# Krantz

Floor air outlets

**Air Distribution Systems**

# Krantz

# Traditionally committed to the future

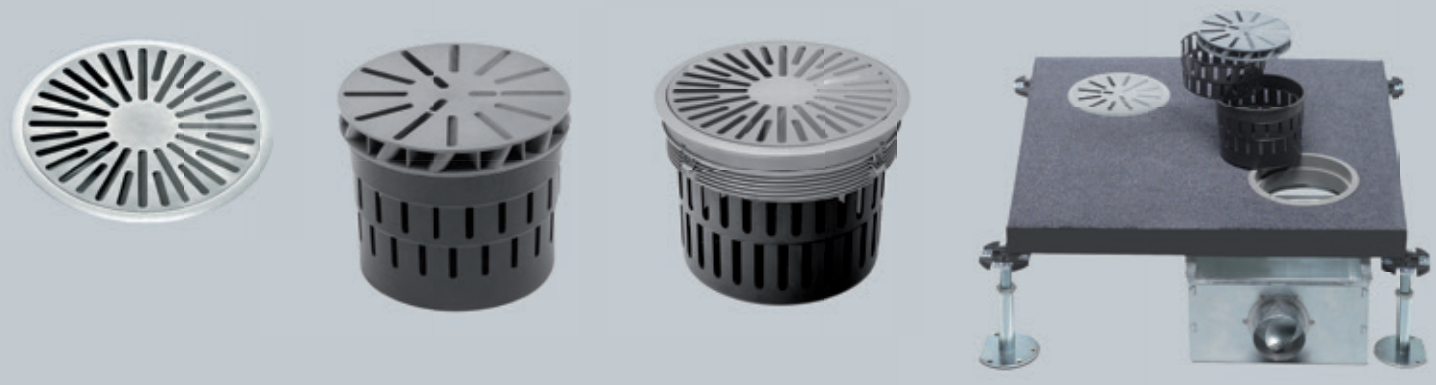
Clean air is one of the elementary preconditions for quality of life and human health. That is why it is important that the air we breathe day after day is treated well. We take this task very seriously.

Our state-of-the-art technology enables us to fulfill the highest requirements for air distribution systems and the strictest air pollution control standards.

**Krantz offers a broad assortment of very different products and services for one common theme – clean air.**







# Floor twist outlet DB-E

### Features

- High-induction, rotationally symmetric, stable vertical jet
- For insertion in a stepped bore or installation with a clamp insert in a through bore of the floor tile
- DN 150: Twist element and clamp insert available in plastic
- DN 200: Twist element and clamp insert available in plastic and aluminium
- Depending on type: air outlet element fitted with lock against unauthorized removal
- Suitable for air connection to the 'pressurized plenum' system, or with connection box for duct connection
- With distributor basket for even air supply; also available with throttle device (adjustable from room) for volume flow rate adjustment

| | DB -E |
|---|---|
| Volume flow rate range: | 5.5 – 50 l/s [20 – 180 $m^3$/h] |
| Nominal sizes: | DN 150 and DN 200 |



**References:**

**1** Office building, Schwäbisch Hall
**2** Faceo, Brussels

# 3 Floor air outlets



## Rotary floor twist outlet DB-D

### Features

- High-induction air jet with jet axis inclined at 30° to the vertical, rotatable for individual adjustment of air velocities at head level of seated person
- For installation with a clamp insert in a through bore of the floor tile; DN 200 also designed for insertion into a stepped bore
- Twist element and clamp insert available in plastic and aluminium
- Depending on type: air outlet element fitted with lock against unauthorized removal
- Suitable for air connection to the 'pressurized plenum' system, or with connection box for duct connection
- With distributor basket for even air supply; also available with throttle device for volume flow rate adjustment

