Duct Filter Housings for Cleanrooms

Leadership in Filtration

MANN+HUMMEL

40+ years of expertise in cleanroom ventilation

For **over 40 years**, MANN+HUMMEL has been a reliable partner for high-quality ventilation components in cleanrooms. Our focus is on effectively reducing microbiological load and particle levels as well as ensuring maximum clean air quality while meeting all required comfort criteria.

Important in this environment are **duct filter housings**, which are integrated directly into air duct networks and are used for targeted air filtration. Depending on the area of application, the filter housings are equipped with different air filters. The duct filter housings are available in several sizes and designs, and they can be flexibly installed at various points in the ventilation system.

A key advantage is that the air filters can be monitored and changed outside the cleanroom area reliably, practically, and without interrupting cleanroom operations.

MANN+HUMMEL has been a leader in reducing germ load for over 40 years.

International standards, diverse applications, and specific customer requirements call for a flexible range of products, from proven standards to precisely tailored special solutions. Our duct filter housings can be precisely adapted to any necessary on-site conditions and specifications for maximum performance and operational reliability.

We have proven solutions based on numerous complete reference projects.

The **flawless operation** of ventilation systems in cleanrooms relies on the precise interaction of supply and exhaust air systems. Therefore, it is crucial to plan all ventilation components specifically for the system, dimension them correctly, and coordinate them optimally.

Even in the early phases of a project, the interaction of supply and exhaust air flows should be specifically considered to ensure stable and reliable operation.

Our extensive experience from numerous successfully implemented projects is reflected in high-quality products and consistently sophisticated design and execution — much to the benefit of our customers.

Convincing facts

KEY FACTORS

- Maximum stability thanks to a welded housing construction
- Easy connection to the duct system via a circumferential connection flange on both the raw air and clean air sides
- Maximum flexibility due to the use of various air filter types (e.g., HEPA filters, fine dust filters) from our own production
- Maximum efficiency thanks to filter replacement without entering the cleanroom

CORE FEATURES DETAILS

- Maximum accuracy through precise fixing and centering of the filter elements using distance markings on the housing
- High level of tightness thanks to an inspection cover with a gasket and star knob fasteners for an airtight seal
- Filter sealing can be checked (i.e., test groove); factory-installed with tubing, sealed, and tested
- Filters installed crosswise to the air flow direction and fixed in place using four pressure devices for a defined, unchangeable filter position and easy-to-achieve tight filter fixation
- Use of air filters with different installation depths in one housing
- Smooth inner surfaces due to inverted housing wall manufacturing
- Easy cleaning thanks to smooth inner surfaces and no protruding, non-removable components
- Complete pressure-measuring device for the air filters integrated into the housing

NG-610 **NG-305**

Our technology integrates seamlessly into any system and ensures consistently clean air.

High-performance HEPA filters

Our **Nanoclass Cube N filters** ensure impeccable air quality and high reliability — even in particularly critical environments, such as laboratories, pharmaceutical manufacturing, or the most sensitive areas of healthcare. The filters are designed to provide effective separation of airborne contaminants and enable compliance with strict regulatory requirements.

Thanks to flexible configuration options and easy installation, the filters are ideally suited for a wide range of cleanroom applications. They were developed to optimize airflow and reduce energy consumption through minimal pressure losses for **sterile environments** as well as for increased operational efficiency. Trust our cleanroom filters when uncompromising performance is essential.

Facts and figures

Filter class

E11-H14

according to EN 1822

Air volume up to

4,000

m^3/h

Pressure drop

190–250

Pa

Duct filter housings provide controlled air quality in sensitive areas.

NG duct filter housings are mainly used for the filtration of large air volumes, especially where air is fed into or extracted from cleanrooms.

A key selection criterion is the **installation situation and the ease of servicing** the housings. They are often installed in ventilation duct systems to ensure that the airborne particle filter can be changed outside the cleanrooms — with zero direct access to the room.

NG duct filter housings also offer an effective solution where filtration directly in the cleanroom is not possible or not desired. Due to the high-quality air filtration, both the housing itself and all subsequent components must guarantee a defined airtightness — right up to the air passage point in the cleanroom.

