



**PATENTED**  
EP 2736656  
EP 2953727  
**TECHNOLOGY**

**Experience  
E-Cube –  
mobile and in  
Augmented Reality!**

## EXPERIENCE E-CUBE IN AUGMENTED REALITY – WHENEVER YOU LIKE!



Download the **mobile** E-Cube App on the Apple Store or Google Play Store.

You can access the E-Cube AR app directly by clicking on the linked store buttons or by scanning the QR codes with your mobile device.



Scan this card as a “visual anchor” to reach E-Cube system in augmented reality.



On the next slide you will find a larger version of the “visual anchor”. You can use it as a print template.

# EISENMANN

SIMPLE, SUSTAINABLE, EFFICIENT



**download** app and  
**scan** this card to  
**experience** e-cube live

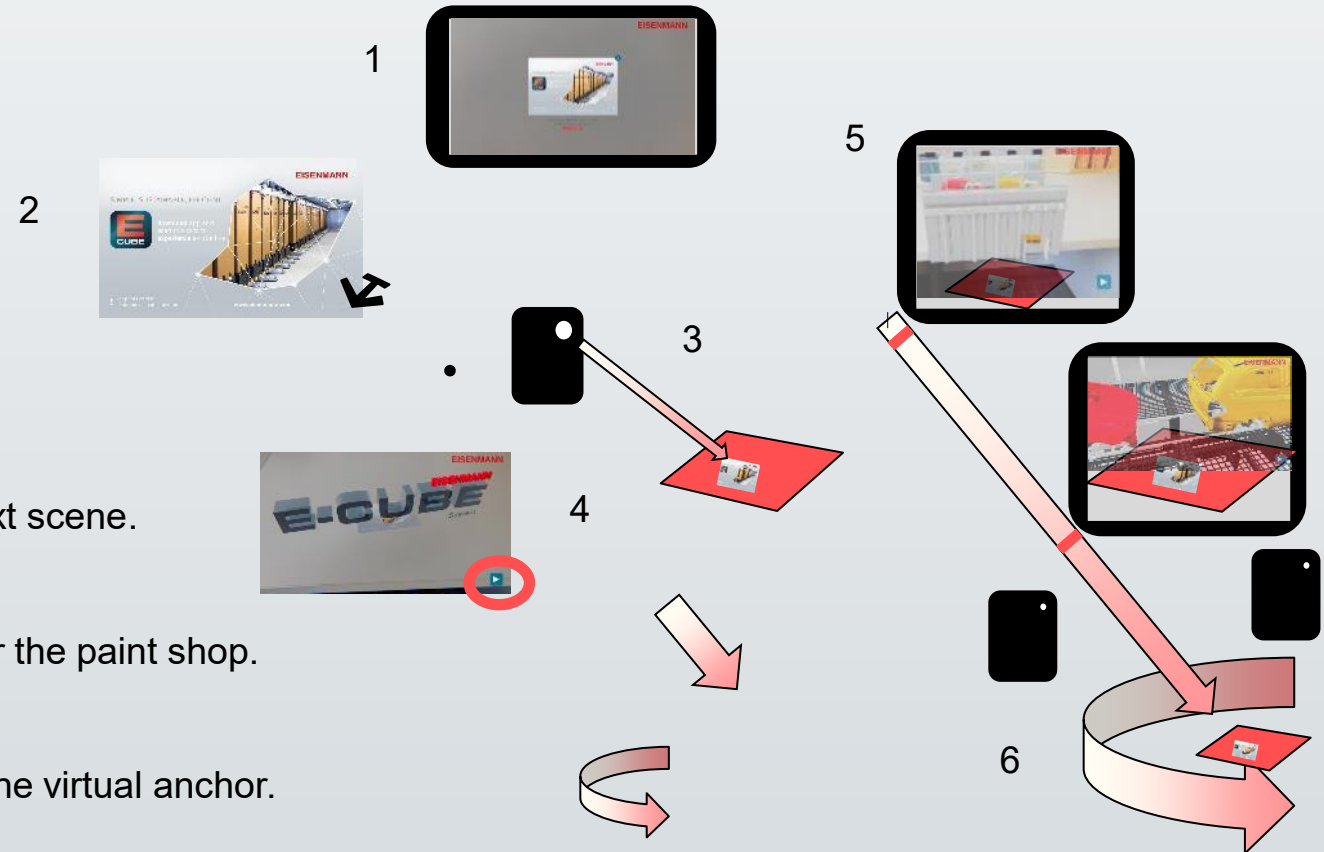
! keep this card to  
• experience e-cube anytime