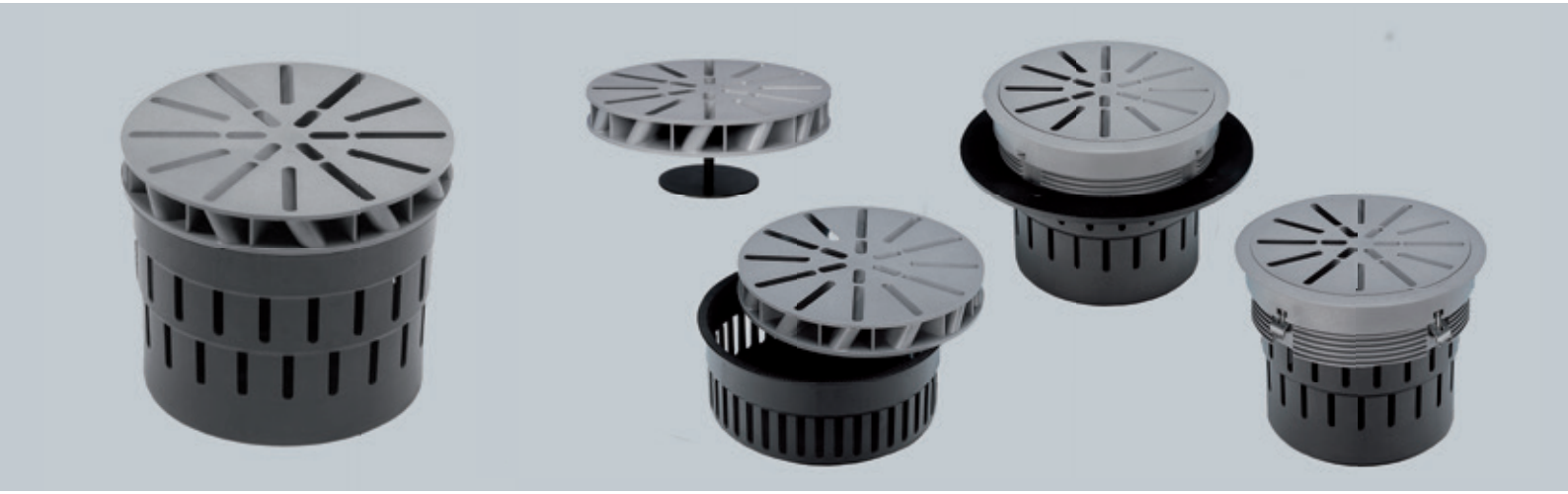
| | DB-D |
|---|---|
| Volume flow rate range: | 5.5 – 50 l/s [20 – 180 $m^3$/h] |
| Nominal sizes: | DN 125 and DN 200 |


1


2

**References:**

**1** Office building
**2** Universal Music, Berlin

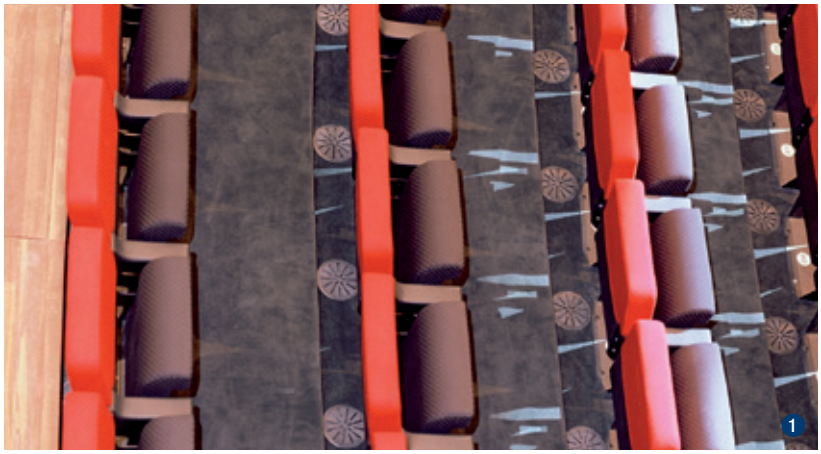


## Adjustable floor outlet BA-V-DN 150

### Features

- Operation as floor twist outlet or floor displacement outlet
- For insertion in a stepped bore or installation with a clamp insert in a through bore of the floor tile
- Twist element and clamp insert made of plastic
- Suitable for air connection to the 'pressurized plenum' system, or with connection box for duct connection
- With distributor basket for even air supply; also available with throttle device for volume flow rate adjustment

| | BA-V-DN 150 |
|---|---|
| Volume flow rate range: | 5.5 – 14 l/s [20 – 50 $m^3$/h] |
| Nominal sizes: | DN 150 |

