



Krantz

HVAC systems
for hospitals

System solutions

Krantz

Best air management solutions through customized systems

Krantz has been a leading specialist in comprehensive HVAC system solutions for more than 40 years, and has been supplying innovative ventilation and air-conditioning systems for hospitals and clean rooms for over 20 years.

This overview presents air management solutions based on innovative systems designed to match any user requirements. We shall be glad to work out customized solutions together with you.



Just contact us!

Take advantage of our expertise and experience.

- Early dialogue with clients, investors, architects, and design consultants
- Very high level of quality, efficiency and reliability
- Ease of operation and maintenance of our systems

Let us convince you of our creative approach to optimum design solutions.

Visit our website www.krantz.de



Reception / Waiting area

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Examination / Treatment Operating area

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Regeneration

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Research / Teaching Laboratory, lecture hall, administrative area

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Reception / Waiting area

The reception and waiting area is, so to speak, the business card of a building. Innovative air distribution systems in aesthetic design set new architectural trends while ensuring optimum thermal comfort.



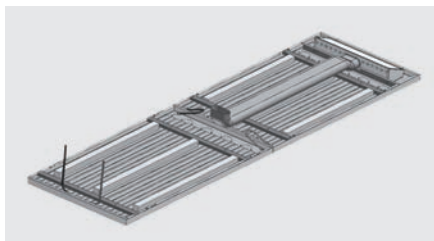


Opticlean OC-Q



Contact cooling ceiling system KKS-3/LD, for metal ceilings

Thermal comfort coupled with attractive design



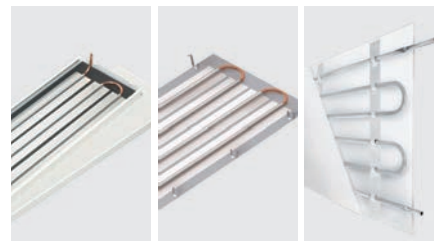
The **chilled sail AVACS** is the result of further developments on our chilled sails. It combines the proven chilled ceiling technology with air diffusers that are invisible to room occupants. The exposed part of the AVACS chilled sail is an assembly of perforated rectangular metal tiles which incorporate the contact cooling ceiling system KKS-3/LD for metal ceilings.

Nominal width: ≤ 1 200 mm
 Nominal length of each metal tile: ≤ 2 800 mm
 Suspension height: min. 150 mm
 Volume flow rate: ≤ 28 l/s [100 m³/h]
 Cooling output: up to 160 W/m²



The **Opticlean OC** (with square or circular faceplate) has been developed in order to combine in a single product the main features of a ceiling-mounted supply air outlet for diffuse indoor air flow, i.e. high level of thermal comfort, unobtrusive integration into the suspended ceiling, very low amount of dirt accumulated on the ceiling, and low sound power level.

Size OC-Q: 215 – 625
 Size OC-R: 300 and 500
 Discharge height: 2.5 – 4.5 m
 Volume flow rate range:
 – OC-Q: 11 – 239 l/s [40 – 860 m³/h]
 – OC-R: 25 – 170 l/s [90 – 610 m³/h]
 Temp. differential: –10 K



Radiant cooling and heating ceilings provide a comfortable climate. **KKS-3/LD** is used for metal acoustic ceilings and **KKS-4/GK** for various types of gypsum board ceilings. **PKS-D** is used for plastered ceilings.

Dimensions: variable
 Cooling output to EN 14240 (Δt 10 K)
 – KKS-3/LD: 116 W/m²
 – KKS-4/GK: ≤ 89 W/m²
 – PKS-D: 80 W/m²
 Heating output: > 100 W/m² is achievable (Δt 15 K)



Chilled sail AVACS

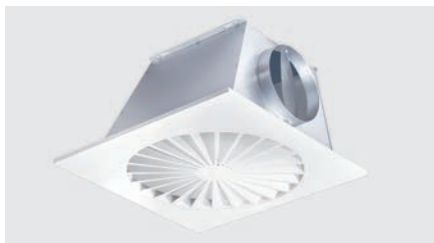


Adjustable induction outlet IN-V



Swivel jet nozzle DW-V2

Diffuse indoor air flow and a multitude of design options



Radial outlets RA-N3 are available with square or circular face. They generate high-quality diffuse air flow according to the principle of turbulent mixing ventilation. They can be installed free-hanging from the ceiling, above open grid or expanded metal ceilings, or flush with closed false ceilings or square tile ceilings.