[www.eisenmann.com](http://www.eisenmann.com)



## E-CUBE – HOW TO USE THE MOBILE AR-APP

1. Once downloaded, install and launch the application.
2. Lay the optical anchor (📄) flat in front of you.
3. Point your mobile device camera at the optical anchor.
4. Click the blue play button to start a scene and skip to the next scene.
5. Move your device towards the virtual anchor to virtually enter the paint shop.
6. Move around the paint shop by moving your device around the virtual anchor.
7. Experience the system, wherever you are.





## E-CUBE – PLANT TECHNOLOGY



### Dry Scrubber System for Overspray

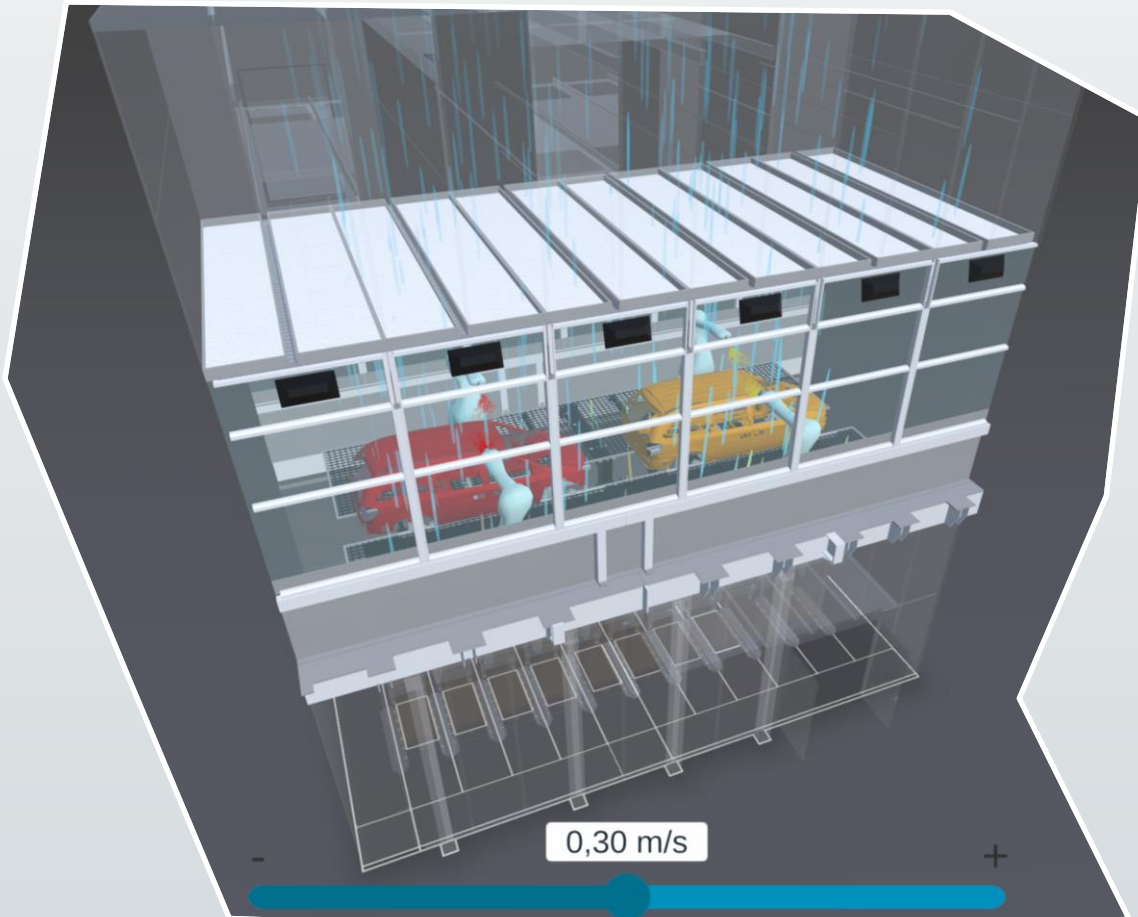
Heart of the Paint Shop

- Paint Booth
- Fresh air supply via Plenum
- Robots and conveying system on grid level
- (Calming room/) expansion room for focus on
- Centralized Filter system