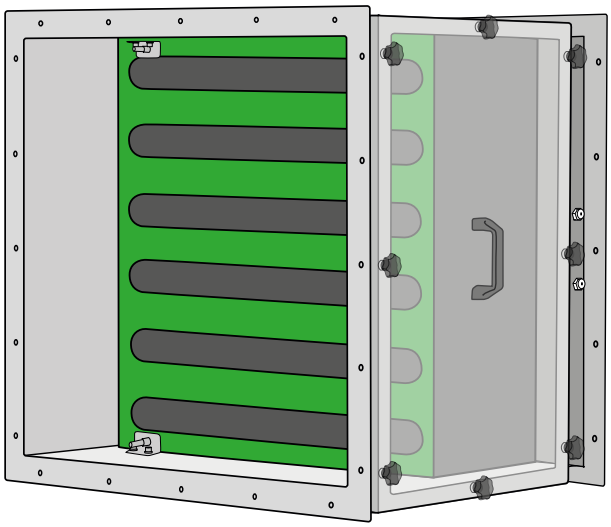
The filter elements are **integrated horizontally into the ventilation system.**

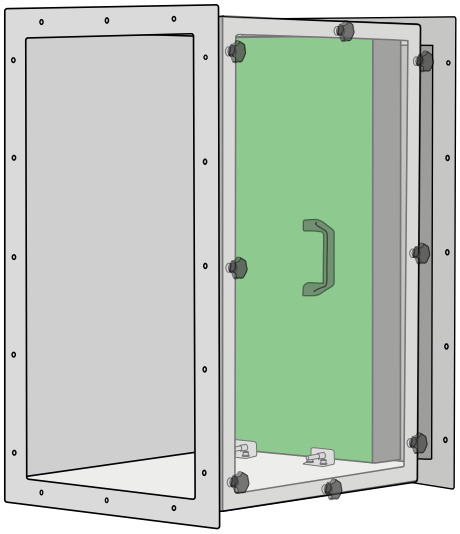
Some typical areas of application are as follows:

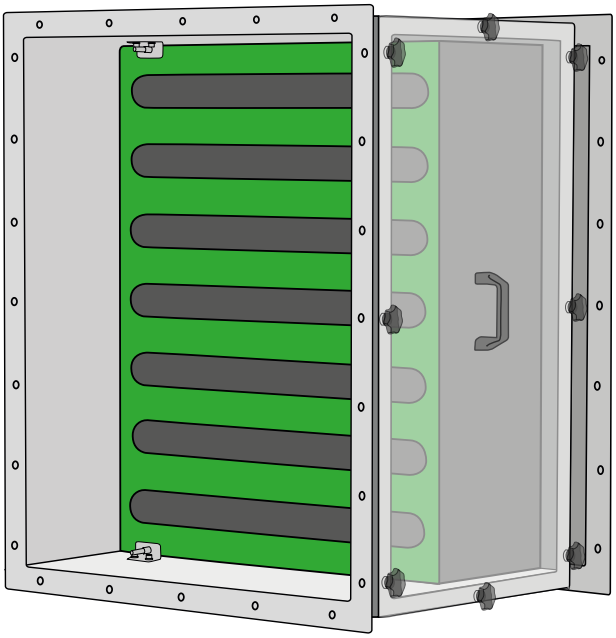
- Clean air zones and clean workplaces in laboratories
- Cleanrooms in the pharmaceutical, optical, and electronics industries
- Exhaust air purification systems with strict limits

Depending on the application, the housings are available in different materials and designs, and they are always tailored to the specified requirements.

Easy handling with various dimensions







Thanks to its well-designed construction, the filter **can be easily installed and replaced** without complicated maneuvers or long downtimes. The Cube N and Square HEPA filters perfectly adapt to the requirements of your cleanroom environment.

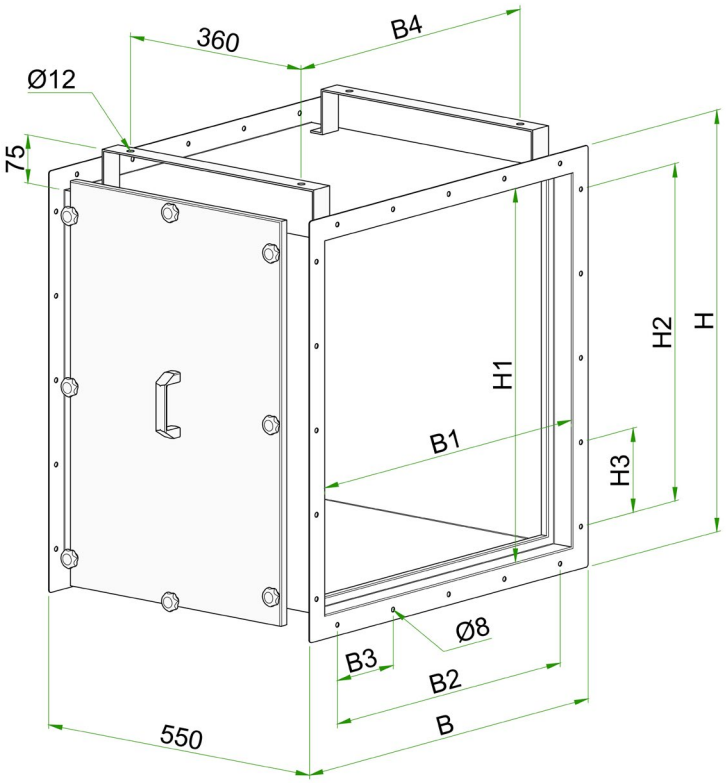
Technical data	Nanoclass Cube N	Nanoclass Square
Filter size (L x W x D)	762 x 610 x 292 mm	762 x 610 x 75 (95) mm
	610 x 610 x 292 mm	610 x 610 x 75 (95) mm
	305 x 610 x 292 mm	305 x 610 x 75 (95) mm
ePM1 ≥50% according to EN ISO 16890-1 up to H14 according to EN 1822		