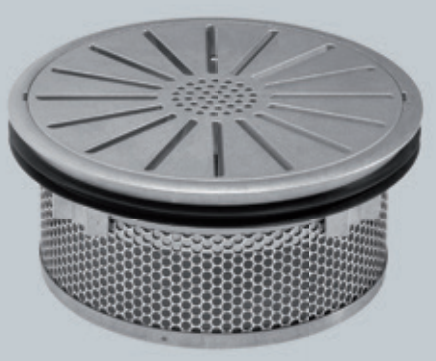




**References:**

**1** Luxor Theater, Rotterdam
**2** Restaurant

# 3 Floor air outlets



Q-B-DN 200, in floor tile with stepped bore

Q-B-DN 200, in floor tile with clamp insert

## Floor displacement outlet Q-B-DN 200

### Features

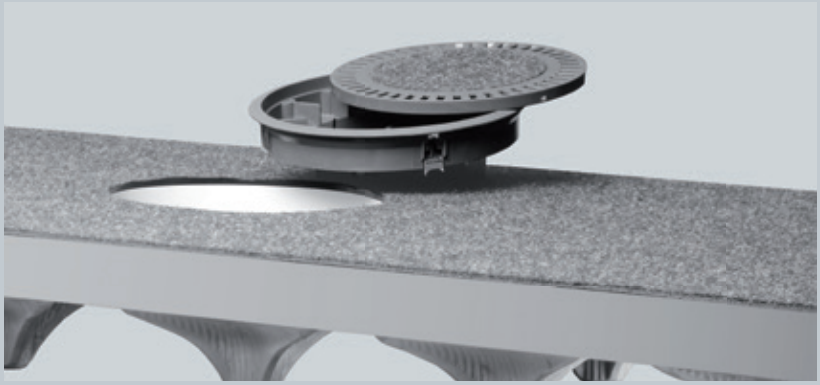
- Radial, horizontal jet dispersion
- For insertion in a stepped bore or installation with a clamp insert in a through bore of the floor tile
- Twist element and clamp insert made of aluminium
- For air connection to the 'pressurized plenum' system, or with connection box for duct connection
- With distributor basket for even air supply; also available with throttle device for volume flow adjustment

| | Q-B-DN 200 |
|---|---|
| Volume flow rate range: | ≤ 28 l/s [100 $m^3$/h] |
| Nominal size: | DN 200 |



**References:**

**1** Congress Center, Frankfurt
**2** Ströer Out-of-Home Media AG, corporate headquarters, Cologne



Q-B-DN 215 before mounting
– with floor insert and integrated throttle device, as well as cavity floor with floor opening

# Floor displacement outlet Q-B-DN 215

### Features

- Radial, horizontal jet dispersion
- For raised floors with low floor plenums, installation utilizing floor insert
- Twist element and clamp insert made of plastic
- For air connection to the 'pressurized plenum' system
- Floor insert with perforated throttle disk
- Available on request with center recess to accommodate floor covering; optionally with inlaid lid

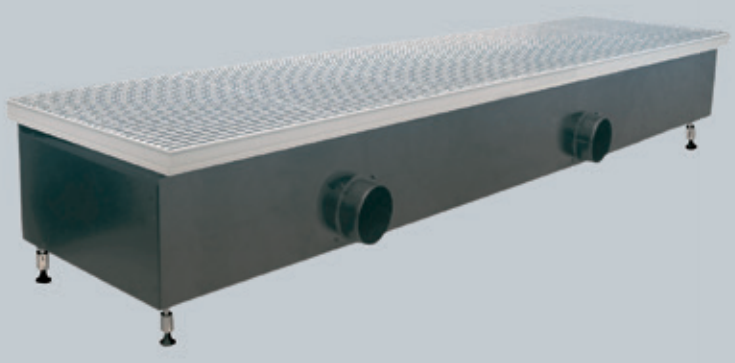
| | Q-B-DN 215 |
|---|---|
| Volume flow rate range: | 8.5 – 16.5 l/s [30 – 60 m³/h] |
| Nominal size: | DN 215 |



