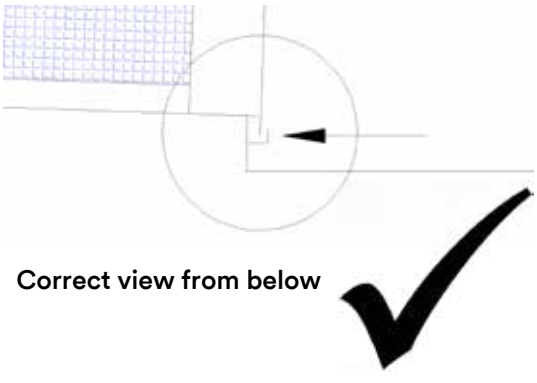
Step2: Hold NFE02 slightly angular.



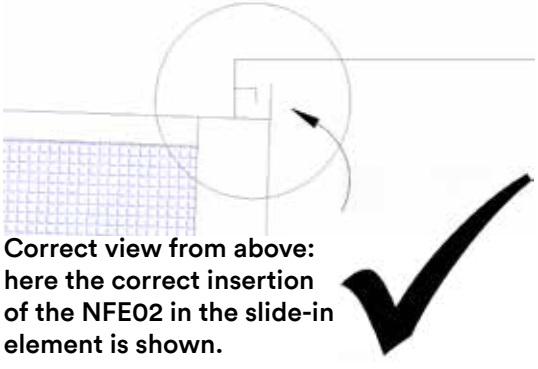
Step3: Insert NFE02 slightly angular then fit into slide-in element. Let go - filter is now fixed by own weight.



Insert edrizzi® paint mist separator.
Step4: The correct fixed secondary filter NFE02.

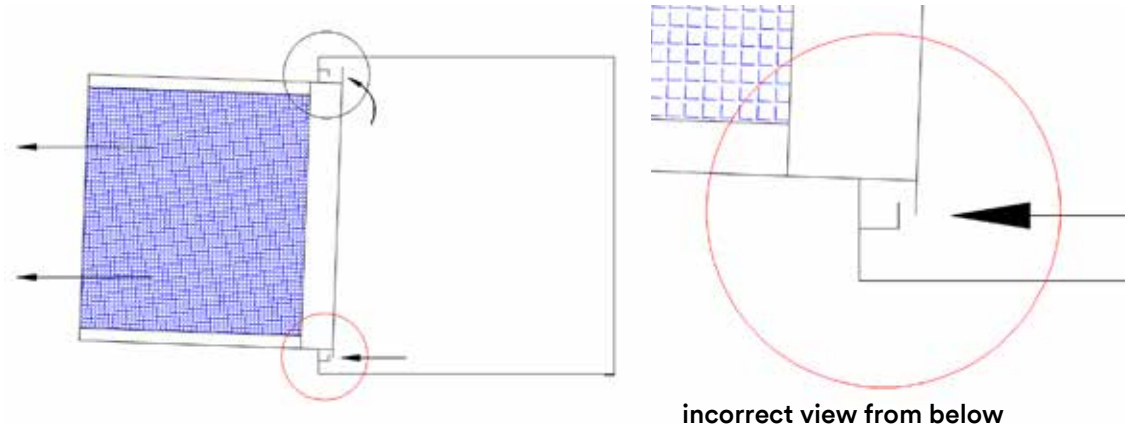


Correct view from below



Correct view from above: here the correct insertion of the NFE02 in the slide-in element is shown.

Caution – incorrect installation!



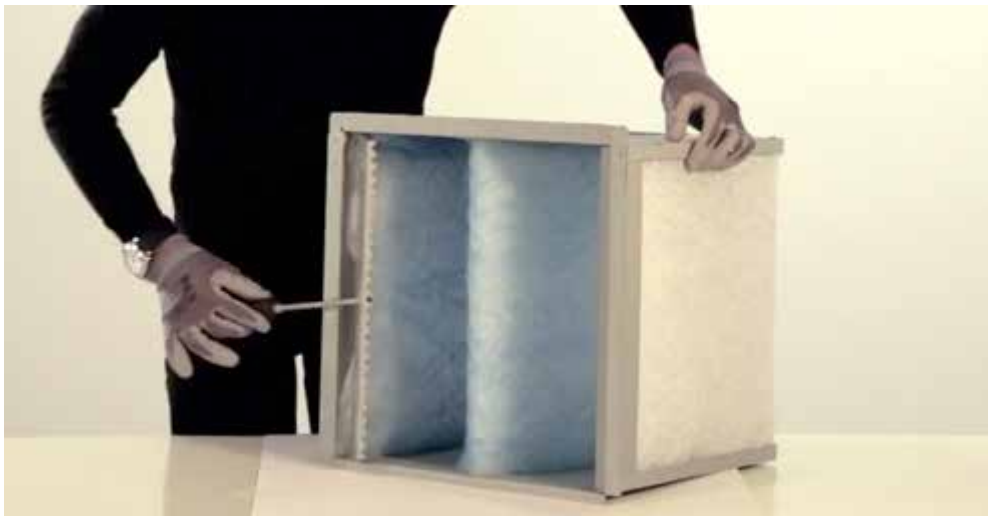
incorrect view from below

Replacement

Replacement from the front side: The VARIO paint mist separator must be removed before replacing this type of secondary filter. Next, remove the NFE02, replace the fibre glass mat and insert it again.

Replacement from the back side: Installation and replacement of NFE02 from the back side is possible only with an additional mounting frame. While replacing, the secondary filter is lifted behind out of the mounting frame, the filter medium is replaced and NFE02 is reinserted.

The filter medium is replaced in the same manner as at the time of setting it up the first time: Open the fixtures with a screwdriver, remove the saturated filter medium and insert a new filter medium. Always make sure that the filter medium is located within the metallic bracket.



Replacement of filter mat: With a screwdriver the replacemet is done easily and quickly.

In order to enable the secondary filter to be replaced quickly, the manufacturer recommends keeping a second set of NFE02 secondary filters in stock. The complete function is ensured only when you use original parts from edrizzi®.

2.5. NFEWP02 und NFEWP03

Surface area NFEWP02 0,22m²
Surface area NFEWP03 0,43m²

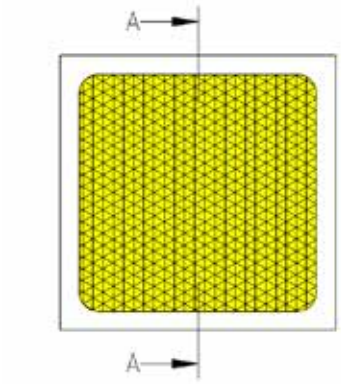
Property

The filter can be installed on the side or at the back. The advantage of this system is that the replacement is independent of the edrizzi® Vario. The secondary filter elements NFEWP02 or NFEWP03 consist of one box frame made of fire-retardant corrugated cardboard and a filter medium (different filter classes). The edrizzi® secondary filter elements NFEWP02 and NFEWP03 are introduced through a side opening – generally through side doors over the U-type slide-in rails. After saturation, these secondary filter versions can be removed and replaced without disassembling the edrizzi® Vario paint mist separator.

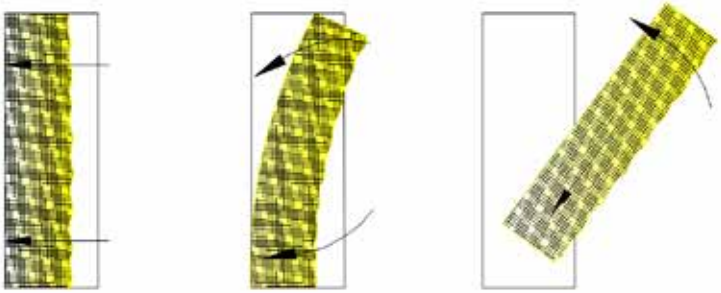
Set-up

The video for set-up is available here:
www.edrizzi.com
www.youtube.com/c/edrizzi

To be observed when setting up - place filter mat as follows:



Pay attention to the direction of inlet flow.



