



KD-12

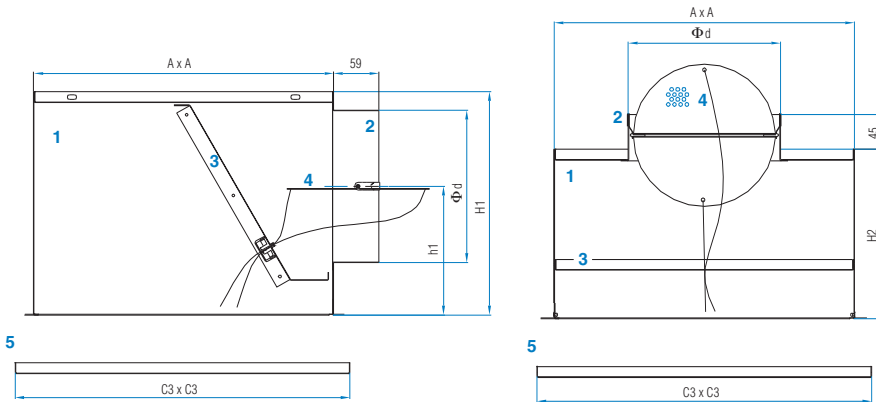
- St**
- RAL 9010**

Application:

Square diffusers are designed for supply and extract air applications in rooms with floor to ceiling heights from 2,4 to 4m. They can be installed in panel ceilings why their dimensions fits the size of the ceiling panels. Due to high induction they permit rapid changes of supply air temperature.

Description:

Square diffuser KD-12 consists of perforated diffuser face and plenum box. Various diffuser faces allow different discharge angles (one, two, three or four directions). Diffuser face is coloured in RAL 9010, or according to customer's request.



Size	A	C3	H1	h1	H2	Φd
300	290	298	175	102,5	175	123
400	390	398	250	139	250	198
500	490	498	300	164	300	248
600	590	598	300	164	300	248
625	615	623	300	164	300	248

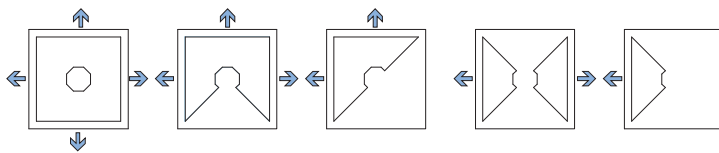
Component parts:

- 1** Plenum box
- 2** Round inlet spigot
- 3** Perforated sheet steel
- 4** Volume control damper
- 5** Perforated diffuser face

Diffuser faces types:

Fixing of the diffuser face: always with four screws.

