



# ECK

HEPA grade  
passive filter units  
with containment  
capability



## PURE TRUST

For your safe and reliable operations.

# Intended use and description



### Intended use

ECK passive filter units are suitable for secondary (or even tertiary) level of filtration with a wide range of airflows (up to 40,000 m<sup>3</sup>/h and above – with the utilization of several units in parallel). They typically function as final filters after the main dust collector where the filtration requirements are at the highest level. At lower dust levels, however, they can also be used as stand-alone filter units.

### Housing and options

Their well-thought modular design enables flexibility to overcome spatial constraints and application-specific parameters. Beside standard executions of ECK dust collectors, we can offer customized versions for projects or OEM needs. Based on the application and/or user requirements, the housing of ECK passive filter units can be made in different materials and surface finishes. Typically, they are made from powder-coated mild steel, but they can be supplied in stainless steel with pickled or even mirror polished surface. As with other TRM Filter units, ECK passive filter units assure easy access to filters and thus provide simple and intuitive maintenance.

### Filter cartridges

Depending on the requirements for air quality, filter cartridges made of various filtration efficiency grades are available.

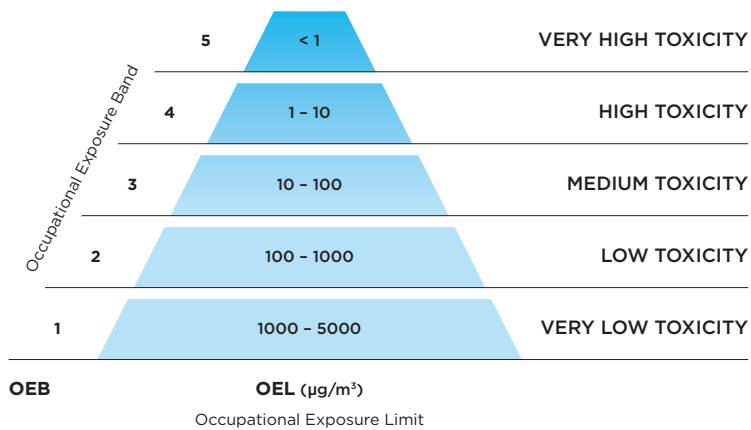
### ADVANTAGES

- Flexibility to fit any application
- Ease of use and maintenance
- Different options of surface finish
- A wide selection of filter grades and materials
- Different containment provisions

### HEPA FILTER CLASSIFICATION

EN 1822	ISO 29463	Retention (total)	Retention (local)	Designation
H13	ISO 35 H	> 99.95%	> 99.75%	HEPA
H14	ISO 45 H	> 99.995%	> 99.975%	HEPA
U15	ISO 55 H	> 99.9995%	> 99.9975%	ULPA
U16	ISO 65 H	> 99.99995%	> 99.99975%	ULPA
U17	ISO 75 H	> 99.999995%	> 99.9999%	ULPA

# Containment



## Basics

The awareness of HSE in the applications and industries in which ECK passive filter units are typically used has increased in recent years. The moment at which the end-user can come into contact with potentially harmful substances (which are remnants of the entire filtration process) is the time of filter cartridge replacement.

The toxicological risks of exposure to compounds and substances can be illustrated using the pyramid diagram on the left. The upper limit of the allowable concentration, known as the Occupational Exposure Limit, is shown in the middle. These data directly control Occupational Exposure Bands that represent the toxicity category of certain chemical.

## Solution

If the ECK passive filter units are used for processes with hazardous substances, they can be supplied completely prepared for such applications. They are equipped with a so-called Bag-in/Bag-out system for filter replacement. These well-known systems are (if executed properly) among best means to ensure safe handling in the filtration industry. We at TRM Filter have perfected all the details of the Bag-in/Bag-out system to achieve the specified level of containment.

Initially, the port (opening for filter cassette) is sealed with the *SafeChange* bag. Later in the operation, when there is the need for filter cassette replacement, a special procedure is applied to prevent any contact with the dust:

- The old bag is used to seal and store the old filter.
- After inserting the new filter, the new bag is placed over the filter port. This prepares the ECK unit for the next filter cassette replacement.

## Options

For improved safe handling with ECK passive filter units, we can optionally equip them with connections for the wash-in-place process (WIP).

# Housing versions and options

## POWDER-COATED STEEL 1



### POWDER-COATED STEEL

This is the most commonly used version of the housing material. It is a cost-effective solution for most applications in various industries.