**References:**

**1** Open-plan office
**2** Conference room

# 3 Floor air outlets

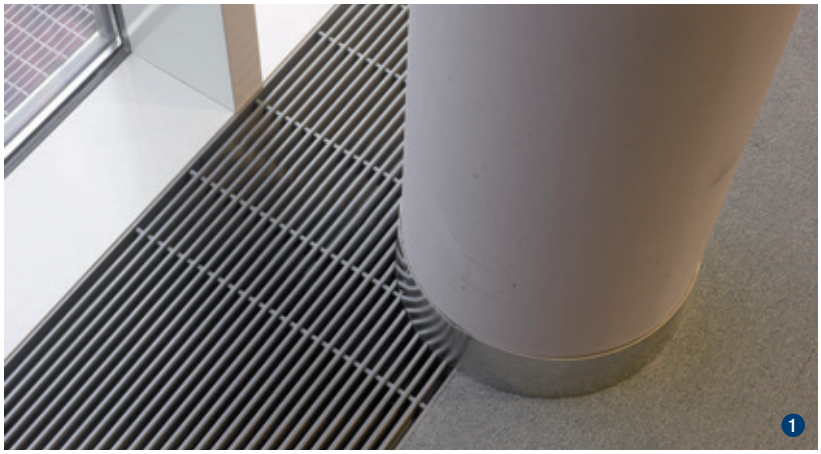


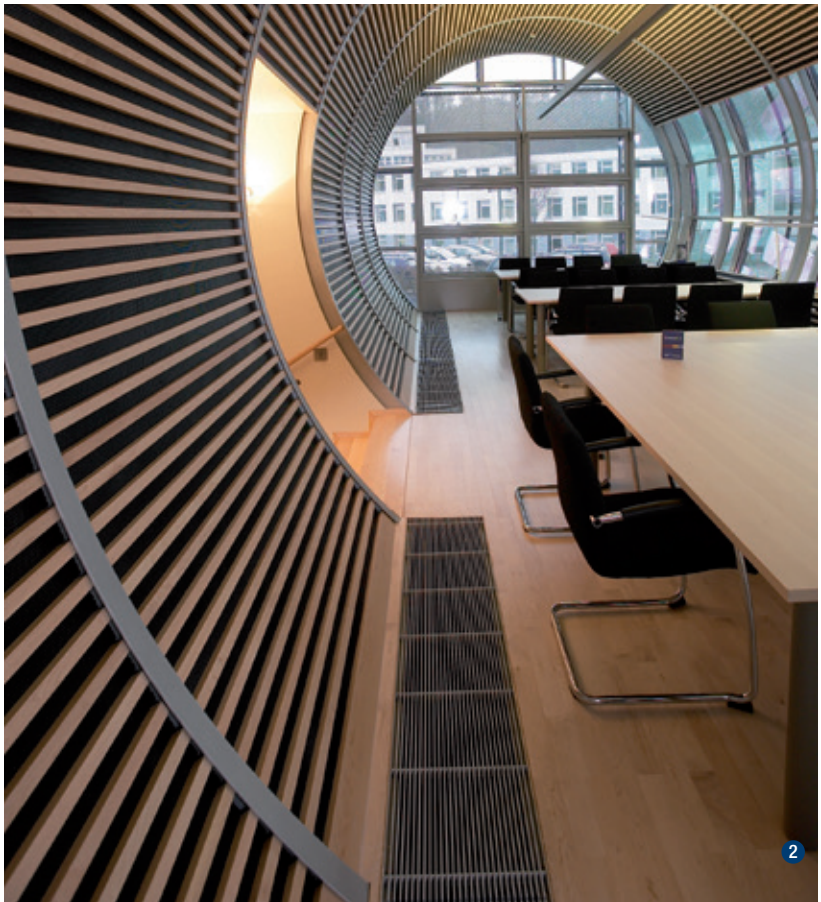
## Rectangular floor displacement outlet Q-BR