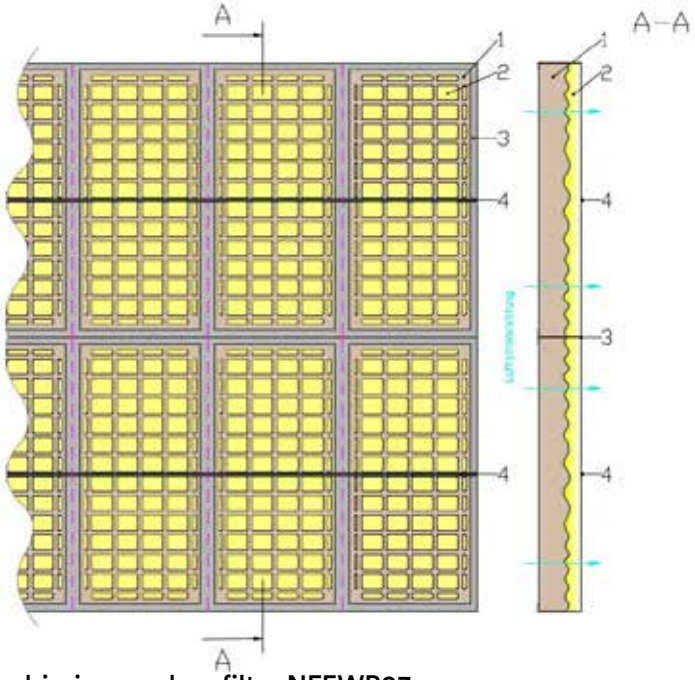
Place filtermat with coloured side in front into filterbox, press to backside.

The filter media may be fixed, if required with a stapling pliers or something similar, in order to prevent it from slipping with heavy over-spray.

Istallation in the edrizzi® system

NFEWP02/03 are installed „after“ the VARIO paint mist separator in the exhaust air zone so that they are easily accessible. U-type profile rails are mounted horizontally or vertically in such a manner that the secondary filters can be pushed in easily from the side.

When installing NFEWP03 secondary filtration, watch out for a fixture (see figure right, point 4) to prevent a rupture.



1. edrizzi secondary filter NFEWP03
2. Filter mat
3. Secondary filter holding frame
4. Rupture protection device

Picture left side: Proper installation of the secondary filter types NFEWP02 and NFEWP03.

NFEWP02 is not suitable for installation directly behind the edrizzi® VARIO paint mist separators in the slide-in element. This would inhibit the function of the paint mist separator since there is no air slow-down zone located in the system
(Refer to chapter 3.1. Slow-down zone in the system page 31).

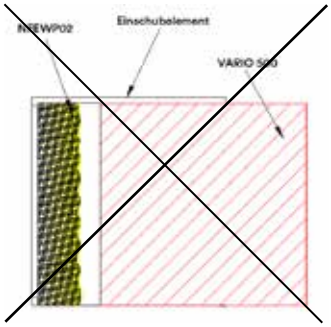


Figure: The secondary filtering system NFEWP02 is pushed directly into the slide-in element before the VARIO paint mist separators, which project further out of the slide-in elements as a result.

Replacement

The secondary filter versions NFEWP02/03 are replaced either from the side or behind. After saturation, these secondary filter versions can be removed and replaced without disassembling the edrizzi® VARIO paint mist separator.

2.6. NFEWP01

surface area NFEWP01 0,19m²

Property

The secondary filtering system NFEWP01 comprises one absorption box made of fire-retardant corrugated cardboard with a filter mat inserted (different filter classes). NFEWP01 is the secondary filter solution for systems where the installation of secondary filtering is possible only from the front through the slide-in element. It is installed only in the course of conversion or refitting, if the versions CUBE01, NFE02 or NFEWP02/03 cannot be used on account of space constraints. The edrizzi® secondary filter elements are placed through the front opening of the edrizzi® slide-in elements E 300 or E 500. This is why this secondary filtering is recommended only for retrofitting and in systems with a high degree of separation of the edrizzi® paint mist separator.

Set-up

The video for set-up is available here:
www.edrizzi.com
www.youtube.com/c/edrizzi

The set-up of the secondary filtering systems NFEWP01/NFEWP02/NFEWP03 is identical.

Installation in the edrizzi® System

A retention clip must be mounted on the slide-in element once to use the NFEWP01. NFEWP01 are inserted through the front opening of the edrizzi® slide-in elements E 300 or E 500 and fixed by the retention clip.

Figures: Place the steel clips in the slide-in element vertically, on the left and right side up to the mechanical stop. Connect them with self-tapping screws from inside to outside. Insert the secondary filter NFEWP01 through the slide-in element. The function is ensured only with original parts from edrizzi®.

Replacement

A retention clip must be mounted on the slide-in element once to use the NFEWP01. NFEWP01 are inserted through the front opening of the edrizzi® slide-in elements E 300 or E 500 and fixed by the retention clip.

Property

ULF is the acronym for Circulating filter technology (in German) and has been used since several years in the painting industry. The combination of edrizzi® with ULF yields a highly effective painting concept with up to 99 % separation for fast-drying surface materials. Secondary filtration service lifetimes up to one year are achieved with this version.

The system consists of a housing made of galvanized steel sheet with an edrizzi® VARIO paint mist separator and an extraction box, a continuously circulating filter fleece, the drive system and an extraction unit.

The edrizzi® Vario boxes are the first filter stage and separate out the majority of the paint mist. The circulating filter fleece behind it is used for secondary filtration. It traps the remaining fine dust particles and transports them continuously to the cleaning zone. A self-cleaning dust collector, which serves as a cleaning station, has been developed by the edrizzi® technical centre. This is where the dried paint material extracted in dry condition and cleanly is collected in a 200 litre tank. In this way, the circulating filter remains absorbent continuously. The air is extracted in the same way as in conventional spray booths with the help of extraction fans.

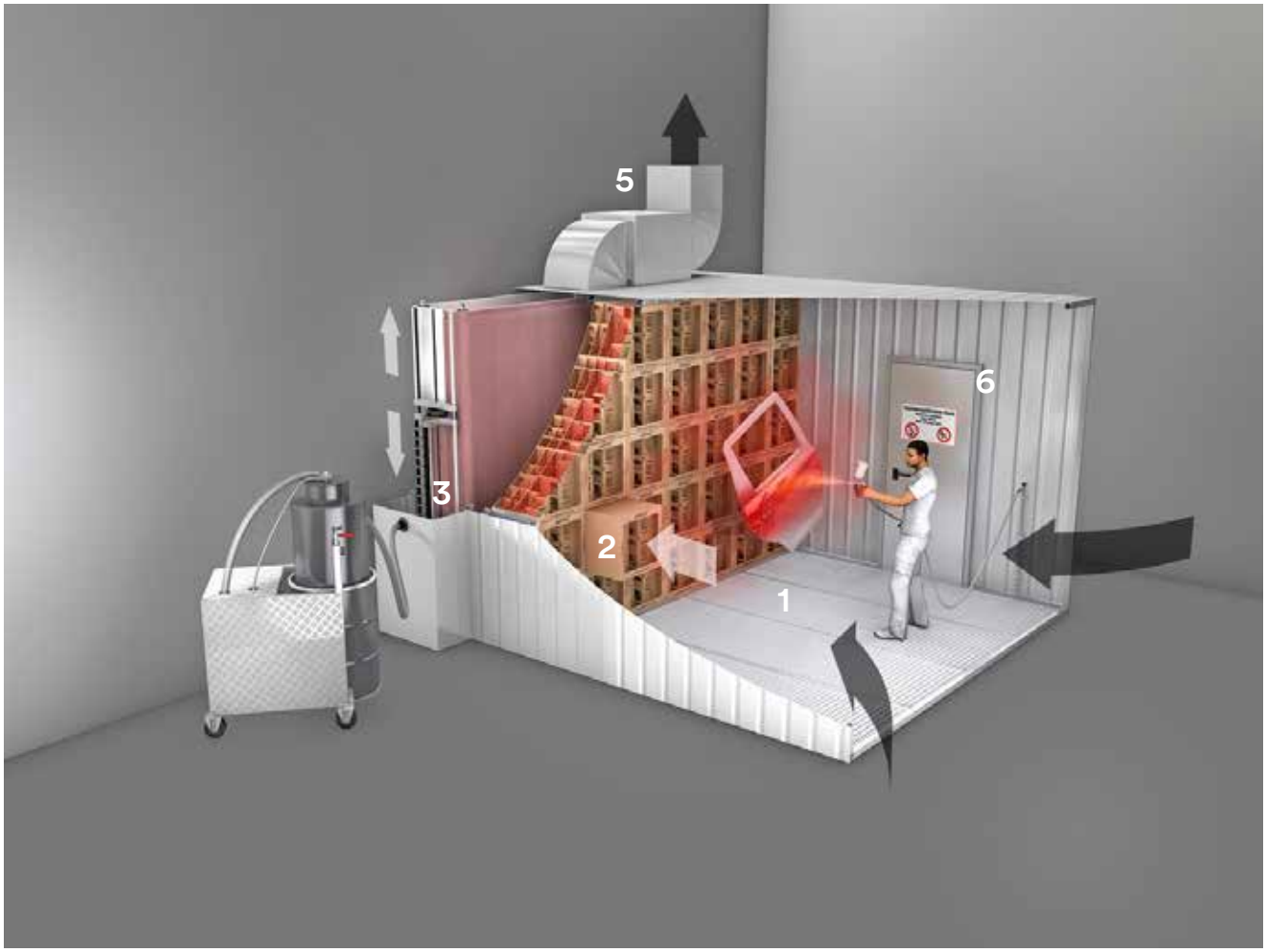
edrizzi® and ULF can be installed either horizontally or vertically just like all separator systems from the house of edrizzi®. Retrofitting in existing plants is easy and cost-effective. The edrizzi® and ULF system is one of the cleanest solutions for all areas of application in the painting industry – from simple manual spraying booths to powerful underfloor versions and right up to the edrizzi® and ULF system as an integral part of automated painting lines.