Size: DN 355 and DN 500
 Discharge height: 2.4 – 4.5 m
 Volume flow rate range: 26 – 400 l/s
 [95 – 1 440 m³/h]
 Temperature differential: –12 K to +5 K



Adjustable induction outlets IN-V are linear ceiling air outlets that are eminently suited for installation in suspended ceiling systems in commercial buildings.

Good visual integration into ceiling thanks to small width of visible air outlet profile, in particular that of **IN-V3** (only 15 mm wide).

Element width: 15 or 28 mm
 Number of outlet rows: 1 – 4
 Discharge height: 2.5 – 5 m
 Volume flow rate range: 2.8 – 110 l/(s · m)
 [10 – 400 m³/(h · m)]



Swivel jet nozzles DW-V2 are used to air-condition large spaces or galleries with very high acoustic requirements.

The discharge direction can be adjusted to any position in the horizontal and vertical planes. The jet discharge angle can be adapted to the desired operating conditions.

Nominal size: DN 60 to DN 250
 Throw: 3 – 50 m
 Discharge height: 2.5 – 10 m
 Volume flow rate range: 11 – 589 l/s
 [40 – 2 120 m³/h]
 Adjustment:
 – manual
 – electric
 – self-acting



Radial outlet RA-N3



Circular Opticlean OC-R



Rectangular floor displacement outlet Q-BR



The **linear whirl outlet WL** produces turbulent mixing ventilation. It can be installed in ceilings and walls. Applications are rooms with high acoustic and thermal comfort requirements, e.g. offices, restaurants, assembly rooms as well as lobbies and entrance halls.

Discharge chamber height: 30, 45 and 65 mm
 Penetration depth: 4 – 16 mm
 Discharge height: 2.6 – 6 m
 Volume flow rate range: 28 – 300 l/s
 [100 – 1 100 m³/h]



Circular Opticlean OC-R with horizontal air discharge, for installation in suspended ceiling systems made from mineral fibre or gypsum board. It is characterized by high level of thermal comfort, unobtrusive integration into the suspended ceiling, very low amount of dirt accumulated on the ceiling, and low sound power level.

Sizes: 300 and 500 mm
 Discharge height: 2.5 – 4.5 m
 Volume flow rate range: 25 – 169 l/s
 [90 – 610 m³/h]
 Temp. differential: ±10 K



The **rectangular floor displacement outlet Q-BR** is designed to deliver supply air to commercial rooms with raised floors or floor plenums. The air outlet generates a combined mixing/displacement flow or hybrid flow as described in the German guideline VDI 3804. The advantage of this hybrid flow over a mere displacement flow is a low vertical temperature gradient with lower air discharge temperature.

Unit length: 800 – 1 900 mm
 Unit depth: 140 – 340 mm
 Unit height: ≤ 190 mm
 Volume flow rate: up to 55 l/(s·m)
 [200 m³/(h·m)]
 Grille:
 – aluminium
 – stainless steel
 – wood



Linear whirl outlet WL

Operating area

Demanding requirements have to be complied with when designing and building a complete "operating room" system. During this process the protection of patients and staff is the centre of attention.

Standards and guidelines provide safety.

Our systems fulfil the requirements of DIN 1946-4 "Ventilation in buildings and rooms of health care" and are suited for all room classes (Ia, Ib and II) described therein.



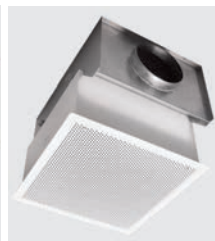


Puri twist outlet PDK



Fibre filter F

Best treatment conditions



Very often wall heating is necessary in operating rooms.

The **wall heating-cooling element WHK-GK** is used in gypsum board walls, and the **plaster system PKS-W** is used in plastered walls.

Dimensions: customizable
 Heating output: to EN 14037 (Δt 15K)
 – WHK-GK: 84 W/m²
 – PKS-W: 120 W/m²
 Cooling output: \approx 30 W/m² (Δt 8 K)

The **Puri twist outlet PDK** for turbulent mixing ventilation, with HEPA filter, is suited for air cleanliness levels of Class 6 to 8 to EN ISO 14644-1 and Grade C and D to EU GMP guidelines as well as for treatment rooms of Class Ib to DIN 1946-4.

The **Puriclean PCK** has the same properties as the Opticlean (p. 5) and is easy to clean.

Size: DN 250 to DN 400
 Discharge height: 2.4 – 4.5 m
 Housing height: 432 mm
 Volume flow rate range: 69 – 389 l/s
 [250 – 1 400 m³/h]

The fibre filters F and G are return air inlets for filtering textile fibres out of the return air of clean rooms, particularly operating theatres and ancillary rooms; for wall or duct mounting.

