



## Krantz

Laboratory outlet LAB-V  
for mixing-displacement ventilation

**Air & Climate Solutions**

*Krantz*



LAB-V with frontal air connection

## Laboratory outlet LAB-V

### Range of applications

- Laboratories in the chemical and pharmaceutical sector
- Laboratories with fume hoods

### Features

- Hybrid ventilation: mixing-displacement ventilation
  - Low turbulence
  - High volume flow rates
  - Individual adaptation to the room load due to adjustable air discharge elements
- Effective protection of laboratory personnel:
  - Reduces pollutant outflow effects at the fume hood
  - Prevents inhalation of contaminants

Laboratories place high demands on the fresh air supply. In particular, the air supply must dissipate heat loads and pollutants in such a way that it protects the laboratory personnel and creates a comfortable working environment.

Furthermore, the supply must take place in such a way that any influence on the experiments is avoided.

In laboratories with fume hoods, there is another hurdle: pollutants must not be flushed out of the fume hood into the laboratory. Only then the laboratory personnel will be adequately protected.

The LAB-V fulfils this conceivably difficult task in an outstanding manner.

The supply air is introduced into the room through the LAB-V via three paths. The result is a low-turbulence supply air that mixes with the room air. Due to the low-turbulence flow, pollutants from fume hoods do not pose a danger to people.

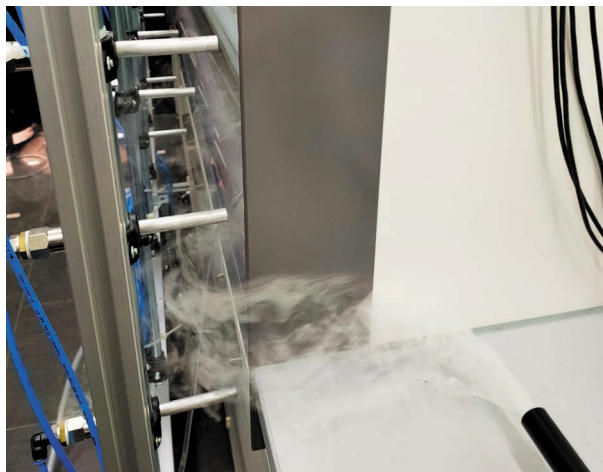
In addition, a high volume flow can be realised.

Cooling loads of up to  $190 \text{ W/m}^2$  (based on a standard laboratory room with a floor area of  $21.6 \text{ m}^2$ ) are effectively dissipated, the laboratory room is supplied with fresh air and a pleasant room climate is created.

With our many years of experience, we will be happy to advise you so that you find the right LAB-V for your project!

Technical data and dimensions		
Length	1.500 mm	2.000 mm
Volume flow rate	700 - 1.200 m <sup>3</sup> /h	950 - 1.700 m <sup>3</sup> /h
specific volume flow rate	up to 50 m <sup>3</sup> /hm <sup>2</sup>	up to 70 m <sup>3</sup> /hm <sup>2</sup>
specific cooling capacity (-8 K)	max. 130 W/m <sup>2</sup>	max. 190 W/m <sup>2</sup>
Sound power level	max. 39 dB (A)	max. 43 dB (A)

LAB-V - Technical data for a laboratory 6 x 3.6 m ( $21.6 \text{ m}^2$ )



LAB-V - Visualized flow pattern in front of the fume hood



LAB-V - Slotdiffuser



LAB-V - Multiplex discs

## Protection against pollutants

Fume hoods protect the laboratory personnel from pollutants during experiments. The protective effect of fume hoods can be reduced by the washout effects of inadequate air distribution. Krantz tested and optimised the protective effect of the LAB-V in many series of measurements with tracer gas. Subsequently, the LAB-V was compared with common laboratory diffusers (swirl diffuser and textile tube).