The ULF-dustcollector is self-cleaning.

The combination edrizzi® and ULF is highly efficient.

Installation in the edrizzi® system

The edrizzi® system with ULF consists of a housing made of galvanized steel sheet with an edrizzi® VARIO paint mist separation and an extraction box, a continuously circulating filter fleece, the drive system and an extraction unit.



1 Ergonomic area of application with reduced odour and noise
2 The edrizzi® separation wall with the appropriate Vario type
3 The sheet steel housing with the circulatory filter fleece including automatic extraction
4 The ULF dust collector
5 Exhaust air fan and piping
6 Booth enclosure

Property

The edrizzi® and ABRO system is the combination of an edrizzi® VARIO wall with an automatically operated and self-rolling secondary filter mat. The combination yields a highly effective painting concept with up to 99 % separation for adhesive surface materials. Secondary filtration service lifetimes of several weeks are achieved by this system, depending on the application.

The concept consists of a housing made of galvanized steel sheet with an edrizzi® Vario paint mist separator and an extraction box, a secondary filter mat and the drive system. A paint stop mat is used predominantly as the secondary filter. The edrizzi® VARIO boxes are the first filter stage and trap the majority of the paint mist. The filter mat behind it is used for secondary filtration. It separates the rest of the fine dust, and is automatically moved and rolled up again. The saturated filter mat can be replaced easily and quickly regardless of the degree of saturation of the VARIO boxes with the help of lateral access. The air is extracted in the same way as in conventional spray booths with the help of extraction fans. edrizzi® and ABRO can be installed either horizontally or vertically just like all separator systems from the house of edrizzi®. Retrofitting in existing plants is easy and cost-effective.

The edrizzi® and ABRO system is one of the cleanest solutions for all areas of application in the painting industry – from simple manual spraying booths to powerful underfloor versions and right up to the edrizzi® system as an integral part of automated painting lines.

Installation in the edrizzi® system

The edrizzi® and ABRO system consists of a housing made of galvanized steel sheet with an edrizziR® paint mist separation and an extraction box, a secondary filter mat and the drive system.

1 Ergonomic area of application with reduced odour and noise
2 The edrizziR separation wall with the appropriate Vario type
3 The automatically moved, self-rolling secondary filter mat, unsaturated
4 Exhaust air piping
5 Booth enclosure
6 Sheet metal body
7 Secondary filter mat, saturated

3. System design - From the slide-in elements to the separation unit

E300 und E500

3.1. Slow-down zones – Space in the coating booth An important factor when planning the edrizzi® system

The space between paint mist separation level and secondary filtration is called slow-down zone in the edrizzi® system.

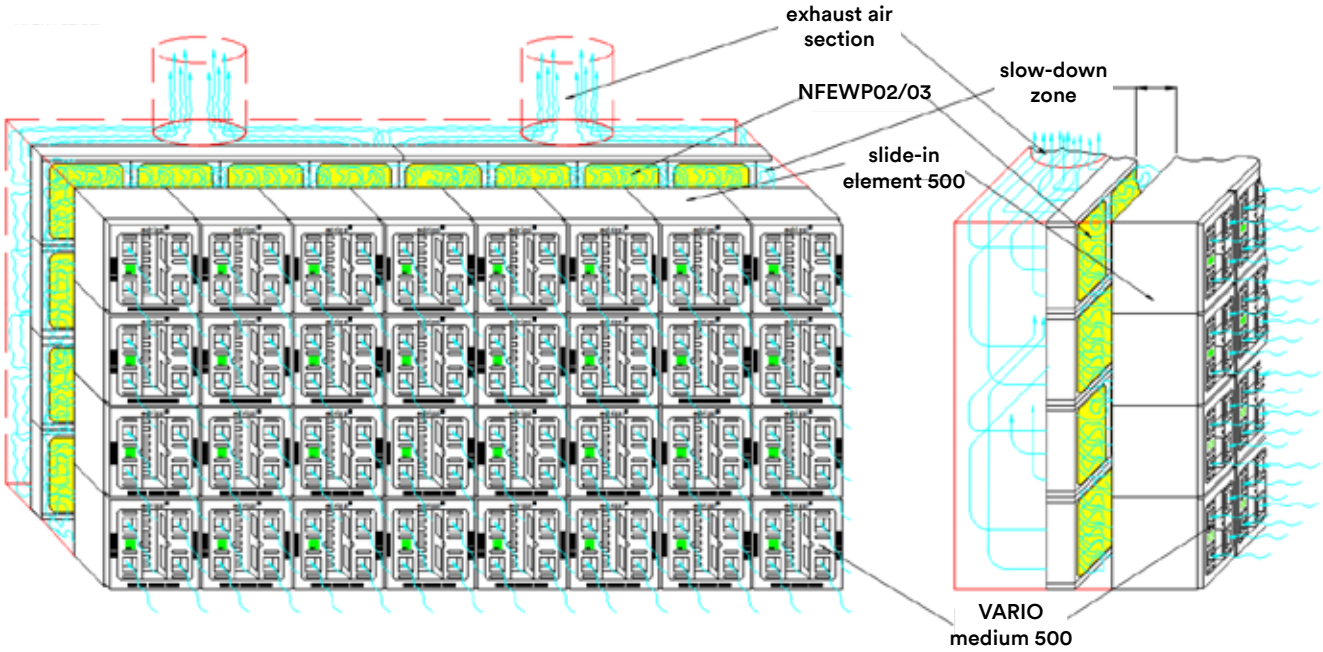


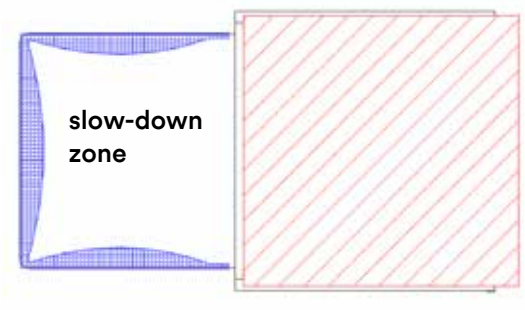
Figure: The requirements for the function of the edrizzi® system are slow-down zones for distributing the air flow between the paint mist separator and the secondary filtering system. You would come across the term slow-down zone in several sections of this User Manual, since they represent a key element in the edrizzi® system.

