

Technical Selection

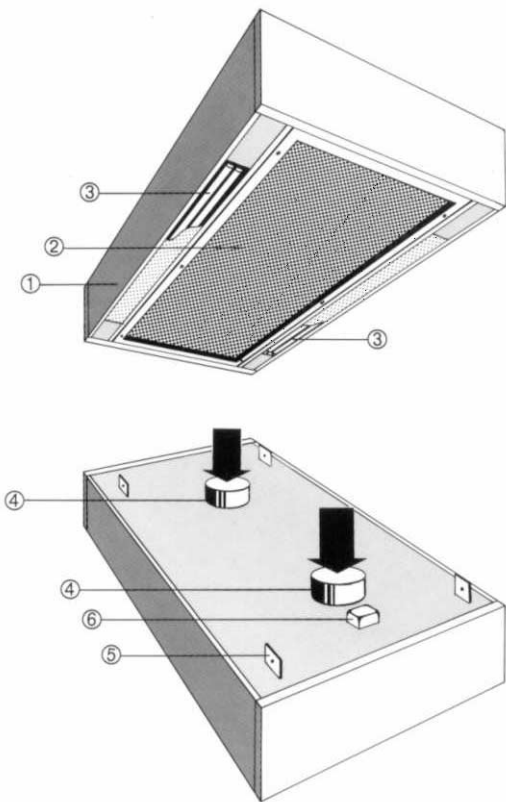


Dissection outlet, type SZ 1000

Preliminary remarks

Formaldehyde vapours are emitted in anatomical dissection rooms, particularly during dissection. When ventilating these rooms therefore, air outlets are needed to displace the pollutant emissions from the work zone.

The dissection outlet from KRANTZ KOMPONENTEN is a displacement outlet installed above the dissection table that discharges laminar supply air into the dissection zone. The pollutants emitted are displaced downwards. The contaminated return air can be collected in the floor zone. Only fresh air flows through the breathing space of personnel.



Dissection outlet

Above: Air discharge side

Below: Upper housing segment with connection spigot¹⁾ and L-fasteners

Key for all pages

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| 1 Housing | 6 Electrical connection |
| 2 Air discharge element | 7 Laminar flow |
| 3 Workplace lighting | 8 Work zone |
| 4 Connection spigot | 9 Mixing zone |
| 5 L-fasteners | 10 Return air grilles |
| | 11 Return air hood |

Construction design

The air outlet is positioned above the dissection table either flush with or built onto the ceiling. Its main components are the rectangular housing 1 with air discharge element 2, the double-sided built-in workplace lighting 3 and the two air connection spigots 4.

The air discharge element is made of reinforced polyester fabric surrounded by an aluminium frame. It can be detached downwards for cleaning and disinfection purposes.

The housing is made of aluminium with epoxy resin coating. The housing is disinfectant-proof. The two-sided lightings are covered with non-reflective, acrylic glass with a smooth underside.

Mode of operation

The air outlet produces a laminar downflow. The laminar flow is already stable at an air velocity of 0.15 m/s. Flow stability is also retained under normal activity levels of dissection personnel.

Supply air and indoor air mix in the marginal zone of the laminar flow. The supply air jet constricts in this mixing zone the more the temperature difference between supply air and indoor air increases. Thanks to the shape of the air outlet, however, the whole work zone is flushed with supply air and the formaldehyde emitted