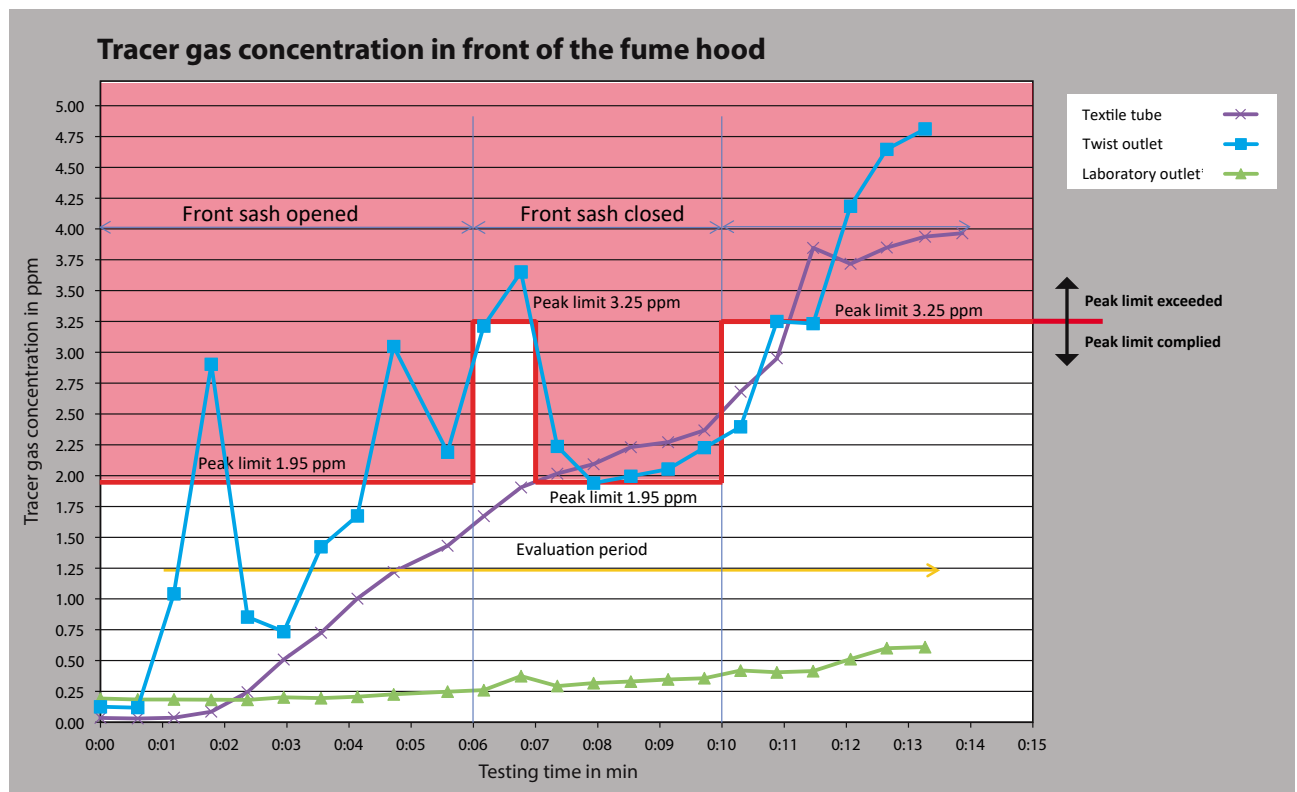
The basis of the measurements is the BG RCI specification for measuring pollutant concentrations in front of a fume hood. The test results are applied to the limit values of the BG RCI:

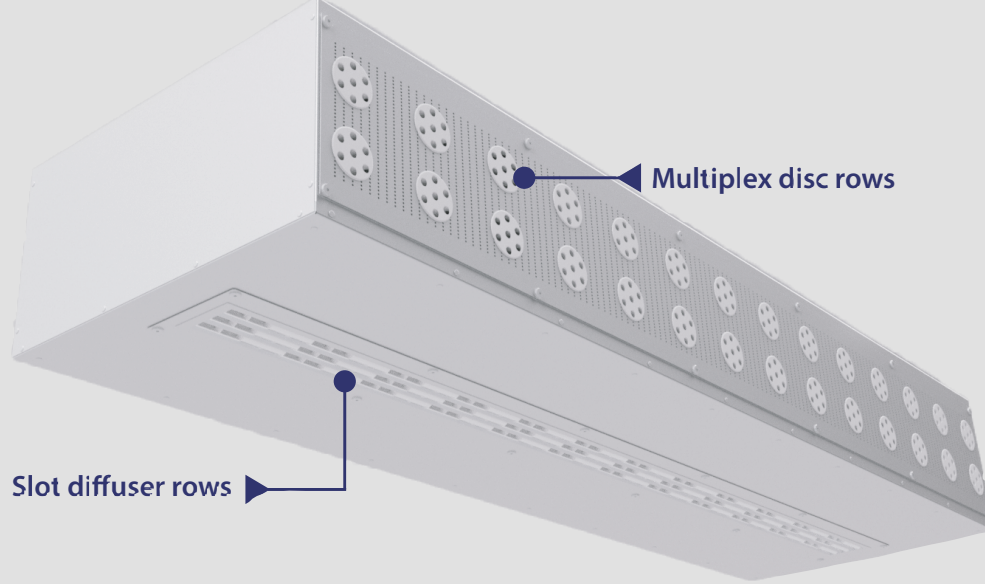
- **1.95 ppm** with the fume hood closed
- **3.25 ppm** measured 1 minute after opening the fume hood

