

Opticlean OC....

Preliminary remark

KRANTZ KOMPONENTEN has developed the Opticlean 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
- low dirt accumulation on the ceiling
- low sound power level.

The Opticlean is suitable for use in suspended ceiling systems with grid dimensions of 600 x 600 mm or 625 x 625 mm. It is inserted into the ceiling grid from the top, instead of a ceiling tile, and connected to the supply air ductwork.

Its weight being low, it usually does not call for another suspension device.

As standard the outlet face has round perforations in diagonally staggered arrangement. The perforations have a diameter of 2.8 mm, their spacing is 5.5 mm. This hole pattern corresponds to the typical appearance of usual square tiles for metal ceiling systems. Thus, the integration of this air outlet into the ceiling is unobtrusive. If the hole pattern of the ceiling tiles is the same, it is nearly impossible to distinguish the Opticlean inside the ceiling.

The supply air flows very evenly out of the perforated face and spreads radially and horizontally. Indoor air being induced, the air velocities and the temperature difference between supply air and indoor air decrease rapidly; this results in low indoor air velocities and even indoor air temperatures.

The perforated face is not affected by the induced indoor air because a layer acting like an air cushion forms under the outlet. This is why far less dirt accumulates on the ceiling as compared with high-turbulence air outlets.

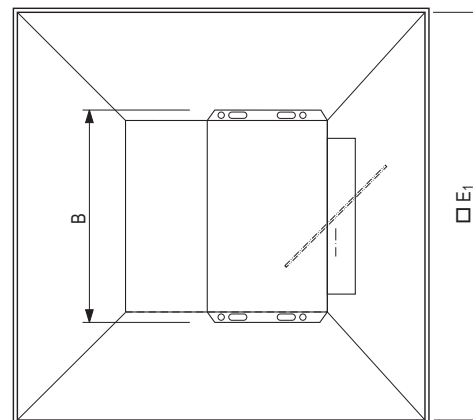
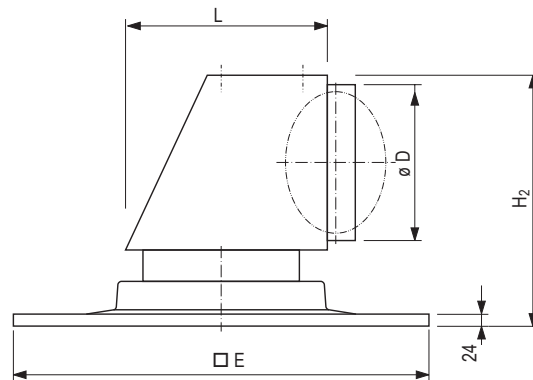
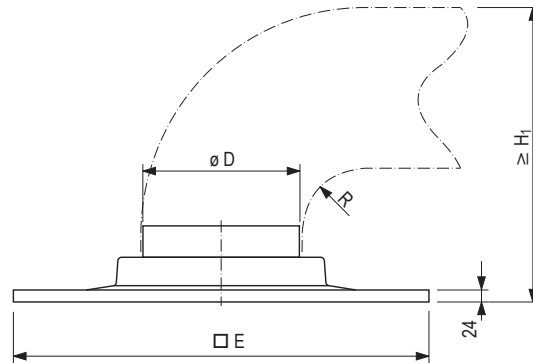
If the Opticlean is installed near a wall or in a corner, it is possible to alter the discharge direction using segment covers.

Application

- For ceiling heights 2.5 to 4.5 m
- Maximum temperature difference: ±10 K ¹⁾
- Volume flow rate range from 17 to 222 l/s [60 to 800 m³/h]
- Also usable as return air inlet

1) When heating, +10 K up to 3 m ceiling height, +5 K up to 4.5 m ceiling height

2) The total height is based on a minimum bending radius of R/D = 0.5. Smaller radii are possible depending on the type of flexible duct used.



Size	Supply air volume flow rate		□ Grid dimensions mm	□ E mm	□ E ₁ mm	ø D mm	H ₁ ²⁾ mm	H ₂ mm	L mm	B mm	W in kg	
	l/s	m ³ /h									Connection type	O
250	17- 44	60-160	600x600	595	241	99	220	200	165	180	2.4	3.1
300	25- 69	90-250										
400	39-100	140-360	625x625	620	391	159	320	275	225	240	3.1	4.6
500	58-150	210-540	491									
600	86-222	310-800	600x600	620	591	249	500	410	315	330	4.0	6.7
625	86-222	310-800	625x625									

Comfort criteria

The layout of the outlet will be based on compliance with the required maximum permissible indoor air velocities¹⁾. First you have to determine the maximum specific volume flow rate $V_{Sp\ max}$ depending on the indoor air velocity u and the discharge height H as per Graph 1. The minimum outlet centre spacing t_{min} will then be determined according to Graph 2 on the basis of the maximum specific volume flow rate and the outlet volume flow rate.