### E-Cube

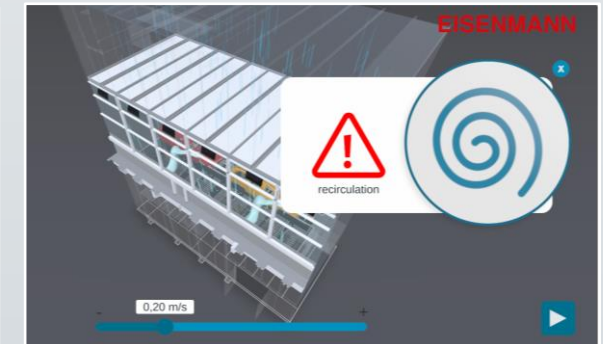
Modular system with 1 module / m booth length

## E-CUBE – PLANT TECHNOLOGY

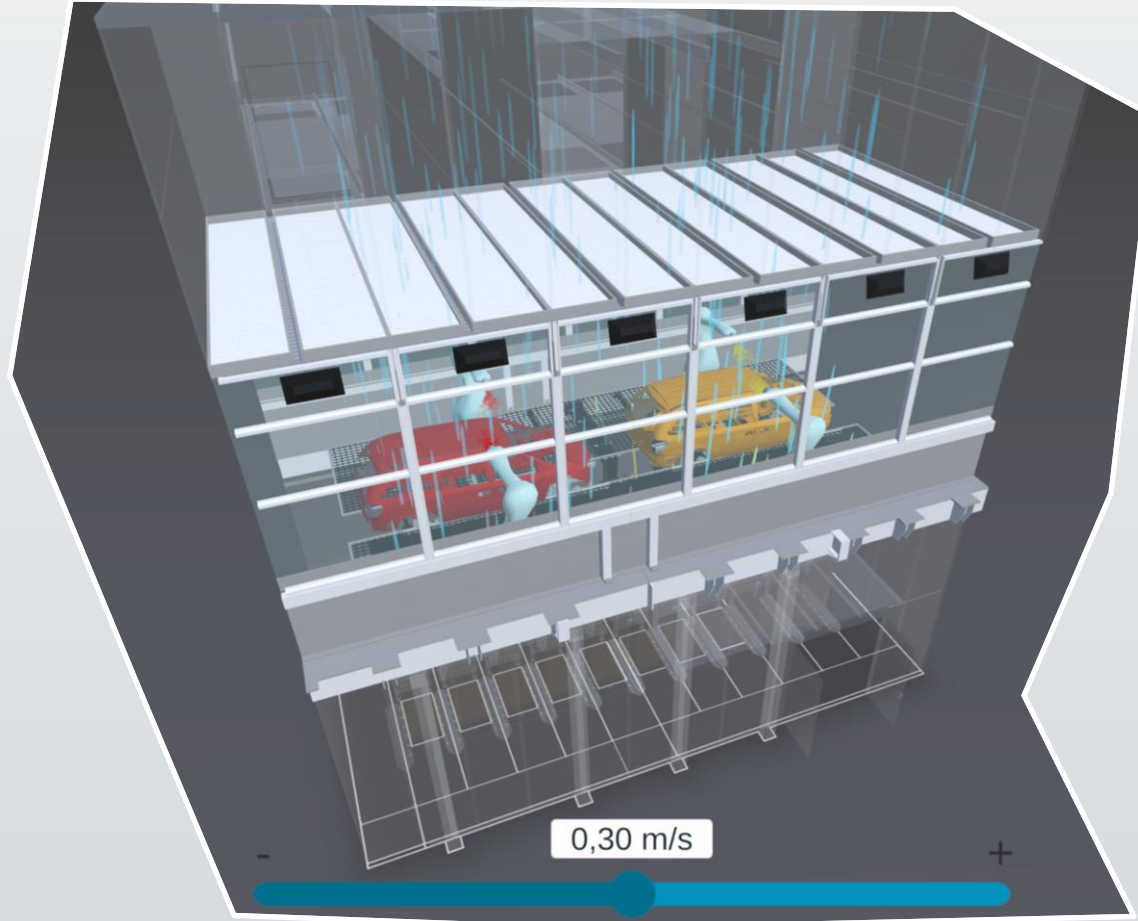
**Homogeneous flow**

→ most important for painting quality  
(besides temperature and humidity)

- Down velocity is usually  $> 0,2 \text{ m/s}$  (to avoid recirculation  
→ drying time for droplets → dust on car body  
→ orange peel)
- $< 0,4$  (to avoid take along effects → runners)