The function of the edrizzi® paint mist separator is based on the principle of inertia and is applicable only if the air can flow freely through the edrizzi® cube and then meets the secondary filtration stage after being distributed and slowed down. If the secondary filter gets affected very quickly, the function of paint mist separation is no longer ensured. Hence the selection of the secondary filter medium and the type of secondary filter is critical in the planning stage. The down time of secondary filtering affects the down time of the edrizzi® cubes. There are actually applications with materials in which you can dispense with the secondary filter stages.

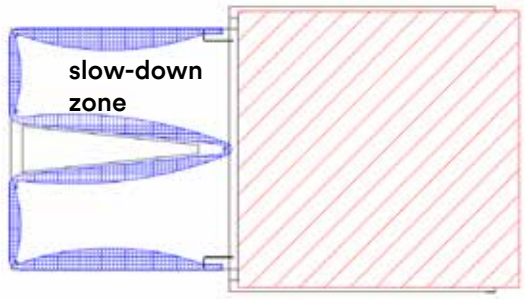
The following is applicable to the planning of the slow-down zones between the paint mist separator and secondary filter: Optimal depth at least 200 mm (NFEWP02/03), only in case of space constraints in case of retrofitting 50 mm (for secondary filter NFEWP01). Refer to chapter 1.8 air flow in the painitng zonce page 10 and chapter 2.2. adjustmment according to the system page 12.

For the secondary filter versions CUBE01 and NFE02, you do not need to plan any air slow-down zones. These are already integrated into the construction of the two secondary filter versions.

The slow-down zone of the edrizzi® secondary filter types at a glance

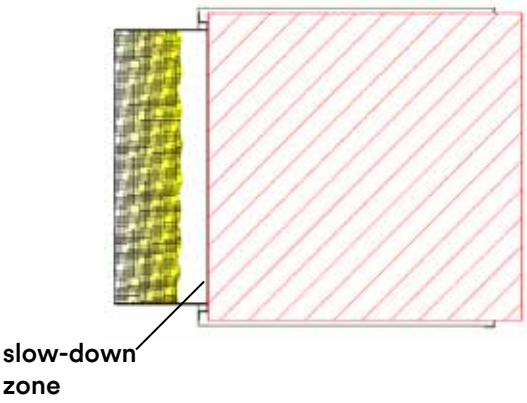


Secondary filter CUBE01 with optimally integrated slow-down zone: 400 mm air slow-down zone in two chambers.



Secondary filter NFE02 with optimally integrated slow-down zone: 400 mm air slow-down zone in two chambers.

Secondary filtering systems NFEWP02 and NFEWP03: At least 200 mm of air slow-down zone is planned in the construction.



Secondary filtering system NFEWP01: The least air slow-down zone with 50 mm – can be used only to a limited extent - with space constraints in the system.

3.2 Property of the slide-in elements

The edrizzi® slide-in elements E 300 and E 500 are used as supporting construction for the edrizzi® VARIO paint mist separators 300 and 500 and certain applications of secondary filtration. The edrizzi® boxes can be combined easily and quickly into a separator wall of any size desired – according to the icrements in size – with these elements. The slide-in elements are made of galvanised steel sheet or they are also made of stainless steel on request.

The slide-in elements with the edrizzi® VARIO can be used in painting booths with horizontal or vertical ventilation or a combination of both. Similarly, they may also be installed at a slant or in the underfloor region. It is possible to retrofit them in existing systems.

3.3. Set-up of single slide-in element

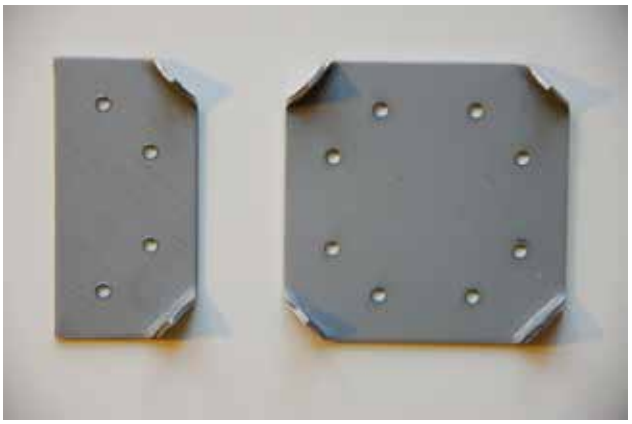
The video for the set-up of a single slide-in element is available here:
www.edrizzi.com
www.youtube.com/c/edrizzi

The slide-in elements are supplied in flat and disassembled condition. The left and right side walls are different. These are bent at an angle of 90°. It must be noted that the two short straps for riveting are located inside the slide-in element.

The scope of supply includes:

The prepared, pre-cut side walls

rivets



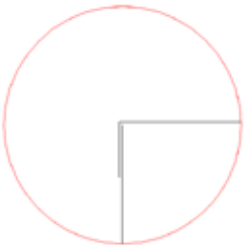
Junction plates

Self-tapping screws

To be observed when setting-up:
When assembling the individual elements on the straps, make sure that they must always be located inside the slide-in elements:

Correct assembling

Wrong assembling



Step 1: The different elements on the left and right are turned at right angles by 90°.

Step 2: The side walls are joined together. Pay attention to the straps that are provided for riveting inside the elements.

After setting up the single slide-in elements, they are combined to a paint mist separation wall, refert to next chapter 3.4.

3.4. Combination of slide in elements to a paint mist separtion wall - Vertical installation of the edrizzi®

Step 1: Prepare the number of slide-in elements: Align them in such a manner that the joints of the individual slide-in elements are always at the bottom and located on the same side either on the left or on the right – depending on the „Starting side“ of the installation.

Step 2: Begin with the horizontal set-up. Pay attention to the joint on the front side. Push it together with the „strapless“ side of the next slide-in element.

Step 3: Join the slide-in elements from inside to the outside with the junction plate and fix them with screws.

Step 4: Now begin with the vertical set-up and place other slide-in elements on the first row.

Step 5: Latch the individual slide-in elements to one another by pushing the joints into one another.

Step 6: During set-up, pay attention to the correct position of the joint in order to join the elements together to form a wall.

Step 7: The slide-in elements are joined from inside to outside with self-tapping screws over the junction plate.

Step 8: The junction plates are used for fixing at each edge of four slide-in elements. Proper welding directly in the junction area is also possible.

Always set up slide-in elements on a base, in order to ensure replacement of the paint mist separator in the lowermost row.

Insertion of the paint mist separators in the separation wall - vertical use

The edrizzi® paint mist separators are 50 mm deeper than the slide-in elements in order to avoid adherence of paint in the VARIO to the slide-in elements. The edrizzi® paint mist separators are pushed upright into the slide-in elements with the lettering legible.

The gaps on the front side are sealed off with foam rubber band or an adhesive tape, in order to facilitate replacement of the individual edrizzi® boxes after saturation. The multiple use of the foam rubber band is an advantage if the edrizzi® paint mist separators are replaced individually.

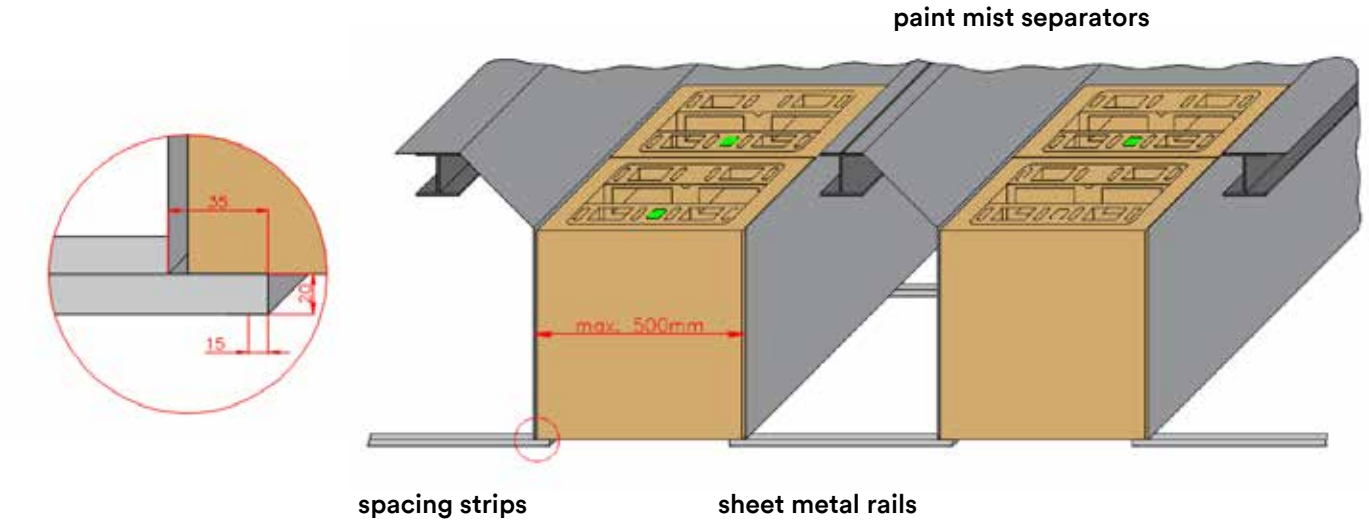
Adhesive tape is used if paint mist separators are changed all together.