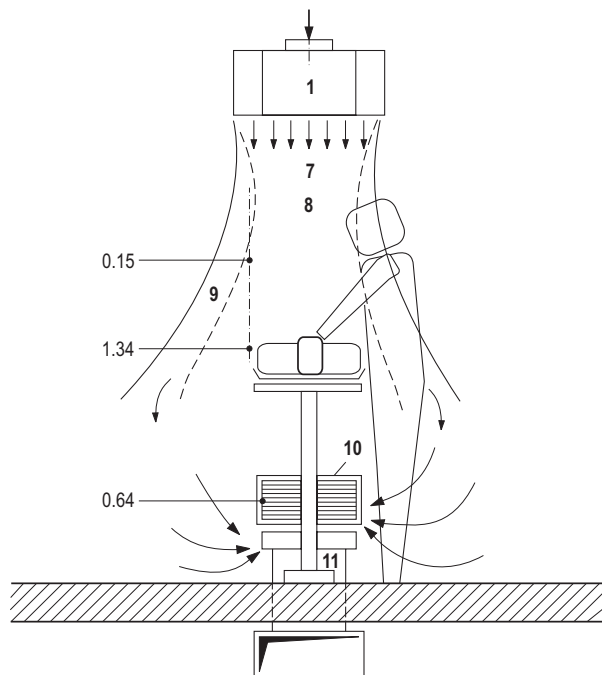


Dissection outlet installed in ceiling

1) Other positions of connection spigots on request

is displaced to the floor. The mixing zone lies outside the work zone.

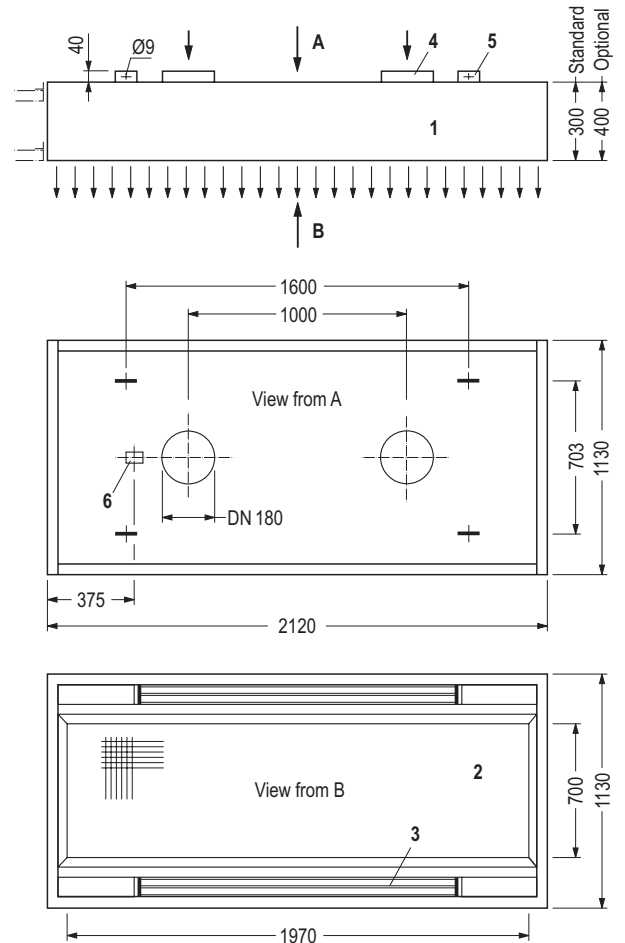
Hygienic tests ¹⁾ confirm that formaldehyde pollution in the work zone is well below the MAK (maximum allowed concentration) figure. The MAK value for formaldehyde is 0.6 mg/m³, and max. measured concentration in the work zone is not higher than 0.15 mg/m³ (see also figure below). The formaldehyde vapours are effectively displaced from the work zone.



Air pattern generated by the dissection outlet. The figure also shows two possibilities for return air collection in the floor zone: return air grille 10 in the wall near the dissection table or return air hood 11 under the dissection table (advantageous).

The values (left) are measurements of formaldehyde concentration in mg/m³.