Using the LAB-V, the pollutant concentration in front of the fume hood remains permanently far below the prescribed limit values. Swirl diffuser and textile tube regularly exceed the limit values.

**Compared to swirl diffusers and textile tubes, the LAB-V demonstrably ensures the protection of laboratory personnel!**

The test results are shown in the graph „Tracer gas concentration in front of the fume hood“.





## Sound power level and pressure loss

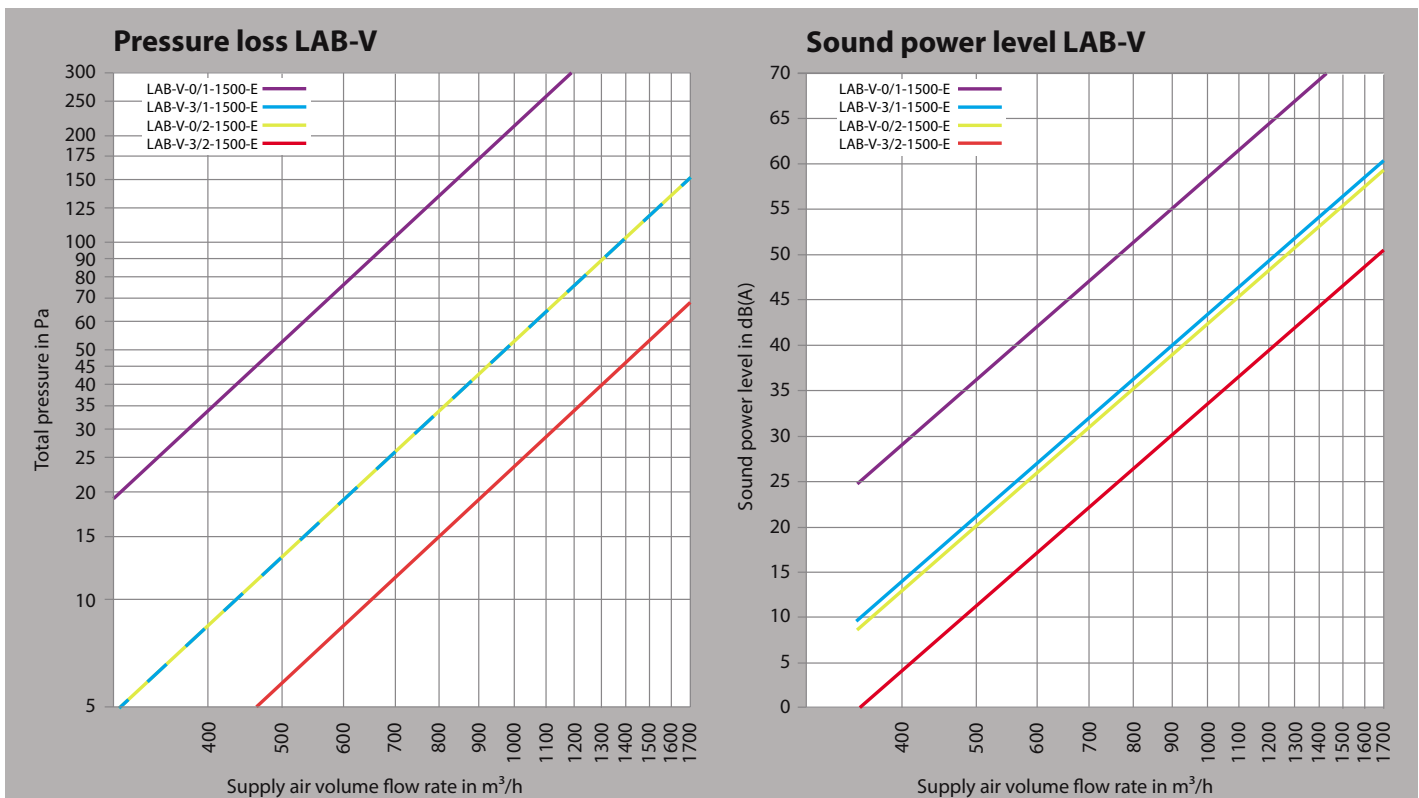
In Krantz's in-house research and development department, we measured and optimised the LAB-V in terms of sound power level and pressure drop.