When single paint mist separators are replaced use rubber band to seal off gaps.

3.5. The edrizzi® system underfloor - horizontal use

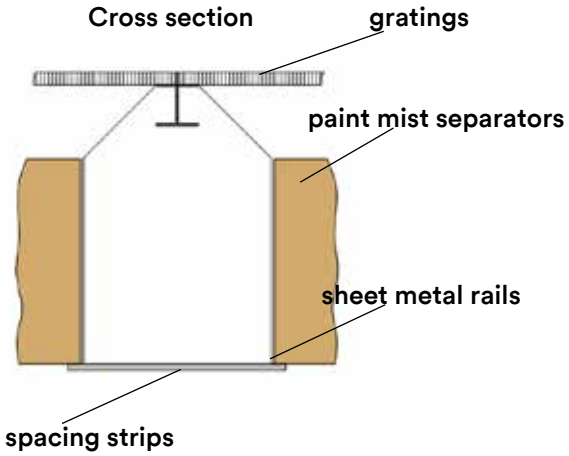
For „recumbent installation“ of the edrizzi® systems, no slide-in elements are used for the edrizzi® paint mist separators, and instead, prefabricated sheet metal troughs or rails are used. These devices are special constructions of the edrizzi® technical centre and constructed in such a manner that they form a surface for depositing the edrizzi® paint mist separators and facilitate access during replacement. In recumbent systems the air guide plates are masked off, grease or strippable varnish applied to them in order to protect them against dirt or impurities.

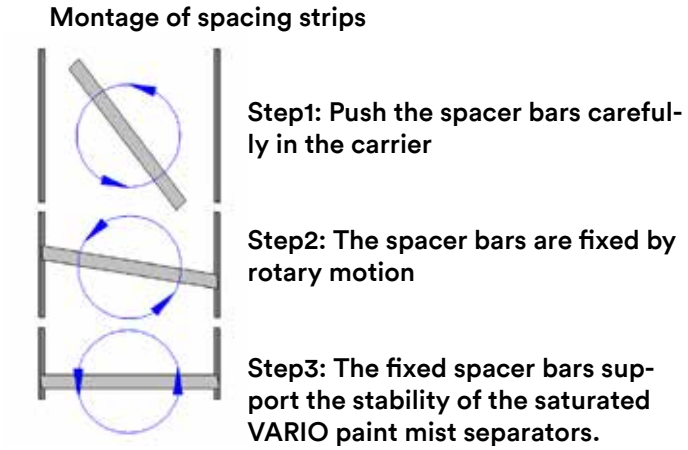
Example - Figure: edrizzi® system in application – Underfloor area: Since the paint mist separators increase in weight as they absorb the paint mist, they must be placed in the sheet metal troughs or rails in such a manner for the sake of stability that their top and bottom side – as illustrated in this picture – in any case lie against the rails/troughs.



Picture detail: Sheet thickness at least 2 mm!
Bend the joint in order to avoid injuries.

Figure: Proper insertion of the VARIO paint mist separator is illustrated in this angular cross-section: The base and cover of the VARIOS lie against the side walls of the sheet metal rails.





Example - Figure: For horizontal application, the conveying system is an important factor in the planning.

Example - Figure: The sheet metal troughs or rails are specially made by the manufacturer or the respective system builder and can be used for any type.

3.6. Differential pressure gauge

A pressure gauge is used in the edrizzi® system and it indicates the pressure differential in Pascal. Depending on the air management and the application, the value is marked as the ultimate differential with the first saturation of the paint mist separator. This value is used in future as a reference value for the replacement of the paint mist separator. A pressure gauge is optimal for each filter stage. This means one pressure gauge after the edrizzi® paint mist separation and one pressure gauge for each secondary filter stage.

Cakes of paint on the front side, however, do not mean saturation by a long shot, since the majority of the absorption takes place in the first one third of the paint mist separators and the depths are used to achieve the maximum degree of separation. For simple checking, a sheet of paper is held at the inlet opening while the system is running. If the sheet of paper is held in place by the extraction, it means that the paint mist separators are still functional.

Example for pressure gauge: The U-tube pressure gauge in an edrizzi® system with ULF in the edrizzi® technical centre before delivering the system.

Example for a pressure gauge: The U-tube pressure gauge.

4. New constructions with the edrizzi® system

4.1. Parameter to be observed when retrofitting the edrizzi® system

The edrizzi® system is designed and planned in coordination with the following factors:
1. System configuration – Arrangement of the spray devices
2. Conveyor system – Space in the coating booth
3. Surface material used
4. Air management in the coating booth - nominal volumetric flow of 2000 – 3000 m^3h per m^2 filtersurface.
5. The exclusive use of edrizzi® original parts or components recommended by edrizzi® is a prerequisite for function of the system

In the following, we illustrate prevalent examples of application of the edrizzi® system in new systems. We consider application-specific system solutions as a challenge and advanced development. Potential solutions in surface treatment are many, since, in practice, methods and processes are rarely comparable.

In several industries, we can draw on our several years of experience: Research and development in our in-house technical centre, numerous proven and running systems and close cooperation with renowned plant manufacturers stand for our know-how. Experienced employees of the edrizzi® technical centre take dimensions on-site and design the retrofitting and conversion to an economical and ergonomic coating system.

4.2. Example of a new built edrizzi® system - edrizzi® spray booth modular

For ease of retrofitting existing systems and also for new systems, edrizzi® recommends the modular spray booth, one with all the features of the edrizzi® systems – flexible in size, ergonomic, economical and with long service life.

