



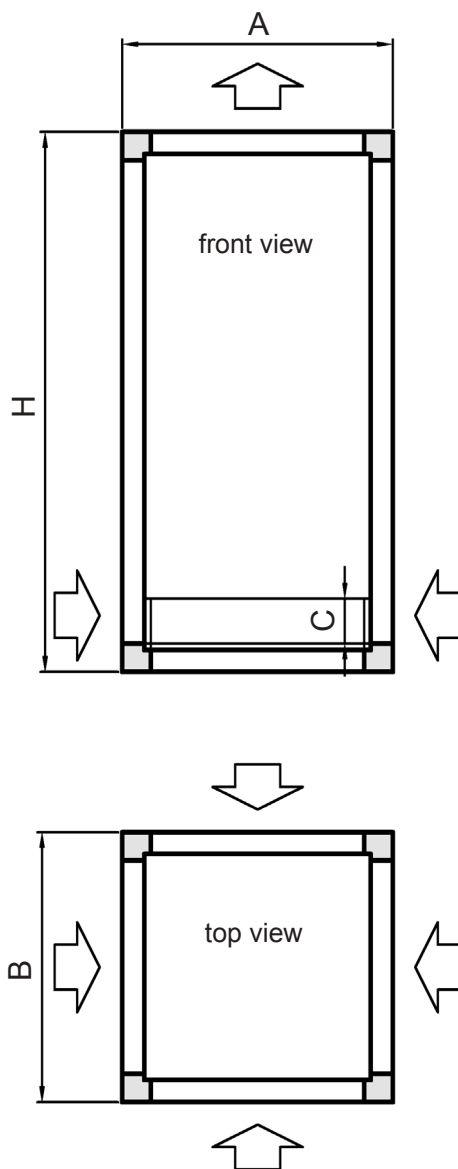
### **Technical description**

The **AIR PURIFIER MODULE LR ... / LRF...** is equipped with a FISCHBACH-COMPACT-FAN with FISCHBACH-EC-Motor.

The **AIR PURIFIER MODULE LR ... / LRF ...** is equipped with the following filters:

- **Hepa14** filter according to DIN EN 1822 (filters particles with a degree of separation of 99.995% at a particle size of 0.3 µm)
- **EPM1 55%** (F7)
- **EPM10 75%** (M5)

The housing frame is a special construction made of stable aluminium composite profile. The galvanized, double-shell side panels (**41 mm thick**) are flush recessed in the housing frame. Side panel insulation made of mineral fibre wool - non-combustible - with high transmission thermal resistance and high sound insulation.