### Features

- Combined mixing/displacement flow or hybrid flow, as set out in VDI 3804
- For mounting in raised floors
- Volume flow rate up to 55 l/(s·m) [200 m³/(h·m)], with one-way or two-way discharge
- Draught-free indoor air flow with very low air velocities in the occupied zone
- Large supply air coverage (up to 6 m)

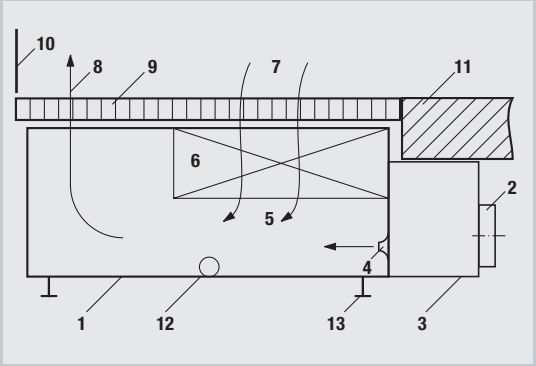
| | Q-BR |
|---|---|
| Supply air volume flow rate: | up to 55 l/(s·m) [200 $m^3$/(h·m)] |
| Temperature difference, supply air to indoor air: | –1 to –6 K |
| Unit length: | 800 / 1 000 / 1 200 / 1 450 / 1 700 / 1 900 mm |
| Unit depth: | 260 mm (standard) |
| Unit height: | 130 mm (supply air connection at the bottom) |




**References:**

**1 + 2** Voith Paper Technology Center GmbH, Heidenheim




Layout and function of the floor induction unit for cooling and heating

# Induction unit for mixing ventilation IG-M-LB, for horizontal floor mounting

## Features

- Cooling, heating and fresh air supply on the façade, above a raised floor, all while maintaining high thermal comfort
- Low pressure loss (70 to 200 Pa), therefore energy-saving operation
- Low sound power level
- Heating also possible without primary air, which saves energy when heating at night and at weekends
- Heat exchanger cleanable from the top or the bottom (in compliance with requirements of VDI 6022). The large fin spacing enables easy cleaning and obviates the need for a filter.
- Suitable for new or refurbished buildings

| IG-M-LB | |
|---|---|
| Primary air volume flow rate: | 4 – 36 l/s [15 – 130 $m^3/h$] |
| Nominal unit width: | 800 – 1 600 mm |

**Key**

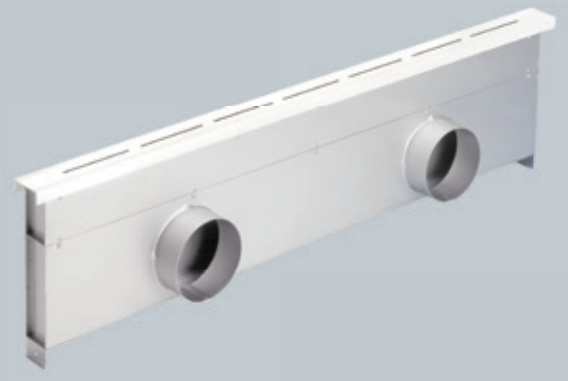
1 Housing
2 Primary air connection
3 Primary air box
4 Nozzle
5 Induction area
6 Heat exchanger
7 Secondary air
8 Supply air
9 Floor grille
10 Facade or glazing
11 Raised floor
13 Feet, adjustable in height
14 Water connections