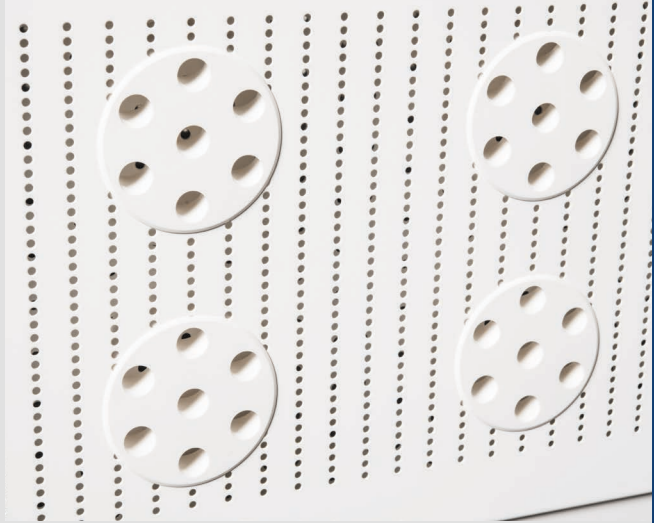
During the measurements, the number of rows of slot diffusers and multiplex discs was varied to reflect different applications.

The results of the measured pressure drops and sound power levels for the different configurations are shown in the diagrams below.

### Parameters Measurement LAB-V

- Dimensions
  - Length 1.500 mm
  - Width 600 mm
  - Height 300 mm
- Variable slot diffuser and multiplex disc rows  
LAB-V-x/y
  - x: Number of slot diffuser rows
  - y: Number of multiplex disc rows
- Frontal, rectangular air connection