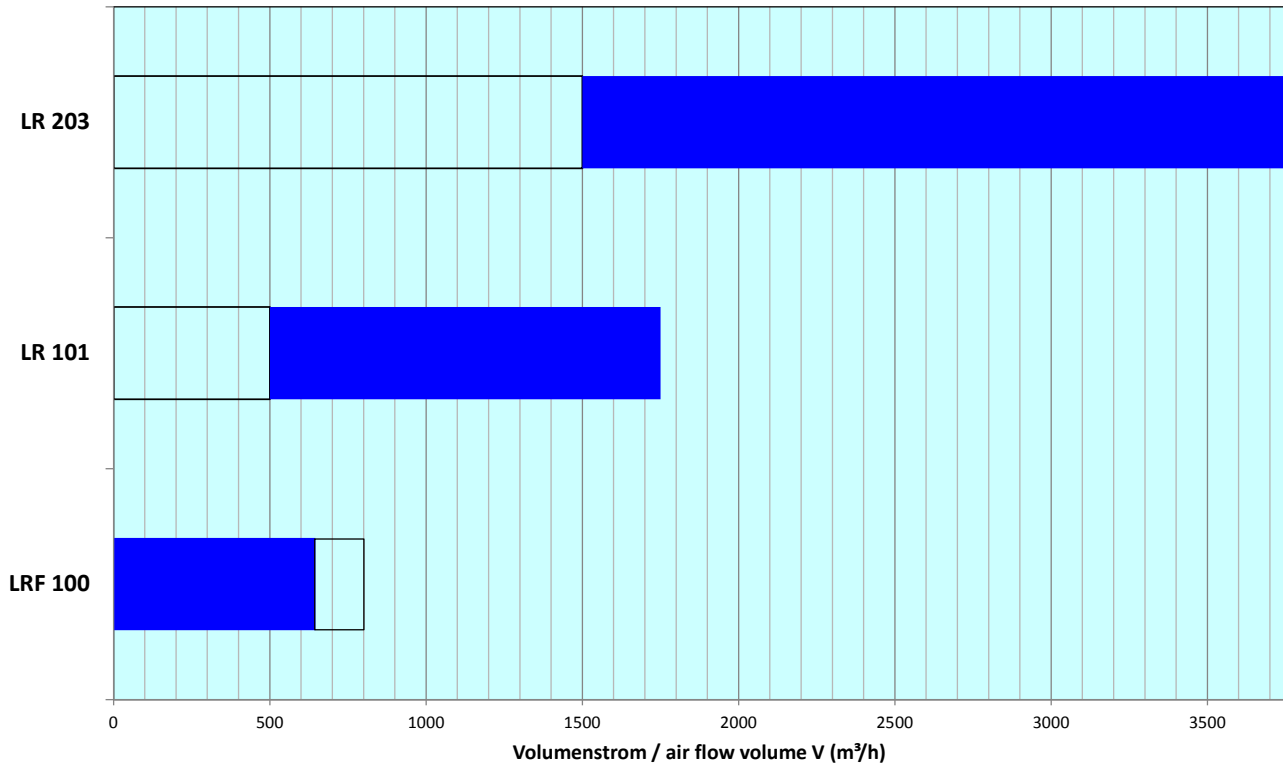


<b>Abmessungen / dimensions / Dimensions</b>				
<b>Typ / type / Type</b>	<b>A</b>	<b>B *</b>	<b>C</b>	<b>H</b>
LR 203	750	750	200	1700**
LR 101	630	630	150	1500**
LRF 100	750	372	100	1200

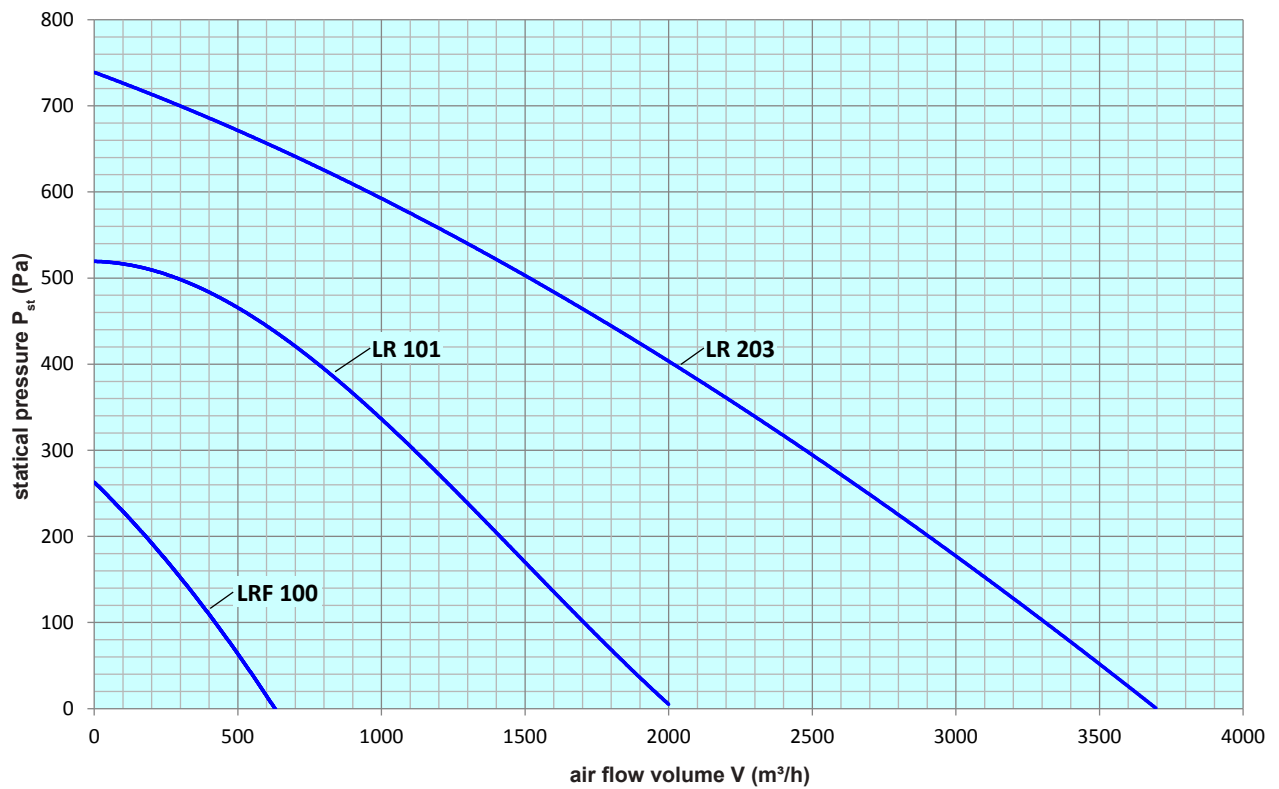
\* + 90mm für Bedieneinheit / for control unit / pour Unité d'exploitation