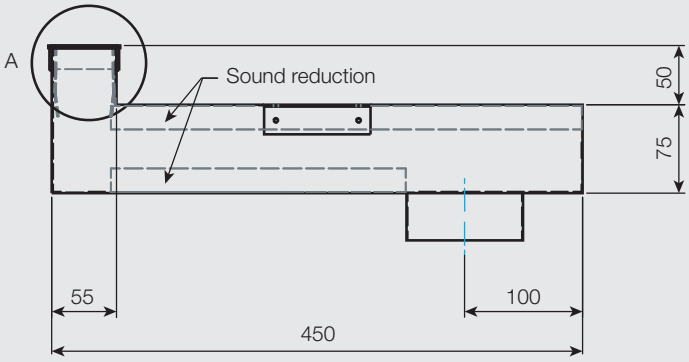


**References:**

**1 + 2** Voith Paper Technology Center GmbH, Heidenheim

# 3 Floor air outlets






A = Window air curtain unit FSG-OG-600-So with alternative slip-on rails

## Window air curtain unit FSG

### Features

- Linear air curtain
- Installation in floor or window sill, along the facade
- Max. distance to glass pane: 200 mm
- Low space requirement
  (width 55 mm, height 260 to 310 mm)
- With connection box for flexible duct connection

| | FSG |
|---|---|
| Volume flow rate range: | 8 – 25 l/(s·m)<br>[30 – 90 $m^3$/(h·m)] [1)] |
| Slot width: | 3 – 10 mm |
| Standard lengths: | 1; 1.2 and 1.6 m |
| Penetration height: | 2 – 10 m |

[1)] higher volume flow rates on request



**References:**

**1** Holland Casino, Utrecht
**2** Carpus + Partner AG, Aachen

# We meet challenges

### The enjoyment of a concert including high thermal comfort

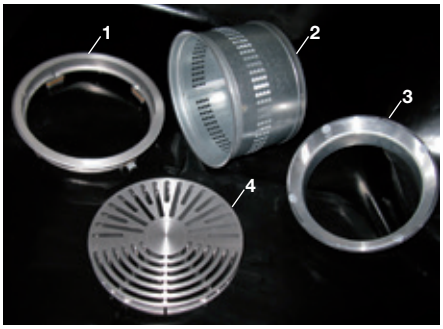
**Climate control in concert halls poses a major challenge to engineers because visitors expect high levels of thermal comfort, but the acoustic requirements for the necessary components are exacting. This is in addition to issues of energy consumption, which cannot be overlooked.**

For the Elbphilharmonie, Krantz developed a special air outlet to be installed under each of the 2,150 seats. Air supply from the central ventilation system comes up through the floor, where the area is designed as a so-called pressure plenum. The goal was to provide each individual visitor with supply air that maintains the desired room air temperature without too much difference between the foot and head area, while keeping air movement to a minimum. Due to the relatively high supply air volume flow of 16 l/s [60 $m^3$/h] per person, the requirements were so high that a tailor-made solution had to be developed in the Krantz research laboratory.

### Special solutions from Krantz

The result is a solution in which a part of the supply air is distributed under the seats, utilizing the special design of the floor air outlets, and another part is fed upwards behind the backrest. In this way, the concert visitor is virtually enveloped in supply air. After Krantz created this concept, however, yet more hurdles had to be overcome. Among other things, this included a comparison test at the University of Applied Sciences Wolfenbüttel, in which a product of the competition was included. The strong results of the Krantz solution then led to a final release.

Later, however, the client made an additional request that leaking liquid not be allowed to enter the plenum, this being for hygienic reasons. Subsequently, the air distribution basket under the outlet element had to be modified to be able to accommodate a volume of 0.5 liters of liquid. The tailor-made solutions developed by the research and development department of the ventilation specialist Krantz thus were made to meet the highest standards of thermal and acoustic comfort, so that visitors can enjoy the music at concerts without fear of being disturbed.




**Key**

1 Clamping insert with expanding claws
2 Special distributor basket
3 Clamp ring
4 DA-DB-DN 2001



K 72 e / 2019 – Subject to technical alterations –

**Krantz GmbH**
Uersfeld 24, 52072 Aachen, Germany
Phone: +49 241 441-1, Fax: +49 241 441-555
info@krantz.de, www.krantz.de