- Homogenous means same down velocity in width and length all through the booth ( $=0,35 \text{ m/s}$ )

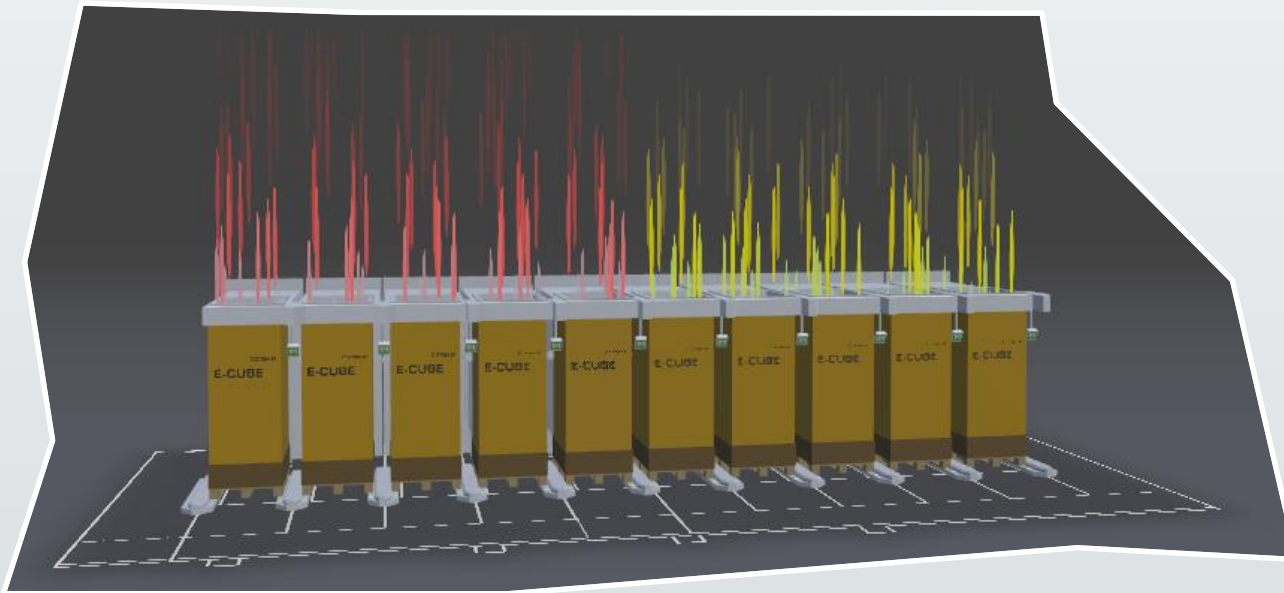


## E-CUBE – PLANT TECHNOLOGY



- The expansion room (height) is used to focus the flow towards centralized E-Cubes (width) and to enable interaction of E-Cube (length)
- Full filters will take less volume flow than empty ones
- But the overall (sum of all volume flows) flow remains constant (Volume Flow Controlled System)