\*\* + 110mm für Rollen / for rollers / pour des rouleaux

**selection - diagram**



**overview diagram**



subject to change

## General Information

The **Fischbach series - LR..., and LRF...** are specially designed for **air cleaning by recirculation** in closed rooms, such as offices, schools, conference rooms, clean rooms, waiting and recreation areas, production halls and other premises with high human occupation.

The purpose is to **greatly reduce the risk of infection** - so the priorities are

1. to clean the air from pathogens as far as possible.  
The Fischbach Air Purifier generates this by a three-stage filtration with a **particle removal efficiency of up to 99.995%** for particle sizes from 0.1µm - 0.3µm. This type of filtration is usually found in operating rooms in hospitals.
2. keep the **sound emission** as **low** as possible.  
At Fischbach Ventilation Units and Fans (more than 50 years of experience) a standard which is achieved by double-shell side panels and decoupling between the passive and active components.
3. keep the air speed within a very low range (< 0.1 m/s) so that **no drafts** can occur. The units must be positioned according to the recommendations to ensure optimal air flow.

However, if one larger unit is sufficient in terms of air output, it is recommended to use several smaller units depending on the local conditions.

Measurements/studies of the University of the Federal Armed Forces Munich, Institute for Fluid Mechanics and Aerodynamics (**Universität der Bundeswehr München, Institut für Strömungsmechanik und Aerodynamik**) show that optimal results are achieved if the air purifier is placed in the middle of the longest side of the room on the wall.

### Operating functions:

1. adjustment of the air volume by hand according to the room size/occupancy (according to our diagrams/tables)
2. the air volume is kept approximately constant regardless of filter contamination
3. message for filter change
4. other additional functions can be implemented on request, such as
  - turbo operation
  - Co2 - message
  - time switch for daily program
  - presence detector for automatic switch-off - lockable operating switch
  - etc.

### Theoretical background

It is well known that small particles (0.1µm = 10-7m) do not move linearly with the air flow, but rather have a Brownian motion - by collision with air molecules. Fischbach uses a Hepa 14 filter, which, according to the DIN EN 1822 standard, achieves a degree of separation of 99.995% in the range of 0.1µm-0.3µm particle size. In this range are also viruses like: HIV-1 (0,12µm, SARS (0,12µm), influenza (0,1µm), corona viruses (0,06µm- 0,16µm) and bacteria from 0,1µm. According to the Robert Koch Institute (RKI), the main transmission pathway for SARS-CoV-2 is the respiratory uptake of virus-containing fluid particles released into the room by people breathing, coughing, speaking and sneezing through „droplets“ > 5µm or aerosols < 5µm.

Droplets fall to the ground in a few seconds, but aerosols can remain in the air for hours. In conclusion, it can be said that a ventilation unit must extract at floor level and blow vertically upwards.

Since there are currently no recommendations/requirements for air cleaners in recirculation mode from the legislator, we have dealt with calculations/simulations that allow us to generate an optimal solution for the current problem.

The higher the air exchange rate, the lower the probability of infection when a person is infected.

### Recommendations of the Commission for Indoor Air Hygiene of the Federal Environment Agency, IRK (Kommission Innenraumlufthygiene am Umweltbundesamt, IRK)

In order to reduce the risk of transmission of SARS-CoV-2, the IRK recommends that in rooms where people are present, if possible, either only supply air from outside (100% fresh air) or, in the case of air conditioning systems with a circulating air component, that the systems be equipped with additional filtering (HEPA filter).