The internal parts are all made of galvanized steel to ensure life-long durability.

## STAINLESS STEEL 2



### STAINLESS STEEL

For applications where the filtered media is corrosive or the ability to keep surfaces clean is important, we can offer stainless steel versions. Not only the housing but also all internal elements (including the filter frame) are corrosion resistant.

The surface can be pickled or blasted with glass or ceramic beads.

### MIRROR-POLISHED HOUSING

3



#### MIRROR-POLISHED HOUSING

Where corrosion protection and easy cleaning are of utmost importance (e.g. in clean rooms etc.), stainless steel with a mirror-polished surface finish is the most common solution.

Such requirements are often combined with a safe change port for contactless filter replacement.

### OEM VERSIONS

4



#### OEM VERSIONS

We can adapt many design features and specifications to your requirements for custom ECK passive filter units.

#### OPTIONAL EQUIPMENT

- Differential pressure switch, transmitter or gauge (with analogue/digital display) in standard and EX version
- Safe change (Bag-in/Bag-out) port for contactless filter replacement
- Filter integrity test ports
- Filter sealing test ports
- WIP provisions
- Filter media in compliance with ATEX
- Insulation for high process temperatures

# Technical characteristics

## horizontal arrangement

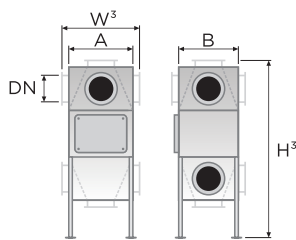
	ECK-1H	ECK-2H	ECK-3H
Maximal airflow <sup>1</sup>	4,000 m <sup>3</sup> /h	8,000 m <sup>3</sup> /h	12,000 m <sup>3</sup> /h
A × B × H <sup>3</sup> (standard) <sup>2</sup>	700 × 720 × 1,450 mm	1,450 × 720 × 1,650 mm	2,200 × 720 × 1,850 mm
A × B × H <sup>3</sup> (safe change) <sup>2</sup>	770 × 740 × 1,450 mm	1,650 × 740 × 1,650 mm	2,400 × 740 × 1,850 mm
Connection DN	300 mm	400 mm	500 mm
Maximal underpressure	30 kPa		
Process temperature	up to 250 °C		
Ambient temperature	from -10 to 40 °C		

	ECK-1H-D	ECK-2H-D	ECK-3H-D
Maximal airflow <sup>1</sup>	4,000 m <sup>3</sup> /h	8,000 m <sup>3</sup> /h	12,000 m <sup>3</sup> /h
A × B × H <sup>3</sup> (standard) <sup>2</sup>	700 × 720 × 1,900 mm	1,450 × 720 × 2,100 mm	2,200 × 720 × 2,300 mm
A × B × H <sup>3</sup> (safe change) <sup>2</sup>	770 × 740 × 1,900 mm	1,650 × 740 × 2,100 mm	2,400 × 740 × 2,300 mm
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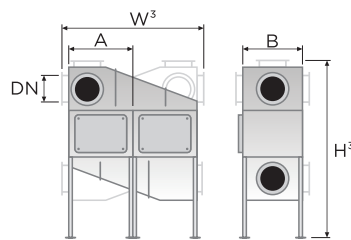
1 Maximal airflow depends on different filter grade levels, process temperature, ATEX execution etc.

2 Dimensions are valid for "full size" filter cassettes (610×610×292 mm). Other cassette sizes are available per request.

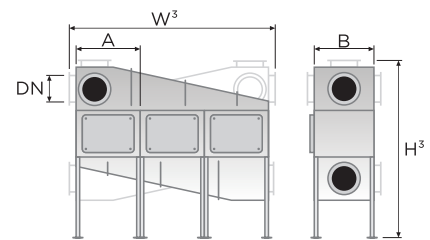
3 Total width (W) and height (H) of filter units depend on selected orientation, type of connections and presence of support legs.