## E-CUBE – PLANT / FILTER TECHNOLOGY



**E-Cube filter system is a modular system.**

This means 1 module / 1 m booth length

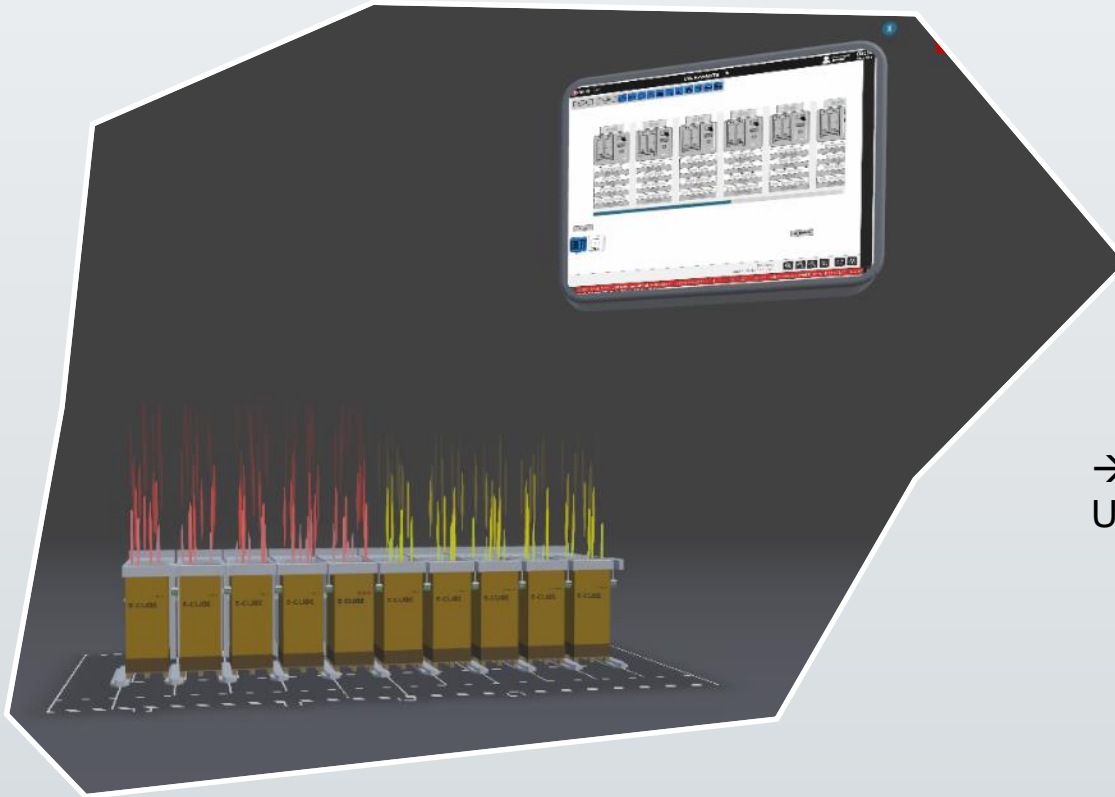
**– SIMPLE**

- Each docking module measures pressure loss through E-Cube filter, 2<sup>nd</sup> Filters and an orifice (calculation of volume flow)
- This enables the calculation of filter resistance ( $=Dp/Vstr^2$ ) and prediction of filter lifetime
- Visualization of data is realized with PLCs and each module's HMI

→ Press PLAY Button to see module's HMI during a full filter (see also Visu)



## E-CUBE – ANLAGEN- UND FILTERTECHNOLOGIE



→ **Press VISU button:**  
Use the blue scroll beam to see all modules of zone

## E-CUBE – PLANT / FILTER TECHNOLOGY



### Interaction of filters

Interaction of filters is system related.