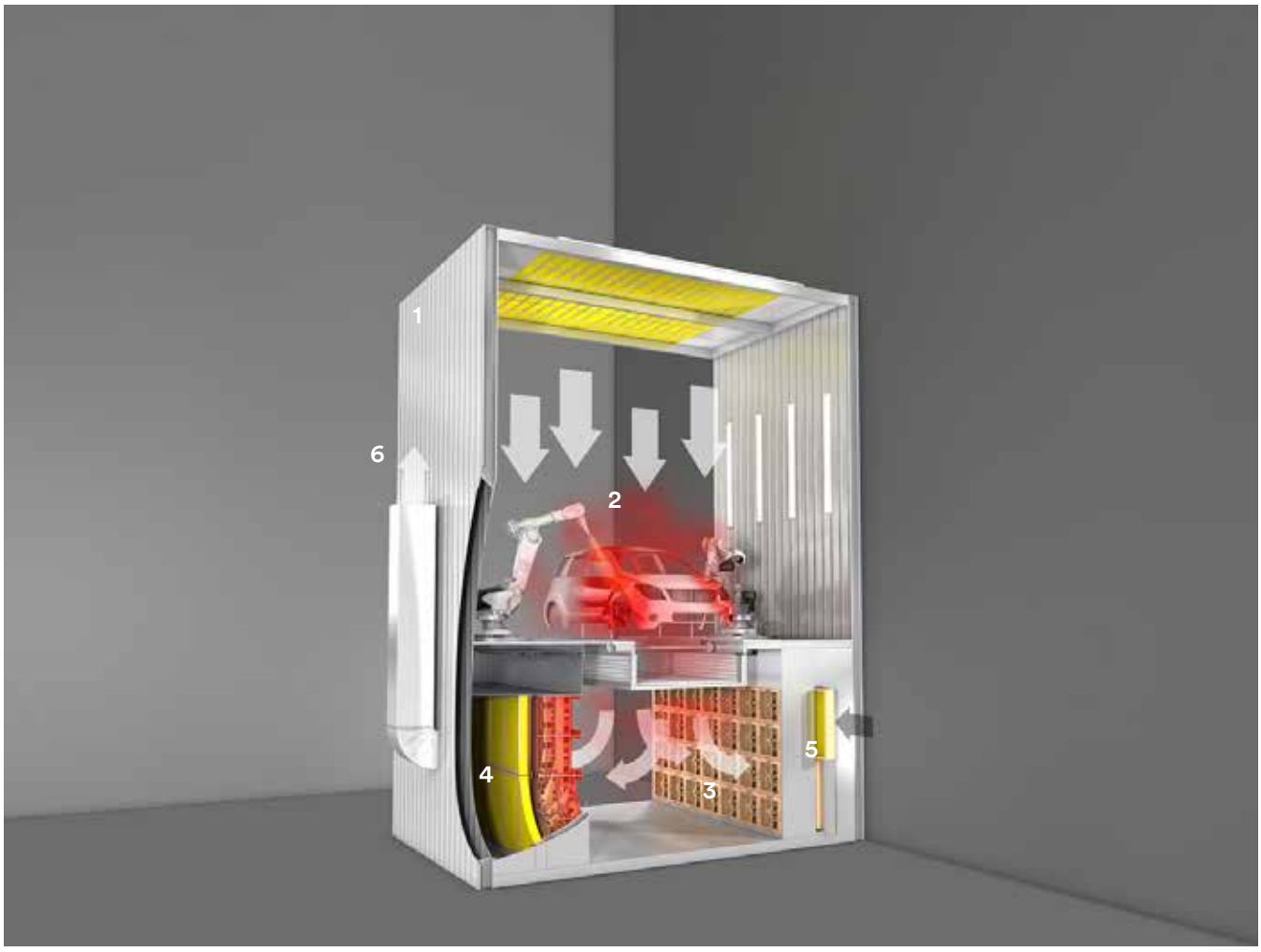
A sheet metal body with exhaust air ventilation and an edrizzi® VARIO wall with the appropriate type form the basis. Depending on the specific application, you may integrate up to two secondary filtration stages. The secondary filtrations in the exhaust air body can be replaced from the side independent of the paint mist separation. Depending on the application and the surface material, all elements of the edrizzi® system are available for secondary filtration.

A sheet metal body with exhaust air ventilation and an edrizzi® VARIO wall with the appropriate type form the basis of the edrizzi® modular spray booth.

1. Ergonomic area of application with reduced odour and noise
2. edrizzi® separation wall with the appropriate Vario type
3. Secondary filtration zone with side access to replace the secondary filter independently
4. Exhaust air fan and piping
5. Sheet metal body
6. Booth enclosure

4.2. Example of a new built edrizzi® system - edrizzi® system underfloor vertical

For new plants, the edrizzi® technical centre recommends that the paint mist separator is installed vertically below the gratings. This enables access to the edrizzi cubes independent of the painting zone and without removing the grating.



1. Heavy-duty gratings
2. The sheet metal trays are customised products and contain the edrizzi boxes
3. Secondary filter zone (can be installed alternatively in any area of the exhaust air sector)
4. Painting area
5. Booth enclosure

5. Retrofitting existing plants with the edrizzi® system

5.1. Parameter

Retrofitting can be done easily and cost-effectively. In practice, every coating system is different. Depending on the material, plant size, application and air management, different coating situations emerge. Clarify the following criteria with your plant builder, filter dealer or the manufacturer Brain Flash.

1. Application process of the existing plant
The selection of the system depends on the type of application with which the surface material is being applied. Depending on the application method, over-spray/paint mist, different edrizzi® paint mist separation systems may behave differently with the same surface material but with different application. This is why the application methods such as high-rotation bell, gun, airless, air mix, etc. need to be taken into consideration during design and planning.

2. Plant configuration
The arrangement of the spray devices has an impact on the system. If parts are coated continuously in a plant this often takes place with permanently adjusted guns, lifting units or robots that spray directly into the separation system. Large quantities of over-spray always reach the same surface in particularly wet condition. In this case, the over-spray reaches the edrizzi® paint mist separator directly by the spray pressure of the application. As a result, the over-spray is not absorbed only by the extraction unit but also by direct „coating“ of the paint mist separator. In such applications, the edrizzi® system has particularly proven itself and it achieves a considerable service life.
In several plants – for example in the underfloor area – the absorption of the over-spray takes place in most cases only by extraction and not by direct „coating“.

3. Conveyor system
The different conveyor systems (suspension system, floor conveyor, skit, rotary indexed tables, etc.) have an impact on the position and installation options for the system. In the workpiece rotary zone, the depth of the system must be considered in order to ensure adequate clearance to the work-pieces. Even the grating in the existing system may have an impact on the installation of the edrizzi® system: If you can walk on these (heavy load) and if there is accessibility and place to the zone below the grating, the edrizzi® systems should preferably be installed underfloor.

4. Surface material used
The material being used affects the type of the paint mist separator and the type of secondary filtering. You need to differentiate between water-based paints or solvent-based paints, fast-drying or slow-drying paints, tacky or powdery, 2-component system or burn-in system, etc. While designing the system, you can carry out a coating test in the edrizzi® technical centre of Brain Flash Patententwicklungs-GmbH. For flammable surface coating materials, fire safety must be ensured for the coating booth.

5. Air management in the coating booth
The inlet flow speed is critical for the proper working of the system and can be specified with the help of the filter surface. A nominal volumetric flow rate of 2000 – 3000 m^3/h $perm^2$ filtersurface must always be achieved. Before reconstruction, the values of air quantity and pressing, initial pressure differential, air moisturization, etc. need to be recorded and taken into consideration in the design and planning.

6. Original edrizzi® parts
The exclusive used of original edrizzi® parts or components recommended by edrizzi® is a prerequisite for the function: It is only in this way that the working of the system can be ensured and provides flexibility in the use of different types of paint mist separators and secondary filter systems.

5.2. Example of retrofitting a plant - the edrizzi® system vertical

When edrizzi® cubes are built-in „upright“ in an existing spray booth, this is called vertical use of the edrizzi® system or vertical retrofitting. The retrofitting can be carried out from wet-to-dry or dry-to-dry. Slide-in elements build the separator-wall. Following factors are to be respected:

- The use of original edrizzi® parts to match paint mist separation and follow-up filtration.
- To provide the slow-down zone appropriate the edrizzi® secondary filter types (page 32).
- A backward access to the follow-up filtration area is optimal for a change of secondary filter independently of the edrizzi® paint mist separators.
- Circulation or exhaust air in the painting zone.

Application automotive supplier

1.Application process	robot with spray gun varnishing small plastic parts
2.Plant configuration	Dimensions: 6×3m, troughput varnishing, retrofitting wet-on-dry
3.Conveyor system	Overhead conveyor
4.Surface material	2K-waterbased paint, solvent based paint Paint consumption: 120kg/day Overspray: 60%
5.Air management paint shop	Air volume: 30.000m³/h Air speed: 0,35-0,45m/s
6. Data after reconstruction to edrizzi® system with original parts	Cost savings due to edrizzi®: € 65.000,--/yearly Remodelling costs: € 50.000,-- once Change cycles: edrizzi® VARIO 300 fine: 2 weeks/15 pcs./3,75m² Secondary filter NFEWP03: 3-4 weeks/15 pcs./7,5m² secondary filter NFEWP03 filter mats: 1 week/15 pcs./7,5m²

Step1 - retrofitting: Waterwall is removed, depression chamber lays bare.

Step2 - retrofitting: Slide-in elements are assambled to bear edrizzi® paint mist separators and secondary filters NFEWP03.