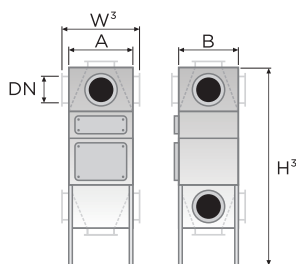
ECK-1H



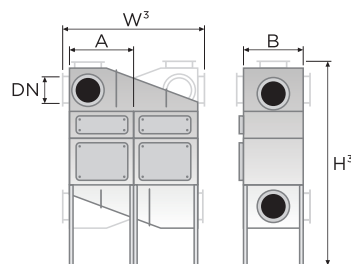
ECK-2H



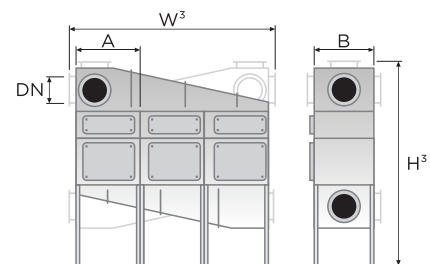
ECK-3H



ECK-1H-D



ECK-2H-D



ECK-3H-D

# Technical characteristics

## vertical arrangement

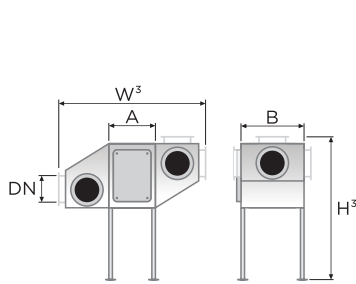
	ECK-1V	ECK-2V	ECK-3V
Maximal airflow <sup>1</sup>	4,000 m <sup>3</sup> /h	8,000 m <sup>3</sup> /h	12,000 m <sup>3</sup> /h
A × B × H <sup>3</sup> (standard) <sup>2</sup>	550 × 720 × 1,300 mm	550 × 720 × 1,650 mm	550 × 720 × 2,400 mm
A × B × H <sup>3</sup> (safe change) <sup>2</sup>	550 × 740 × 1,300 mm	550 × 740 × 1,800 mm	550 × 740 × 2,600 mm
Connection DN	300 mm	400 mm	500 mm
Maximal underpressure		30 kPa	
Process temperature		up to 250 °C	
Ambient temperature		from -10 to 40 °C	

	ECK-1V-D	ECK-2V-D	ECK-3V-D
Maximal airflow <sup>1</sup>	4,000 m <sup>3</sup> /h	8,000 m <sup>3</sup> /h	12,000 m <sup>3</sup> /h
A × B × H <sup>3</sup> (standard) <sup>2</sup>	1,000 × 720 × 1,300 mm	1,000 × 720 × 1,650 mm	1,000 × 720 × 2,300 mm
A × B × H <sup>3</sup> (safe change) <sup>2</sup>	1,000 × 740 × 1,300 mm	1,000 × 740 × 1,800 mm	1,000 × 740 × 2,600 mm
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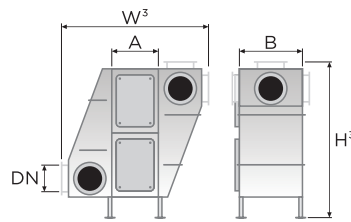
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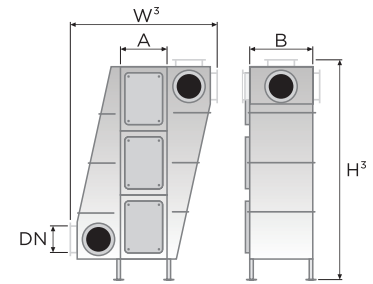
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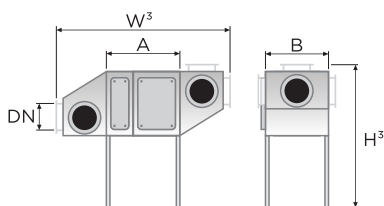
ECK-1V