The layout criterion (Graph 1) is based on

$\Delta\vartheta_{max} = -10$ to -12 K

If the maximum temperature difference is lower,

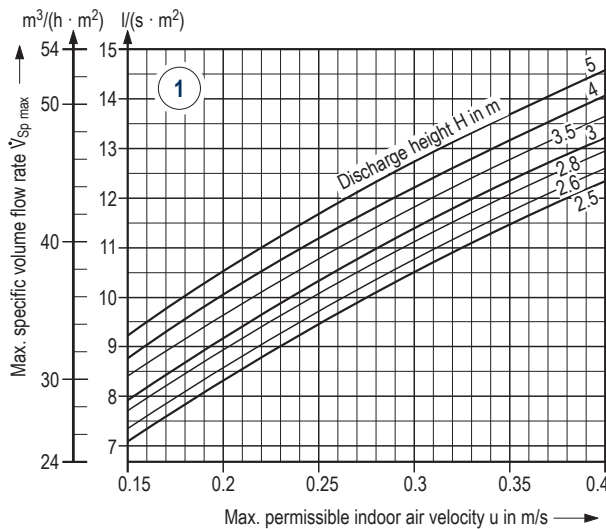
$V_{Sp\ max}$ can be increased by the following percentage:

$\Delta\vartheta_{max} = -8$ K $\rightarrow V_{Sp\ max}$ 15% higher

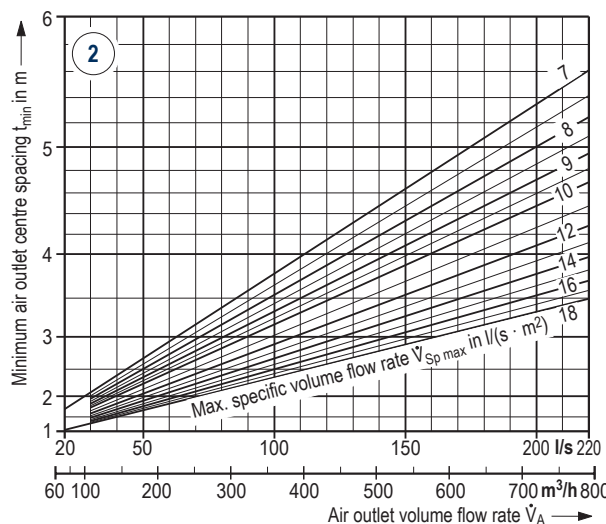
$\Delta\vartheta_{max} = -6$ K $\rightarrow V_{Sp\ max}$ 35% higher