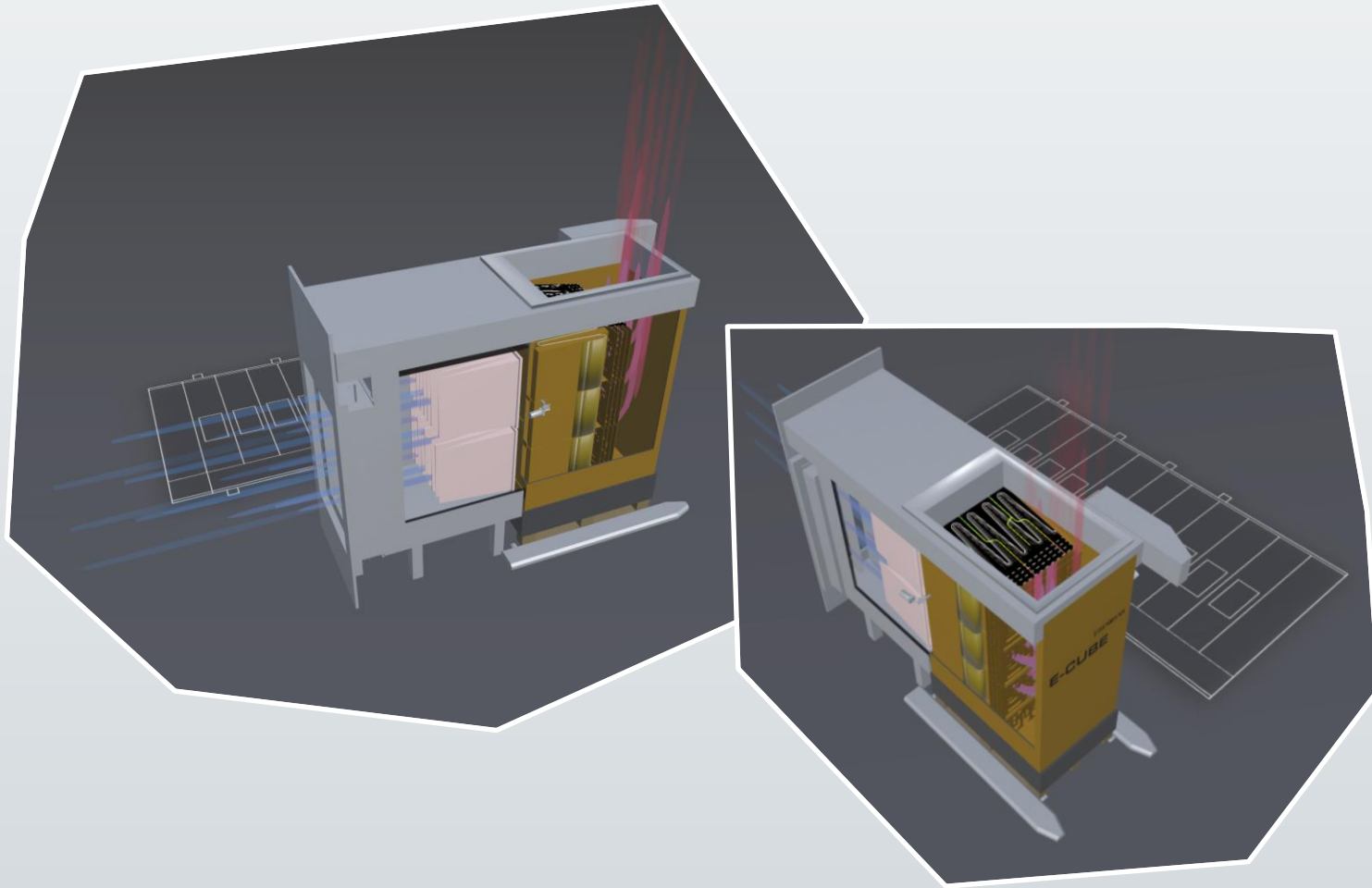
If a filter is full, in extreme cases there is no more volume flow through the filter, the remaining operational modules take over.