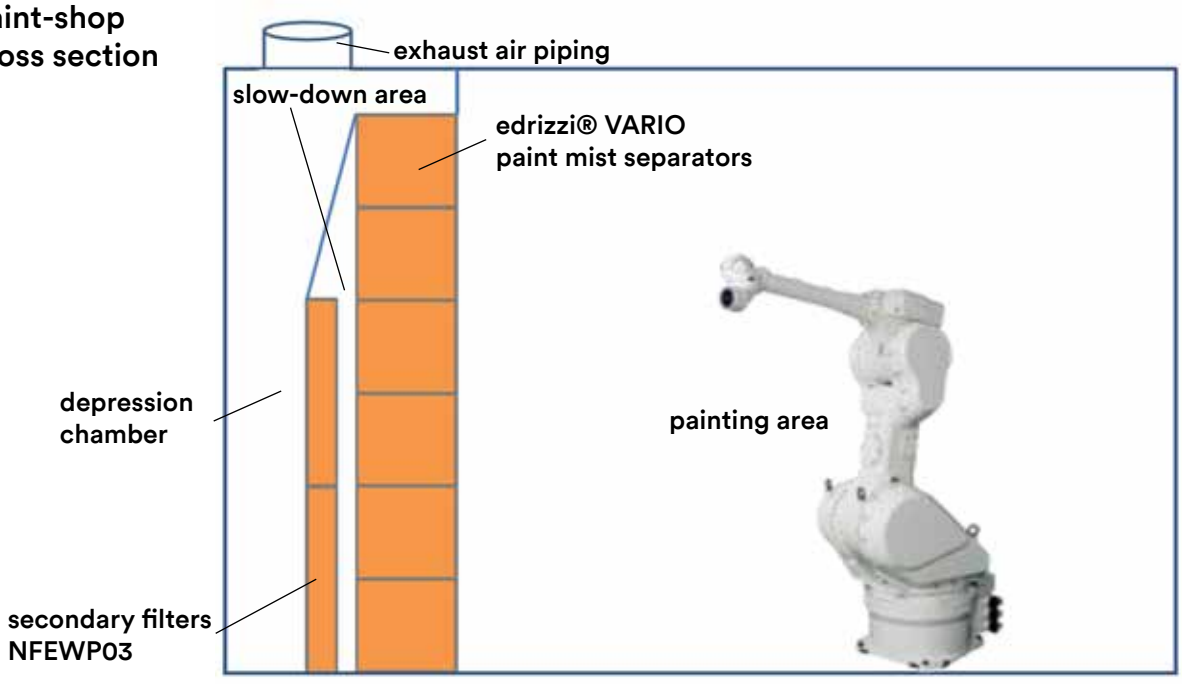
Step3 - retrofitting: Rear view of edrizzi® wall including paint mist separators and secondary filter elements NFEWP03.

Step4 - retrofitting: Rear view of separation wall fully equipped with edrizzi® VARIO and NFEWP03.

Step5 - retrofitting completed: The depression chamber.

Step6 - retrofitting completed: Rear door to depression chamber for secondary filter change.

paint-shop
cross section



5.3. Example of retrofitting a plant - the edrizzi® system horizontally underfloor

For floor extraction, the edrizzi® system can be installed horizontally or vertically just below the gratings of the painting area. This version is commonly used out of shortage of space in the existing spray booth. Many paint shops in the automotive and automotive supplier sector are using this system.

The edrizzi® cubes are lowered in sheet metal inserts (sheet metal trays or rails) below the gratings. These inserts are produced in all sizes as special customised units. With this application, the edrizzi® system that has a service life of up to thirty times that of conventional systems is of special benefit, since with heavy-duty gratings the rare replacement of the paint mist separators enhances the economy of the plant by many times.

1. Heavy-duty gratings
2. The sheet metal trays are customised products and contain the edrizzi boxes
3. Secondary filter zone (can be installed alternatively in any area of the exhaust air sector)
4. Painting area
5. Booth enclosure

6. FAQ

Installing the edrizzi® system

How are edrizzi® VARIO paint mist separators installed correctly in the edrizzi® system?
Refer to chapters 1.5 and 1.6 pages 8 and 9.

How is the secondary filter installed properly?
The secondary filtering system is selected depending on the plant situation (air management, application method, surface material). A slow-down zone is absolutely essential between the paint mist separator and the secondary filter stages. Refer to chapter 2 pages 11 to 30.

Can you also install the edrizzi® cube in a recumbent position and, if yes, how?
The edrizzi® paint mist separators are also installed horizontally. Sheet metal troughs or rails are fabricated for this purpose in which the paint mist separators are inserted. These constructions with the paint mist separators are located below the grating. The economy of the edrizzi® system is increased many times especially for large industrial plants with heavy-duty gratings. Refer to chapter 1.6 page 9.

Can edrizzi® paint mist separators also be installed in the course of retrofitting Venturi even above water?
It is possible to use the paint mist separators in combination with wet extraction if the distance to the Venturi system is so large that the edrizzi® VARIO cubes do not come into contact with water under any circumstances. In this plant combination, the Venturi serves as a secondary filtering system.

Does the sheet metal construction need to be disassembled for walls sprinkled with water if the edrizzi® system is being retrofitted?
For retrofitting an edrizzi® paint mist separation system with secondary filtering, only parts of the sheet metal wall need to be removed. In most cases, with water systems there is adequate space for retrofitting the edrizzi® system, since the distance to the work-pieces is already sufficient on account of the water.

What is the purpose of the 5 cm tolerance that is obtained when sliding in the edrizzi® cubes in the slide-in element?
As a result of this, paint adhesion to the slide-in elements is prevented.

Do the joints of the edrizzi® paint mist separator have to be provided with a masking tape after installation in their slide-in elements?
In plants in which edrizzi® paint mist separators are sprayed directly by the application, masking the joints is absolutely necessary. In those coating plants in which edrizzi® VARIO over-spray is absorbed only by extraction (e.g. underfloor systems), the paint mist separators must not necessarily be masked. When using the edrizzi® system in the recumbent position, the air guide plates are masked off, greased or applied with strippable varnish in order to protect them against dirt or impurities.

Can the edrizzi® cubes in the underfloor zone be used if the grating is cleaned with high pressure?
No. You cannot use the edrizzi® systems here. Exception: With a second set of gratings and cleaning these outside the coating booth.

Can different Edrizzi® types be combined?
Different edrizzi® types can be combined in one plant depending on the application, and, in fact, of different depths, for the sake of space constraints.

What precautions regarding fire safety must be taken when using the edrizzi® system?
In principle, in any dry separation, there may be inflammation when using combustible surface materials. The triggers are not the edrizzi® paint mist separators under any circumstances, but always the self-inflammable surface material. In these cases, you need to adopt the following measures in the coating plant: Extinguishers, thermal imaging camera and temperature monitoring. Before putting into operation, clarification is always necessary with the suppliers of the surface materials.

When is a secondary filter used and which type?
The secondary filtering is used as a second filter stage after the edrizzi® VARIO for safeguarding fine dust from the waste air in order to ensure compliance with prescribed values (that may vary for each country). Depending on the surface processing material, the replaceable edrizzi® secondary filter elements CUBE01, NFE01 and NFEWP01, 02 or 03 including filter medium or the automatic secondary filtering systems edrizzi® and ULF and edrizzi® and ABRO are recommended. Special solutions can be developed and tested at the in-house technical centre. Refer to chapter 2 secondary filtration pages 11 to 30.

How is the distance between the paint mist separator and the work-piece defined?
The minimum distance depends on the size of the work-piece. The work-piece should not touch the paint mist separator when it is being rotated.

Application of the edrizzi® system

What do you need to do if the edrizzi® VARIO medium does not achieve the desired result after the first test run?
a. Since almost every use of the edrizzi® system represents a combination of the edrizzi® paint mist separator and the secondary filter element, the secondary filter condition should be checked first. In most cases, replacing the type of secondary filter or increasing the area of the secondary filter is an efficient method for enhancing the standard of the edrizzi® paint mist separation system.

b. Only if improving the secondary filtration does not achieve the desired level of success, should you use the edrizzi® VARIO. This edrizzi® cube has the advantage that it achieves a significantly higher degree of separation and thus, extends the service life of the secondary filter. Conversely, it behaves here with the service life of the edrizzi® VARIO fine. With splashing here using very fast-drying materials, the service life gets reduced by its lower storage capacity.

c. If surface materials are sprayed that tend to foam or froth in the edrizzi® cube, or they get converted within the least time to so-called „limestone caves“, they can be extracted only with the edrizzi® VARIO rough system. Only this type is constructed in such a manner that despite the absorption properties of the surface material, desired service life periods can still be achieved.