$\Delta\vartheta_{max} = -4$ K $\rightarrow V_{Sp\ max}$ 70% higher

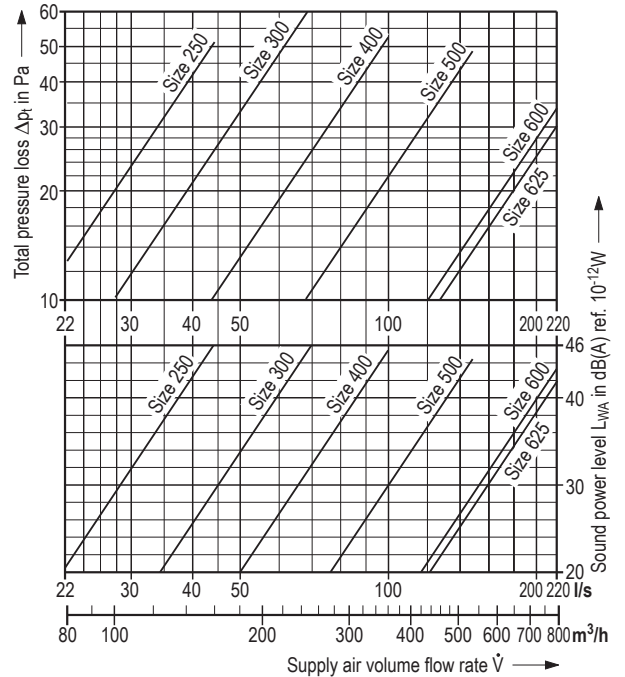
Maximum specific volume flow rate



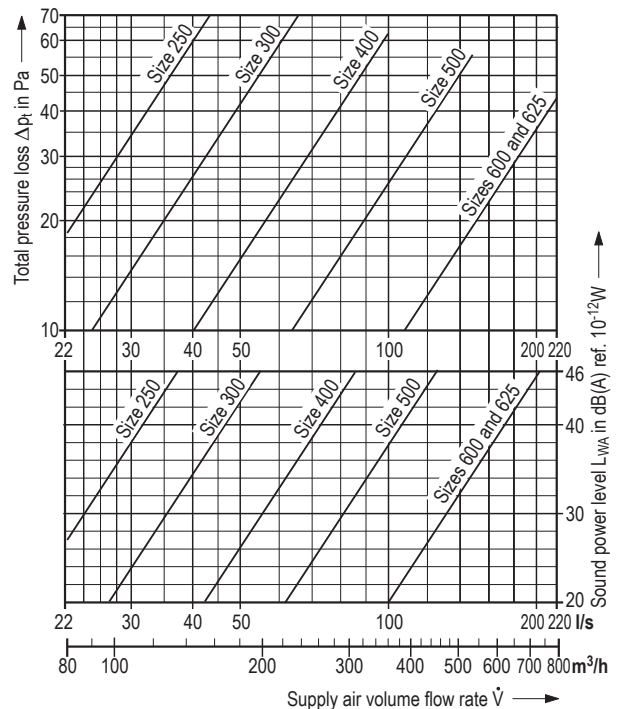
Minimum air outlet centre spacing



Connection to flexible duct¹⁾



Connection box



Remarks:

Sound power level values related to octave band centre frequencies available on request.

The above-mentioned values for pressure loss and sound power level apply for the standard outlet type. The face design has an effect on the outlet operation and its technical features. Where necessary, the suitability of other face designs is to be confirmed by tests. Values for return air available on request.

¹⁾ With a straight duct, the sound power level is lower by 2 – 4 dB(A) ref. 10⁻¹²W

Features

- High level of thermal comfort thanks to diffuse indoor air flow
- For insertion into suspended ceiling systems, grid dimensions 600 or 625 mm¹⁾
- Perforated square face – round holes Rd 2.8 / 5.5¹⁾ – coated to RAL 9010, gloss 20-40
- Can be laid onto perforated ceiling tiles – for specific projects, upon request
- Steady radial air spread
- Very uniform air discharge; as a result, no or extremely low dirt accumulation on the ceiling
- For ceiling heights 2.5 to 4.5 m
- Large volume flow rate range: from 17 to 222 l/s [60 to 800 m³/h]
- 6 sizes available: 250, 300, 400, 500, 600 and 625
- Maximum temperature difference: ±10 K²⁾
- Also usable as return air inlet
- Low sound power level and pressure loss
- Optional segment covers available for placement near a wall or in a corner
- Suitable for direct connection to a flexible duct, or fitted with a connection box
- Connection box optionally available with volume flow damper adjustable at the connection spigot
- Air outlet element and connection box made from galvanized sheet metal

Tender text

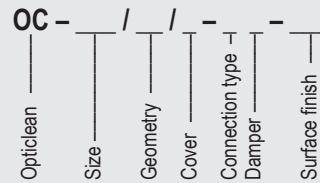
..... units

Opticlean ceiling outlet as supply air outlet with horizontal discharge, for insertion into suspended ceiling systems with grid dimensions 625 x 625 mm or 600 x 600 mm, generating a high-quality indoor air flow at low air velocities and uniform indoor air temperatures; unobtrusive integration into suspended ceiling systems; extremely low dirt accumulation on the ceiling thanks to very uniform air spread and the resulting formation of an air cushion.

Outlet consisting of:

- square frontal plate with round perforations and diagonal pitch; hole diameter: 2.8 mm, pitch: 5.5 mm;
- optional segment cover for 3-way discharge 2-way discharge;

Type code



Size

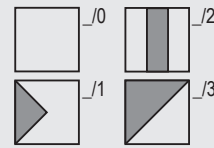
250 = Size 250	500 = Size 500
300 = Size 300	600 = Size 600
400 = Size 400	625 = Size 625

Geometry

Q1 = square face for square tile ceiling 600 mm x 600 mm
Q2 = square face for square tile ceiling 625 mm x 625 mm

Cover³⁾

0 = none (4-way discharge)
1 = 3-way discharge
2 = 2-way symmetric discharge
3 = 2-way asymmetric discharge



Connection type

O = no connection piece (only discharge element)
K = connection box

Damper

O = no volume flow damper
S = with volume flow damper adjustable at spigot

Surface finish

9010 = face painted to RAL 9010, semi-matt
.... = face painted to RAL

– air distribution element with top connection spigot for direct connection to a flexible duct;

– optional connection box with lateral connection spigot as well as suspension brackets, optionally fitted with volume flow damper adjustable at the connection spigot.

Materials:

Frontal plate made of galvanized sheet metal, coated to RAL

Air distribution element made of galvanized sheet metal.

Connection box made of galvanized sheet metal.

Make: **KRANTZ KOMponenten**
Type: OC - ____ / ____ / ____ - ____ - ____

Subject to technical alteration.

¹⁾ Other grid dimensions and hole patterns on request
²⁾ When heating, +10 K up to 3 m ceiling height, +5 K up to 4.5 m ceiling height
³⁾ If nothing is specified, the outlet will be supplied without segment cover. The segment covers serve to reduce the volume flow rate.