For further technical data on the available HEPA filters, please refer to our corresponding brochures.

Modular. Space-saving. Effective.

When using two filter stages, these can be installed in two separate NG housings positioned in series.

Technical data



Technical data	B	B1	B2	B3	H	H1	H2	H3	B4	Weight*
NG-305	700 mm	620 mm	560 mm	140 mm	340 mm	315 mm	375 mm	125 mm	245 mm	16 kg
NG-610	700 mm	700 mm	560 mm	140 mm	700 mm	620 mm	560 mm	140 mm	550 mm	20 kg
NG-762	825 mm	772 mm	720 mm	120 mm	700 mm	620 mm	560 mm	140 mm	700 mm	22 kg

*without filter

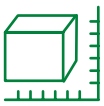
Accessories:
mounting rails

Detail:
filter mounting

For the best air, from planning to maintenance

Size and material

762 / 610 / 305
Type p: powder-coated sheet steel housing
Type rf: stainless steel housing, material no. 1.4301

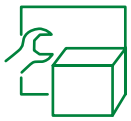


Design

The NG duct filter housing consists of two welded, interconnected housing parts and an inspection cover with seals that can be removed on one side.

A circumferential connection flange allows for easy integration into the ventilation system. Filter elements are inserted at the front.

Connection options for pressure measurements are provided.



Housing installation

The NG housing is designed for horizontal air flow. Access is via the inspection cover, secured with star knob fasteners. Depending on the available space, the cover can be attached on either the narrow or wide operating side.

Test groove and pressure measurement connections are integrated into the side of the inspection cover.

Filter installation

Before installing the filter, the entire air duct system — including the empty housing — must be flushed for at least 24 hours with the pre-filters installed.

Adhere to the following guidelines during installation:

- Handle filter elements only by the frame, not by the filter surface.
- Transport the filter to the installation site in its original packaging and insert it immediately after removal.
- Check the filter surface for visible damage and replace if necessary.
- Clean the sealing surfaces and clean the air side of the NG housing by wipe disinfection.
- Now position the filter in the housing as far as it will go and insert the four pressure devices.
- Check the position of the seal in relation to the test groove and adjust if necessary.
- Tighten the screws evenly so that the seal is compressed by a maximum of 2 mm.
- Carefully close the inspection cover and visually check the seal.

For housings with a test groove connection, a leak test must be performed and documented.

Filter removal

Adhere to the following guidelines during removal:
- Loosen the star knob fasteners.
- Remove the inspection cover.
- Loosen the filter mounting screws.
- Lift the filter off the test groove and pull it out.

Be careful not to touch the active filter surface.

Maintenance

Maintenance intervals depend on the air volume flow, the degree of contamination, and the applicable standards or SOPs. They must be regularly checked and documented by measuring differential pressure.

The values are either recorded manually or transmitted digitally via sensors to the building management system.

A filter replacement is required at the latest when:
- the pressure drop of the filter exceeds the permissible value
- standards require it
- hygiene requirements demand it

Disposal

Unused filters or filters contaminated with outside air can be disposed of as household waste.

Take caution with bacterial, toxic, or radioactive contamination — these filters are considered hazardous waste and must be disposed of in accordance with legal regulations.

Accessories

- Clean air sampling via test plants
- Mounting rails for ceiling or floor mounting
- Bracket for pressure loss gauge
- Analog/digital pressure gauge, measuring range 0–500 or 0–750 Pa

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