KD-12A KD-12B KD-12C KD-12D KD-12E

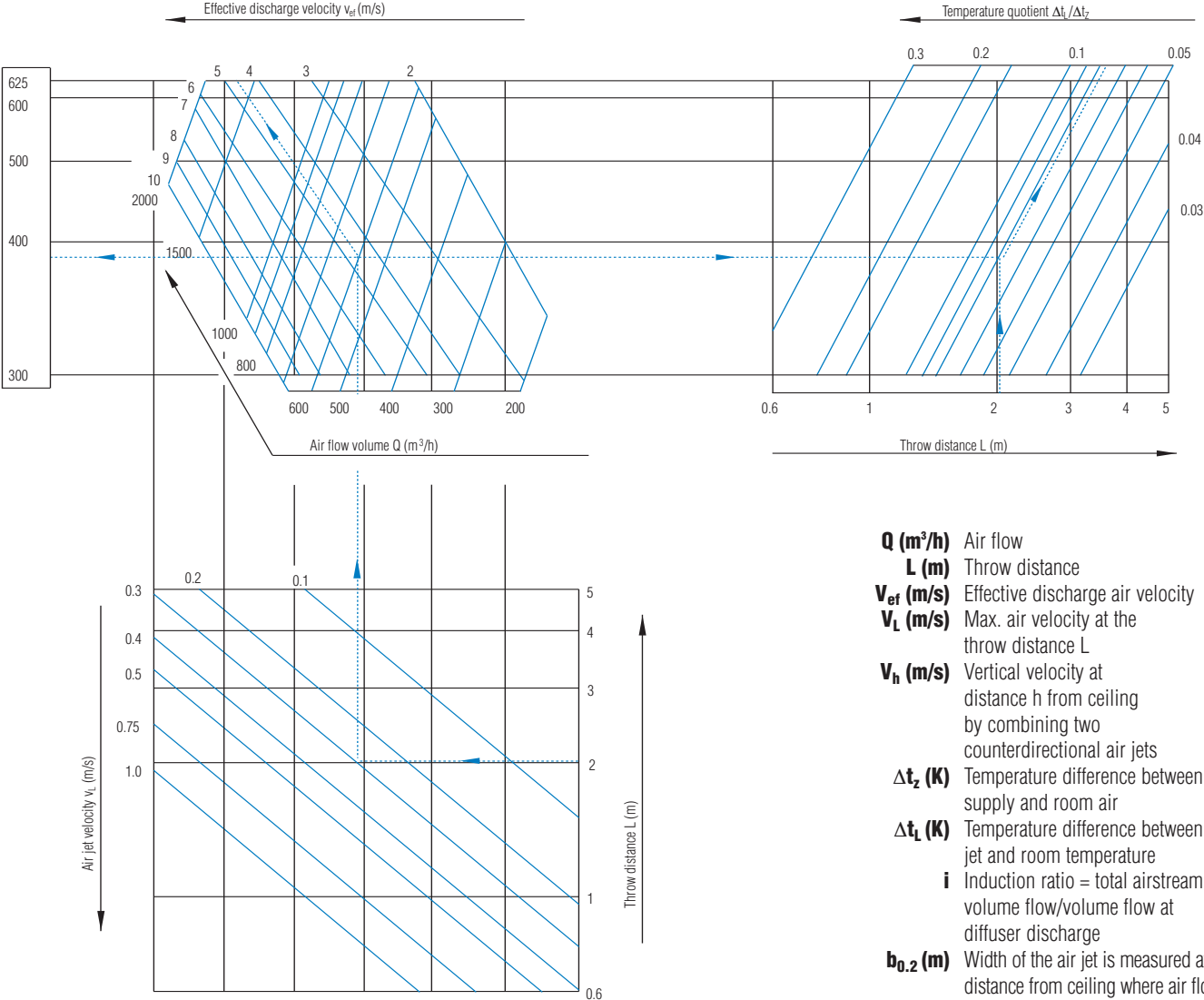


Ordering key:

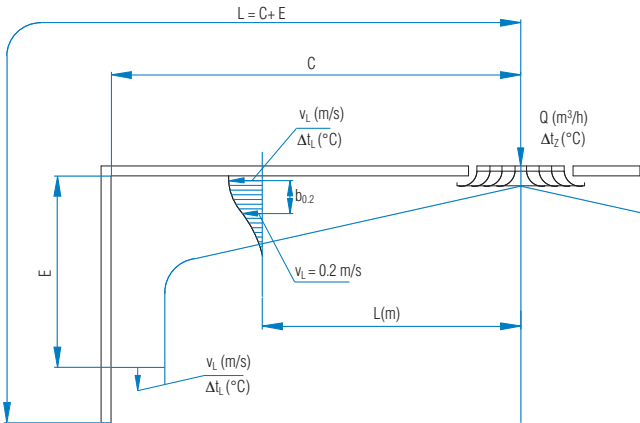
KD-12A/V/M Size 400

- M** Volume control damper
- S** Side entry spigot
- V** Vertical entry spigot
- A** Inlet direction
- B**
- C**
- D**
- E**

Diagram for determining the size and temperature of the air jet flow of the square diffusers KD-12



- Q (m³/h)** Air flow
- L (m)** Throw distance
- v_{ef} (m/s)** Effective discharge air velocity
- v_l (m/s)** Max. air velocity at the throw distance L
- v_h (m/s)** Vertical velocity at distance h from ceiling by combining two counterdirectional air jets
- Δt_z (K)** Temperature difference between supply and room air
- Δt_l (K)** Temperature difference between air jet and room temperature
- i** Induction ratio = total airstream volume flow/volume flow at diffuser discharge
- b_{0,2} (m)** Width of the air jet is measured at a distance from ceiling where air flow velocity is 0,2 m/s



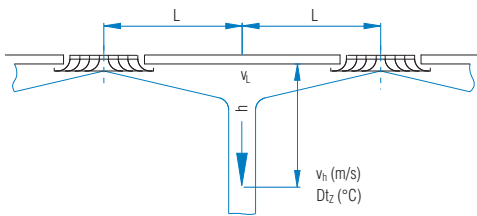
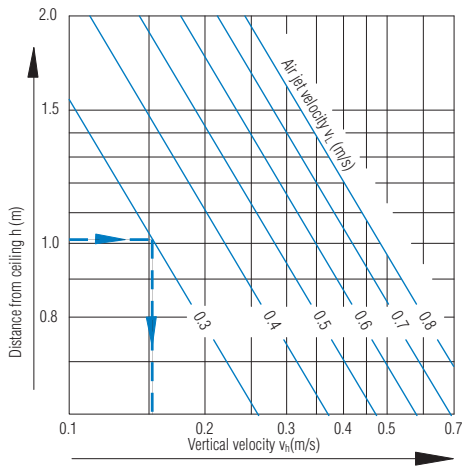
Example:

Given data:
 Air flow volume: Q = 600 m³/h, L = 2 m
 Air jet velocity: v_l = 0.3 m/s
 Temperature difference: Δt_z = 5 °C

Solution:
 From the diagram select the diffuser KD-6 size 400.

effective outlet velocity v_{ef} = 4.6 m/s
 temperature quotient Δt_l / Δt_z = 0.08
 temperature difference Δt_l = 0.08 x 5 = 0.40 °C

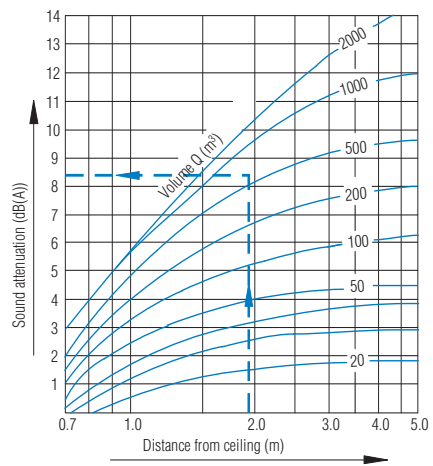
Diagram for determination of vertical velocity



Max temperature quotient $\Delta t_h / \Delta t_z$ determined using the diagram 1 for temperature quotient:

$L_{\text{diagram}} = L + h$

Room attenuation diagram



Q_9 (m³) calculated volume, depending on room reflectance
 Q (m³) actual room volume

The following data are necessary to calculate the volume Q_9 .

1. Normal rooms $Q_9 = Q$
2. Rooms with highly reflective walls $Q_9 = 0.5Q$
3. Rooms with absorption walls $Q_9 = 2Q$

Δp_{cel} (Pa) Pressure drop

L_{WA} (dB(A)) Sound power level

N_R Max. value according to ISO

Pressure drop diagram