The fibres are removed directly at the extract point. The fibre filter is built into the wall of the clean room or exhaust air duct.

Width x height: 225 x 225 mm to 825 x 825 mm
 Depth F / G: 61 / 75 mm
 Volume flow rate range: 65 – 1 670 l/s
 [230 – 6 000 m³/h]



Wall heating-cooling element WHK-GK

Regeneration

In medicine, regeneration means restoration of a body's normal function. During regeneration the organism tries to heal damaged tissue or organs by building new cells.

To make the patients' stay less unpleasant, hospitals provide comfortable rooms with a cosy atmosphere.





Broad multiplex outlet BF-V



Multiplex outlet FA-VT

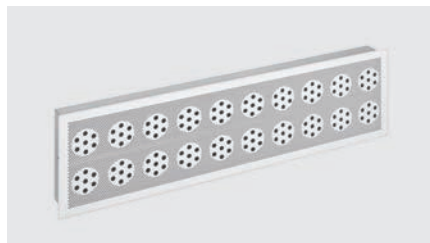
Ideal air quality and state-of-the-art solutions



The adjustable **wall slot diffuser WSD** is a slim air outlet with aesthetic design. Since it requires little space, it is specially designed for installation in standard gypsum board walls. It generates turbulent mixing ventilation.

The wall slot diffuser is particularly suitable for offices and rooms with concrete slab cooling.

Nominal length: 525, 1 050, 1 125 mm
 Discharge height: 2.4 – 3.5 m
 Volume flow rate: up to 66.5 l/s
 [240 m³/h] per metre of diffuser length
 Temperature differential: –10 K to +6 K



The **broad multiplex outlet BF-V** has been developed to fulfil the high thermal comfort criteria required in commercial applications.

The broad multiplex outlet is well suited to replace existing sidewall air outlets and air grilles. This is an optimum way to significantly improve thermal comfort in rooms at low cost.

Nominal length: 600, 800, 1 000 mm
 Mounting height: 2.2 – 4 m
 Volume flow rate range: 22 – 150 l/s
 [80 – 540 m³/h]
 Temperature differential: ±10 K



The **multiplex outlet FA-VT** generates high-turbulence mixing ventilation with spread-out air jets.

The multiplex outlet is a sidewall air outlet whose front plate generates a large number of thin air jets through built-in jet bundle elements. The discharge direction of these elements being adjustable, the supply air jets can be spread out as required.

Nominal length: 600, 800, 1 000 mm
 Discharge height: 2.5 – 4 m
 Volume flow rate
 – single-row: ≤ 43 l/(s · m)
 [155 m³/(h · m)]
 – double-row: ≤ 50 l/(s · m)
 [185 m³/(h · m)]
 Temperature differential: ±12 K



Wall slot diffuser WSD

Laboratory, lecture hall, administrative area

In a hospital the requirements for the ambient air conditions are very different depending on the building areas.

For instance, hospital pharmacies and laboratories, which deal and work with substances that are hazardous to health, require specific air distribution systems that will ensure the protection of people and medicines.

Lecture halls and seminar rooms must accommodate a great number of people. The indoor air quality and the acoustic performance of the air-conditioning systems are of vital importance for occupant comfort and learning success.

Even in rooms where the risk of infection is low, e.g. in the administrative area, the indoor air quality has to be brought to a level that is conducive to good health.





Radial slot outlet RL



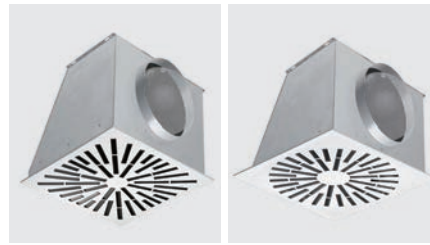
Puriclean PCK

Customized systems to meet the most varied demands



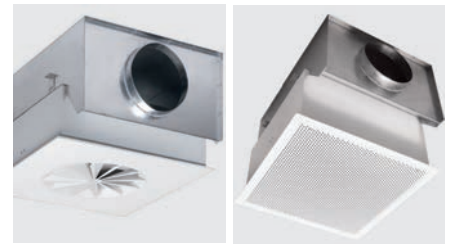
The **dissection outlet SZ** is a displacement outlet which is placed above the dissection table and discharges a laminar flow of supply air into the dissection zone. The air pollutants are thus displaced downwards and the polluted air is extracted at floor level.