### Exchange of filter during production

- To exchange a filter during production, go to the HMI
- Change to un-/docking screen (*left mouse button / tip on HMI*)
- Once more (*left mouse click / tip*) onto the HMI to Undock (damper close, pneumatic cylinders open, drawer closes when pulling Cube)
- In reality use then a pallet jack to pull the old E-Cube out and push in the new one

→ **SIMPLE**

## E-CUBE – FILTER TECHNOLOGY



### 1. Stage:

- E-Cube Filter with 2 filter stages  
Impact filters + depth filter inside
- Cardboard box filter made from recycled material  
Dimension w 0,8 x l 1,2 x h 2,1 m<sup>3</sup>
- 2<sup>nd</sup> Generation One type for primer and topcoat  
→ **SUSTAINABLE**

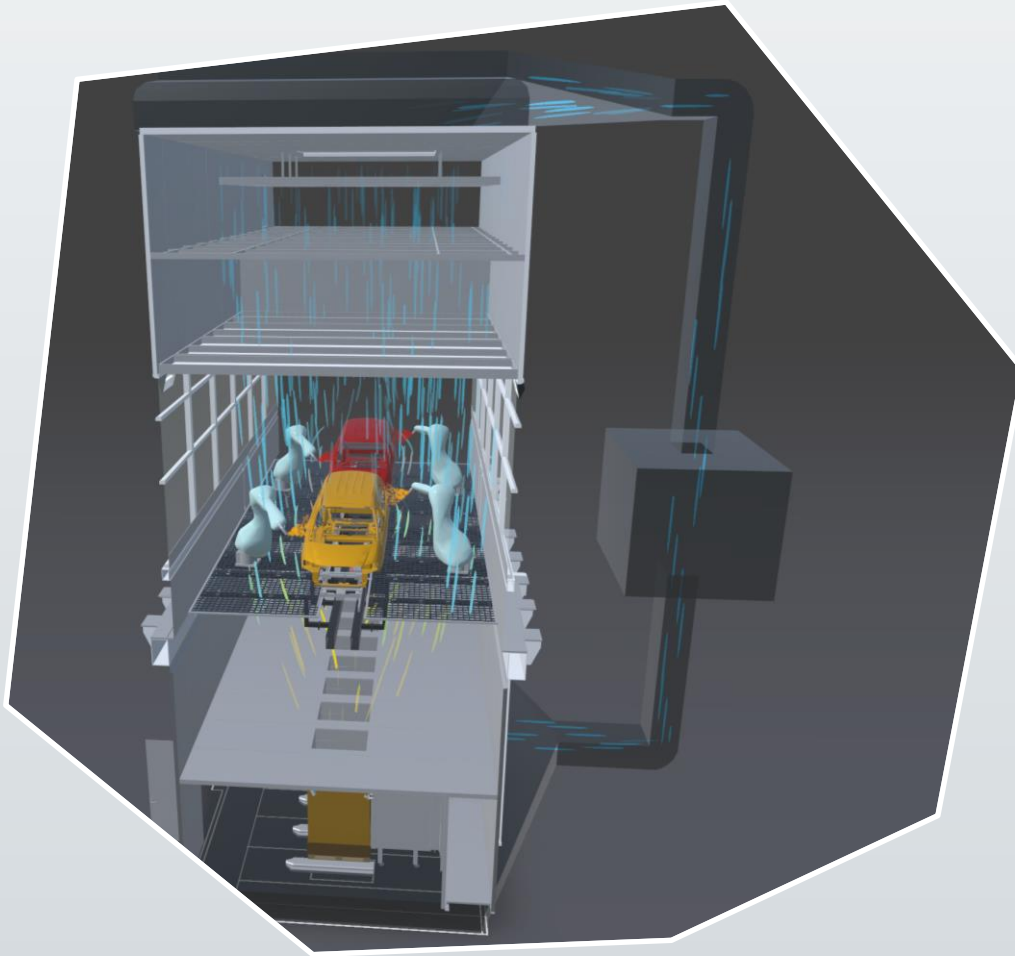
### 2. Stage:

- 2 pocket filters
- F7 air quality

### Module technology:

- dampers – decoupling of ducting while exchanging filters
- possibility to show HMI, locking, roller beds

## E-CUBE – FILTER TECHNOLOGY



### **E-Cube system**

#### **Enabler for efficient recirculation and exhaust air cleaning**

Less than 10 % fresh air

Possibility to concentrate VOCs (RTO)