When is an edrizzi® VARIO cube saturated?
A cake of paint in the front side of the edrizzi® paint mist separator does not mean that the filter is saturated! The main part of the paint dust is collected in the one third in the front, while the guiding systems deep down are used to achieve as high a degree of separation as possible and should not get completely saturated. For simple checking, a sheet of paper is held at the inlet opening while the system is running. If the sheet of paper is held in place by the extraction, it means that the paint mist separators are still functional.

When are the secondary filters in an edrizzi® system saturated?
With saturated secondary filtering systems the air ventilation reduces and the secondary filters must be replaced. Independent replacement of paint mist separation system and secondary filtering system is optimal.

Can edrizzi® cubes be replaced individually?
Yes - after complete saturation, individual paint mist separators and individual secondary filters can be replaced in a flexible manner.

What needs to be done if the surface material tends to froth heavily?
In this case, the edrizzi® VARIO rough is the right choice of paint mist separator. (Refer to chapter 1.2 pages 2 to 4). In extreme situations, the manufacturer recommends constructing proven edrizzi® plastic fins in front.

What needs to be done if the surface material used generates very dry over-spray and the desired degree of separation is not achieved?
a. In this case, you first need to check the air speed.

b. In the second step, the secondary filter situation is analysed - especially the slow-down zone between the secondary filtering system and the paint mist separation system. This must be at least 200 mm. (Refer to chapter 3.1 pages 31 and 32)

c. As the third approach to finding a solution it is recommended to use the edrizzi® VARIO fine. In new plants, for such applications, it is recommended to use edrizzi® and ULF or edrizzi® and ABRO as a completely automatic secondary filtering system (Refer to chapters 2.7 and 2.8 page 27 to 30).

What needs to be done in case of fire hazard in the coating booth?
In general, the application of the edrizzi® system needs to be clarified in advance with the paint manufacturer. If necessary, a fire monitoring system needs to installed in the system (e.g. infrared camera or temperature monitoring) and provision made for fire extinguishing systems.

What needs to be done if filter mats slip in the secondary filter systems NFEWP01/02/03 by the weight of the over-spray and the function gets impaired as a result of this?
In this case, the filter mats must be fixed with stapling pliers to the box frame in order to prevent slipping.

What needs to be done if the edrizzi® paint mist separator gets deformed as a result of storage or transit damage?
The edrizzi® VARIO paint mist separator must be stored so that it is dry and flat, in any case.

What needs to be done if the service life of the VARIO paint mist separator is too low?
After checking the secondary filter stage and air ventilation, you may change over to another type of edrizzi® VARIO paint mist separator to increase the service life.

What needs to be done if the degree of separation of the VARIO paint mist separator is too low?
After checking the secondary filter stage and air ventilation, you may change over to another type of edrizzi® VARIO paint mist separator to increase the service life.

What needs to be done if the under-pressure is too low?
You need to check the ventilation in this case: Increase the fan speed or replace the fan.

What needs to be done if the under-pressure is too high?
The fan power must be adjusted. The filter surface area must be adjusted to the air ventilation.

Do all VARIO paint mist separators always have to be replaced after a fixed replacement interval?
No, even individual boxes can be removed and new ones can be inserted depending on the saturation.

What needs to be done if the secondary filter stage gets saturated earlier than the paint mist separation system?
In this case, the secondary filter surface area needs to be increased or the filter medium in the secondary filtering system needs to be adapted. Possibly, the type of secondary filtering should be replaced.

What needs to be done if the edrizzi® paint mist separator cannot be placed upright?
The set-up of the individual types is explained in detail in the edrizzi® set-up videos. The videos are available at the edrizzi® website and in the edrizzi® YouTube channel (www.edrizzi®.com, www.youtube.com/c/edrizzi) .

Is the edrizzi® system functional even without a secondary filtering system?
In exceptional cases, the edrizzi® system is functional even without secondary filter stages? If a test run yields the required values for the degree of separation, you may dispense with the secondary filtering systems. It is beneficial in this case to conduct a test in the edrizzi® technical centre.

When using the edrizzi® paint mist separation systems, can you apply coating in circulating air mode?
Yes, the edrizzi® system can be applied in circulating air mode.
The changeover from wet to dry coating reduces the costs of energy in coating by many times as a result of circulating air mode:

Does the edrizzi® system work even if lighting is being used?
Yes, the edrizzi® system can be used with a lighting system.

Can the edrizzi® cube be used more often?
No, saturated edrizzi® boxes must be replaced.

Can secondary filters in the edrizzi® system be used more often?
The filter medium cannot be reused. CUBE01 is only a disposable filtering system. NFE02 is a reusable filtering system. In principle, even the absorption frame made of corrugated cardboard of the secondary filter of types NFEWP01, 02 and 03 can be used more than once with very dry over-spray, since the filter media can be replaced more often independent of the box.

What is the minimum quantity of air in an edrizzi® system?
The nominal volumetric flow rate must be at least 2000 – 3000 m^3/h per m^2 filtersurface.

How does it behave with the minimum or maximum inlet flow speed in an edrizzi® system?
The minimum inlet flow speed is 0.25 m/sec. in the underfloor zone.
The maximum inlet flow speed is 2 m/sec. (more in exceptional cases).

Are there materials that cannot be separated or separated only with difficulty?
In principle, every medium that can be sprayed is separable. For UV paints, for example, the over-spray can be hardened or cured only with an UV lamp – thus, UV lamps must be installed in the coating plant. In the case of burn-in coatings, the edrizzi® paint mist separator must be hardened or cured in the furnace. For all doubtful surface materials, the manufacturer is available for queries or it is recommended to conduct a material test in the edrizzi® technical centre.

How are the VARIO paint mist separators sealed off if all boxes are not replaced simultaneously?
It is recommended here to seal off the joints of the individual paint mist separators on the front side with a foam band or something similar and to dispense with adhesive tapes.

Why is fire-retardant paper used for edrizzi® products?
The manufacturer uses fire-retardant material in order to comply with the statutory provisions in coating companies: Certification DIN 4102 Testing for low flammability. Construction material class B1: fire-retardant.

How are edrizzi® products stored on fire-retardant paper?
edrizzi® VARIO paint mist separation systems are supplied in flat and un-installed condition to conserve space. Recommended conditions for storage and usage are temperature of 15-25°C and relative atmospheric humidity of 45-65%.

7. Safety instruction for handling paint mist arrestors

Instructions for reducing the risk of self-ignition in the case of paint-loaded paint mist arrestors

The classification of paint mist arrestors as “very flame-retardant construction material” according to IN 4102 applies only to the state of the material without paint loading. As soon as organic – and therefore flammable – (paint) material has been arrested in the filter, it is no longer possible for the filter manufacturer to predict how the filter will behave in the event of a fire.

The following precautions should be taken in order to reduce the risk of self-ignition (resulting from excessive residual solvent content):

The paint mist arrestor should not be removed directly after spray-painting, as there will still be a high proportion of solvent in the arrested paint particles (overspray). The paint mist arrestor should remain in the spray cabin at least until it is “dust-dry” with the airflow running.

After removal, the paint-loaded paint mist arrestor should under no circumstances be placed in a closed container for intermediate storage -> acute risk of explosion!

In the period between removal and final disposal, the paint mist arrestor should be placed in intermediate storage. The method of intermediate storage should allow unimpeded air exchange and evaporation of the residual solvent. Direct exposure to sunlight should be avoided during intermediate storage, as the rate of evaporation may be greater than the rate at which the solvent can be wicked away
-> local accumulation -> self-ignition.

It is certainly conceivable that mixing different paint systems and using paints from different manufacturers could also facilitate self-ignition. We therefore recommend that you obtain the relevant safety instructions from the relevant paint manufacturer and comply with them meticulously.

We would like to point out that even compliance with these instructions cannot entirely rule out the risk of self-ignition. Please therefore observe the relevant ordinances on dealing with hazardous substances.