Dimensions

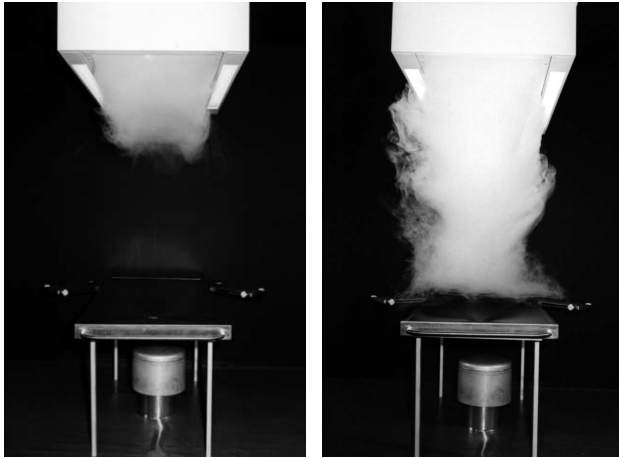


Technical data

| | | |
|--|-------------------|------------------------------|
| Volume flow rate | \dot{V} | 210 – 280 l/s |
| | | 750 – 1000 m ³ /h |
| Discharge height | H | 2.2 – 2.6 m |
| Velocity | u | 0.15 – 0.2 m/s ²⁾ |
| Temperature difference indoor air - supply air | $\Delta\vartheta$ | 0.5 – 4 K |
| Pressure loss | Δp | 30 – 55 Pa |
| Lighting | | |
| – Power P per side | | 2 x 80 W |
| – Lighting intensity E _v | | > 1100 lx |
| – Uniformity G _L | | > 80 % |
| Weight | G | approx. 85 kg |

1) Report by the Institute for Hygiene and Industrial Medicine at the RWTH Aachen, May 1991

2) Related to air discharge surface



Laminar flow made visible with smoke tracer:
Left: Air flow shortly after discharge from air outlet,
Right: Pattern of laminar flow down to the dissection zone.

In this case, the return air is collected by a hood below the dissection table.

Features

- Laminar displacement flow resulting in formaldehyde pollution in the work zone well below the MAK figure
- Stable jet pattern already at air velocities of 0.15 m/s
- No induction of formaldehyde vapours from the indoor air in the work zone
- Low air volume flow rate and low energy costs as a result
- Low air velocities and temperature differences in the work zone
- Workplace lighting built into air outlet
- Intensive and uniform lighting of the whole work zone
- Installed flush with or built onto ceiling
- Low height
- Housing made of aluminium with disinfectant-proof coating
- Easy maintenance

1) Related to air discharge surface

Tender text

Air outlet for air supply in the work zone of dissection tables and displacement of harmful substances, consisting of:

air outlet housing with built-in air jet straightener and air discharge element, easily removable from below, with frame and spanned fine mesh fabric to generate laminar flow; housing and frame disinfectant-proof, built-in workplace lighting at the longitudinal sides of outlet including internal lighting cabling and electric socket on the outside of the housing,

fastening device,

- circular air connection spigot (standard).
- rectangular air connection spigot (optional).

Air outlet housing designed for installation

- into ceiling. onto ceiling.
- downstanding.

Technical data

| | |
|------------------------------|-------------------------------|
| Volume flow rate: | l/s (m ³ /h) |
| Air velocity ¹⁾ : | m/s |
| Workplace lighting | |
| incl. prism pane: | 2 x 80 W |
| Lighting intensity | |
| at dissection table: | > 1 100 Lux |

Material

| | |
|-------------------------|------------------------------|
| Housing | |
| and connection frame: | Aluminium or stainless steel |
| Laminar fabric: | Polyester, white |
| Primer and top coating: | Epoxy resin |
| Colour standard: | RAL 9010 |
| Colour on request: | RAL |

Dimensions

| | |
|------------------------|-----------------------------|
| Housing: | L x W = 2 120 mm x 1 130 mm |
| | H = 300 mm (standard) |
| | H = 400 mm (on request) |
| Air discharge surface: | L x W = 1 970 mm x 700 mm |
| Air connection: | 2 x DN 180 |
| Weight: | approx. 85 kg |
| Make: | KRANTZ KOMponenten |
| Type: | SZ 1000 |

Available accessories:

Ceiling supporting brackets for connection to false ceiling, two rectangular air connection spigots:
Dimensions mm x mm,
Return air hood for placement below dissection table on request.