LAB-V - Multiplex discs

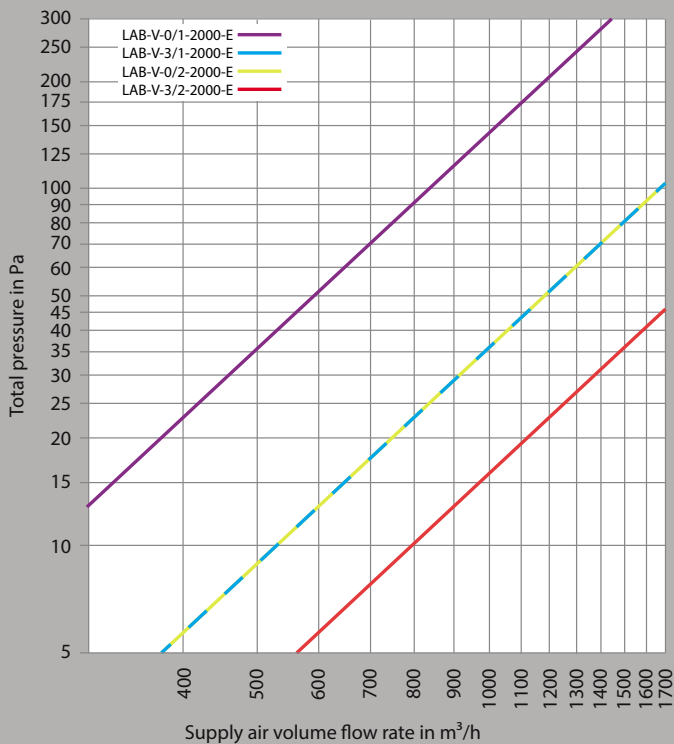


LAB-V - Slotdiffuser

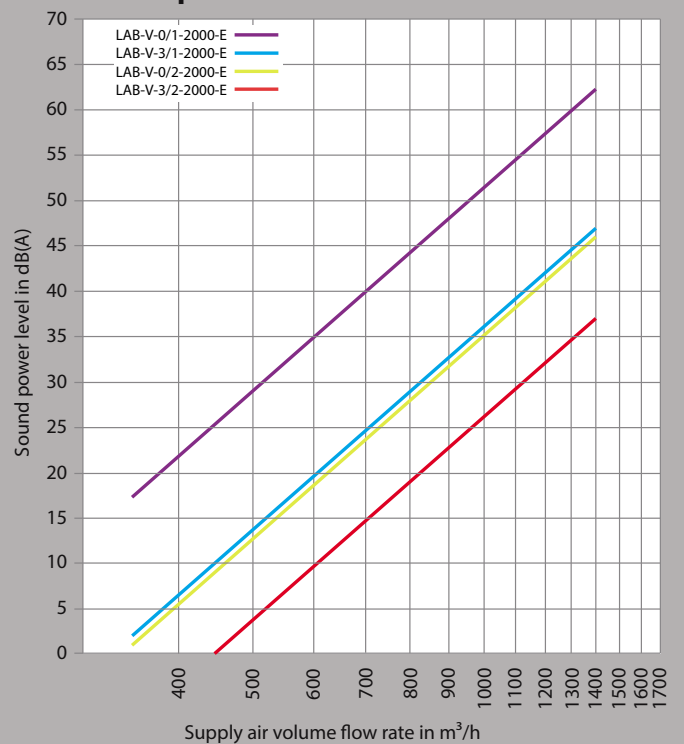
### Parameters Measurement LAB-V

- Dimensions
  - Length 2.000 mm
  - Width 600 mm
  - Height 300 mm
- Variable slot diffuser and multiplex disc rows
  - LAB-V-x/y
  - x: Number of slot diffuser rows
  - y: Number of multiplex disc rows
- Frontal, rectangular air connection