Length x width: 2 120 x 1 130 mm
 Height: 300 mm (standard)
 Volume flow rate range: 210 – 280 l/s
 [750 – 1 000 m³/h]
 Lighting intensity: > 1 100 Lux



The **radial slot outlet RL** generates turbulent mixing ventilation and is used for supply air distribution in commercial buildings. It is particularly suitable for rooms with high indoor air flow requirements and can be installed flush with the ceiling or free-hanging.

Size: 300 – 800
 Discharge height: 2.5 – 4.5 m
 Volume flow rate range: 20 – 330 l/s
 [75 – 1 200 m³/h]
 Temperature differential: -12 K to +5 K
 Discharge direction: 2-, 3- or 4-sided



The **Puri twist outlet PDK** for turbulent mixing ventilation, with HEPA filter, is suited for air cleanliness levels of Class 6 to 8 to EN ISO 14644-1 and Grade C and D to EU GMP guidelines.

The **Puriclean PCK** has the same properties as the Opticlean (p. 5) and is easy to clean.

Nominal size: DN 250 to DN 400
 Discharge height: 2.4 – 4.5 m
 Housing height: 432 mm
 Volume flow rate range: 69 – 389 l/s
 [250 – 1 400 m³/h]



Dissection outlet SZ



Induction outlet with preset discharge direction IN-N6



Adjustable radial outlet with core tube RA-V2

High air quality and many system configurations



Step displacement outlets Q-SR and Q-SL are used to supply air to assembly rooms with seating arranged on stepped floors, such as auditoria, convention centres, theatres, etc. They operate according to the principle of displacement ventilation and are designed for installation in step risers, directly behind the seats.

Nominal size
 – circular: DN 80 and DN 100
 – rectangular: variable
 Volume flow rate
 – DN 80: ≤ 10 l/s [35 m³/h]
 – DN 100: ≤ 16.5 l/s [60 m³/h]
 – rectangular: ≤ 21 l/(s·m) [75 m³/(h·m)]

The **induction outlet with preset discharge direction IN-N6** is a linear ceiling air outlet that is eminently suited for installation in suspended ceiling systems in commercial buildings. The discharge element has a number of consecutive jet channels which are inclined at a 45° angle to the horizontal, alternately to the right and to the left. This enables alternate air discharge.

Length: 1 000 – 1 600 mm
 Discharge height: 4 – 7 m
 Volume flow rate range: 28 – 85 l/(s·m)
 [100 – 300 m³/(h·m)]
 Temperature differential: –10 K to +6 K

The **adjustable radial outlet with core tube RA-V2** generates a diffuse air flow according to the principle of turbulent mixing ventilation and is particularly suited for large thermal load variations in commercial applications as well as for great ceiling heights. The direction of the supply air jets is adjustable from horizontal to vertically downwards, depending on the supply air temperature.

Nominal size: DN 250 to DN 900
 Discharge height: 2.8 – 18 m
 Volume flow rate range: 83 – 3 055 l/s
 [300 – 11 000 m³/h]
 Temperature differential: ± 12 K
 Adjustment:
 – manual
 – electric
 – self-acting



Step displacement outlet Q-SL



Chilled beam DK-LIG/Z, with ventilation function, two-sided discharge



Ventilation unit (supply/return air) for mixing ventilation LG-ZA-M-SB, for vertical parapet mounting



The **static cooling ceiling system SKS-5/3** comes into use as exposed ceiling elements having an attractive linear-panel appearance. This system can be designed as free-hanging chilled sail or chilled island.

Nominal width: up to 1 480 mm
 Nominal length: up to 4 000 mm
 Cooling output: up to 160 W/m²



The **chilled beam DK-LIG**, with ventilation function and one-sided or two-sided discharge, is used for room cooling and heating in commercial buildings. High cooling outputs and fresh air supply to enhance the indoor air quality.

Nominal width: 300 and 600 mm
 Nominal length: up to 3 000 mm
 Primary air volume flow rate: 3 – 25 l/(s · m)
 10 – 90 m³/(h · m)
 Cooling output: up to 820 W/m



The **ventilation unit LG-ZA-M-SB** is designed for integration into the parapet of a facade. It enables ductless ventilation as it is fitted with direct outdoor and exhaust air connections. It provides the following functions: fresh air supply, cooling, heating, operation with heat recovery, and operation with recirculated or outdoor air.

Width: 1 000 mm
 Height: 650 mm
 Depth: 297 mm
 Volume flow rate: max. 53 l/s [190 m³/h]
 Total cooling output: 720 W
 Total heating output: 1 200 W



Static cooling ceiling system SKS-5/3, for visible installation

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The logo for Krantz GmbH, featuring the word "Krantz" in a stylized, blue, cursive script font.