#### **No water**

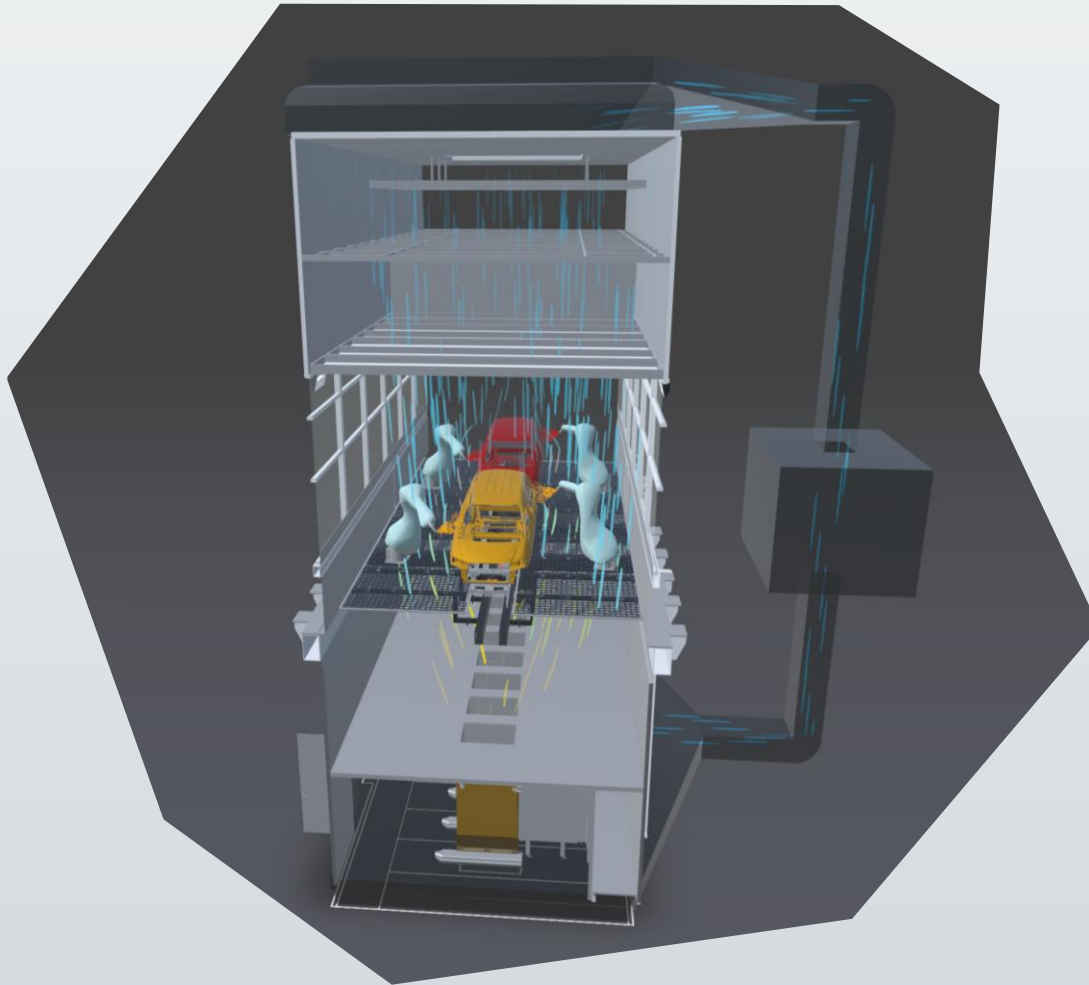
“No condensation + humidification” necessary  
huge potential of energy savings

#### **No additives**

No agglomerating agent, no pre-coating agent



## E-CUBE – FILTER TECHNOLOGY



The E-Cube System can be implemented in almost every plant (shade of Spray booth)

### **SIMPLE**

Modular system to install and maintain as a part of ducting

### **SUSTAINABLE**

Cardboard box filter made from recycled material  
Enabler for efficient thermal post-cleaning (TO)

### **EFFICIENT**

No additives, only full filters out, Filter efficiency (F7)  
High capacity, low pressure loss, air circulation system, uninterrupted production

## WE ARE LOOKING FORWARD TO HEARING FROM YOU!

If you would like more information or have any questions,  
please do not hesitate to contact us.



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