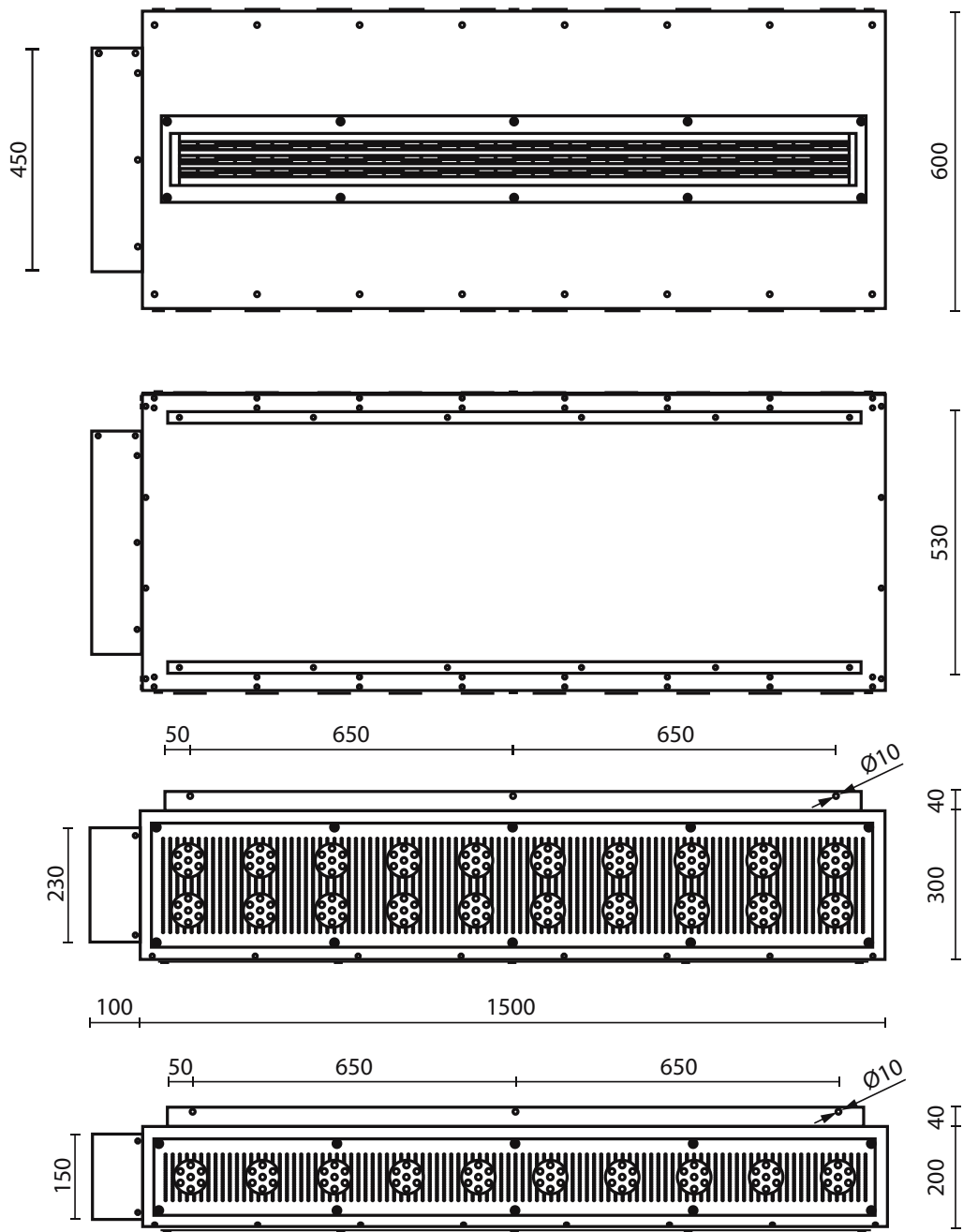
### Pressure loss LAB-V



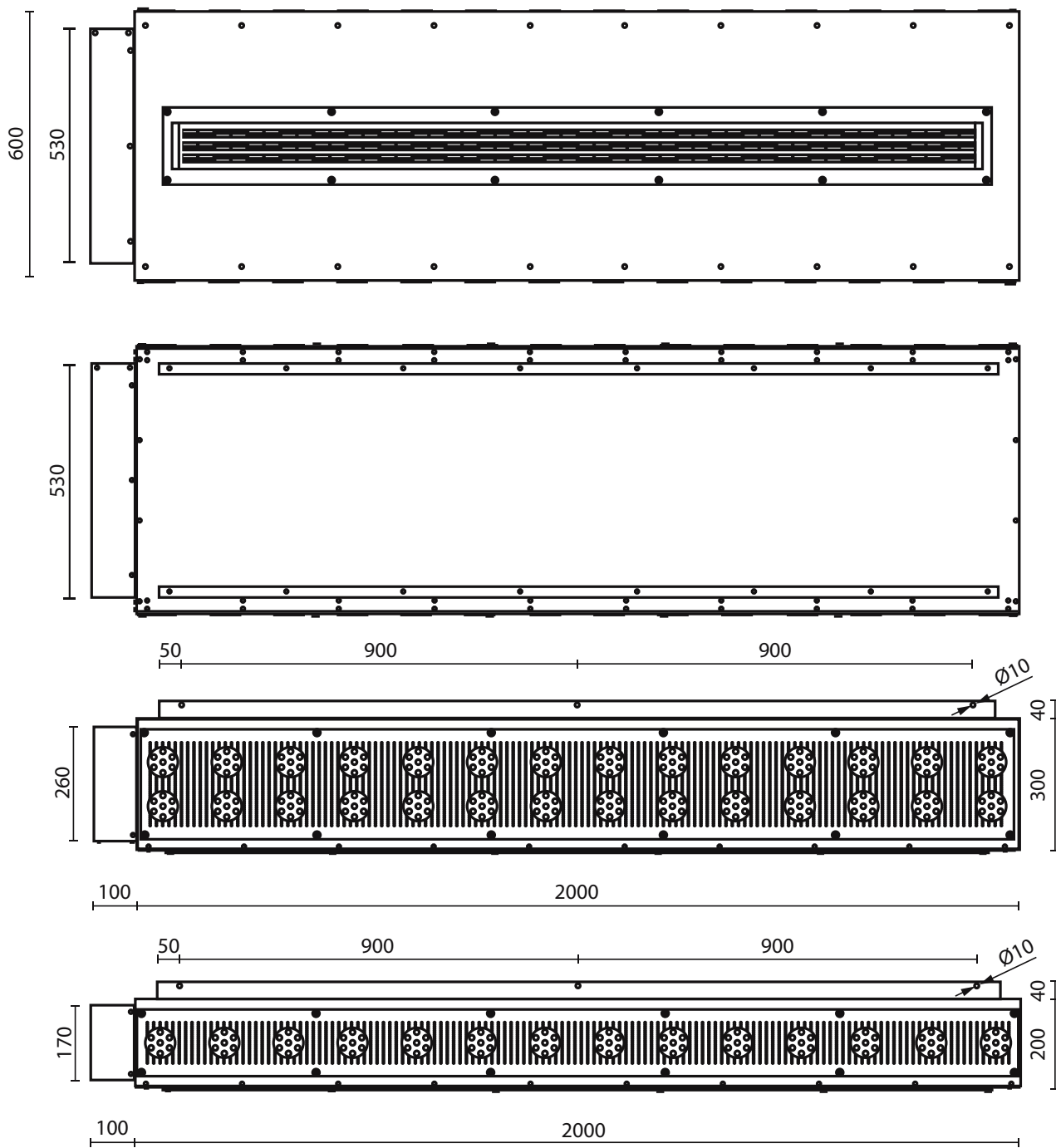
### Sound power level LAB-V



# Dimensions LAB-V 1500 mm



# Dimensions LAB-V 2000 mm



## Type code

LAB-V - \_ / \_ - \_ - E - \_ \_ \_

Laboratory outlet  
Slot diffuser rows  
Multiplex disc rows  
Length  
Connection type  
Color slot diffuser  
Color slot discharge element  
Color multiplex discs

### Slot diffuser rows

0 = 0 rows  
3 = 3 rows

### Multiplex disc rows

1 = 1 row  
2 = 2 rows

### Length

1500 = 1500 mm  
2000 = 2000 mm

### Connection type

E = Rectangular

### Color slot diffuser

RAL ... = RAL ...

### Color slot discharge element

S = Black  
W = White

### Color multiplex discs

S = Black  
W = White

Subject to technical alterations

## Tender text Laboratory outlet LAB-V for mixing-displacement ventilation

.... units

**Laboratory outlet** with a high volume flow rate to generate a low-turbulence room air flow to supply fresh air and protect laboratory personnel from pollutants by reducing washout effects at the fume hood, suitable for dissipating high cooling loads and creating a pleasant room climate, use as a supply air outlet,

consists of:

Slot diffuser with linear discharge element with cylindrical, rotatable individual elements arranged one behind the other, factory preset, individually adjustable and with closed position; up to three-row design

Multiplex diffuser with perforated faceplate with integrated 2-part nozzle discs in 1- or 2-row design. The individual nozzle discs can be manually rotated by 360°.

Housing with air distribution function, rectangular primary air connection at the front, suspended mounting with trusses via mounting bracket on the top of the housing

### Material

#### Slot diffuser

Linear blow-out element made of polycarbonate, coloured black similar to RAL 9005, or pure white similar to RAL 9010

Air diffuser profile made of aluminium, natural colour anodised or painted to RAL 9010, pure white

#### Multiplex outlet

Front panel made of galvanised sheet steel, visible surface painted to RAL 9010, pure white

two-part nozzle discs

- Multiplex disc of polycarbonate PC-GF-10-V0, coloured similar to RAL 9010, pure white, or similar to RAL 9005, deep black

- Insert of acrylic butadiene styrene ABS-V0, coloured similar to RAL 9010, pure white, or similar to RAL 9005, deep black

#### Housing

Galvanised sheet steel casing

Brand: Krantz

Model: LAB-V- \_ / \_ - \_ - \_ - \_

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