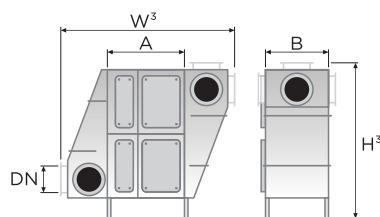
ECK-2V



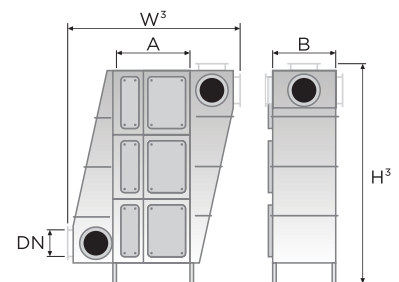
ECK-3V



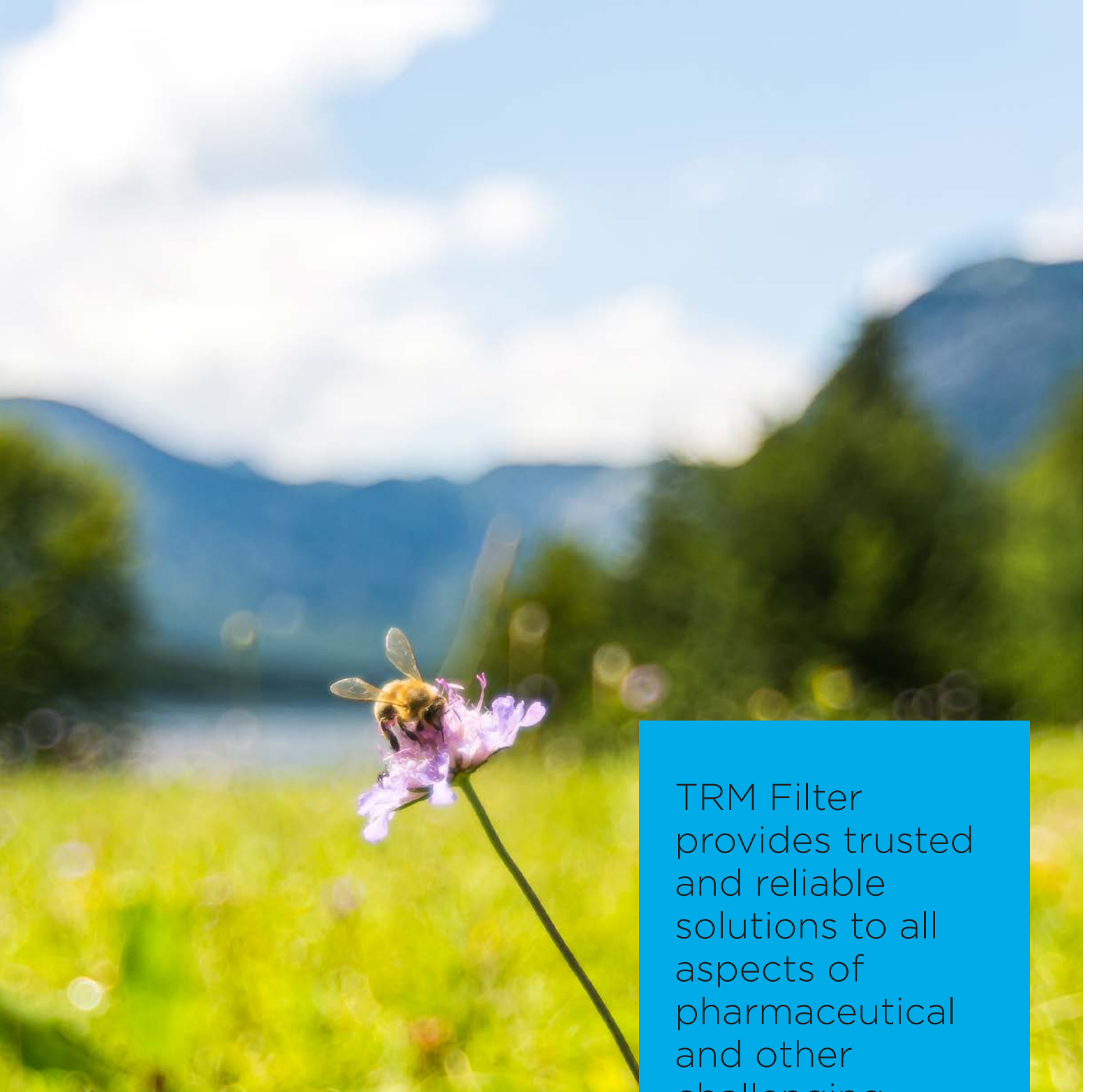
ECK-1V-D



ECK-2V-D



ECK-3V-D



TRM Filter provides trusted and reliable solutions to all aspects of pharmaceutical and other challenging dedusting.

**ECK the HEPA grade passive filter units provide a reliable and safe solution for the most demanding air filtration requirements.**



TRM Filter d.o.o.  
Litijaska cesta 261  
SI-1261 Ljubljana Dobrunje  
Slovenija

T +386 1 527 22 10  
sales@trm-filter.com

[www.trm-filter.com](http://www.trm-filter.com)