

LDI

Industrial diffuser
catalog 1.1.6





LDI

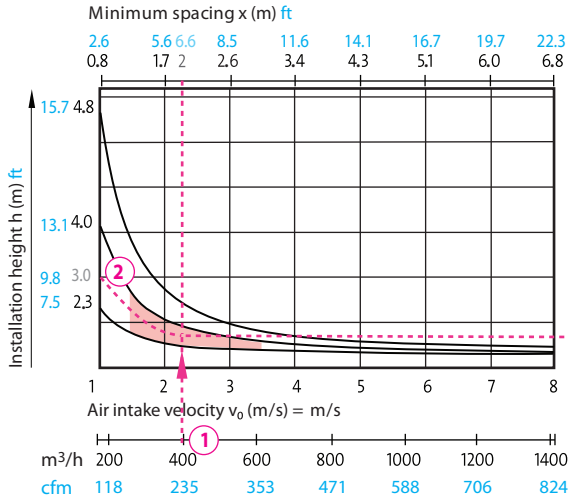
Diagrams

250

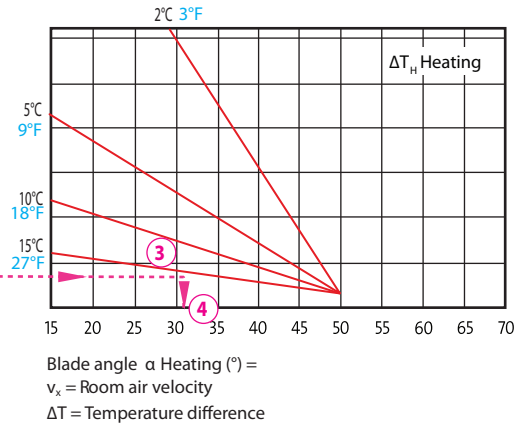


Heating mode

suggested
planning

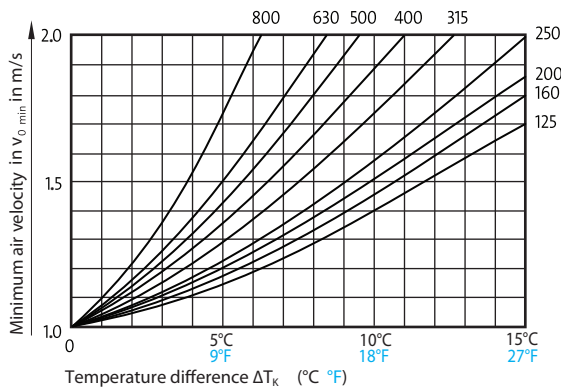
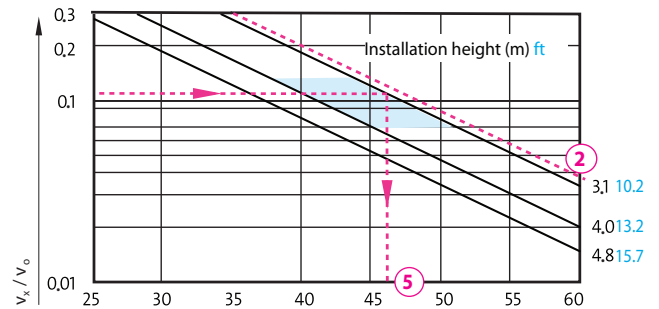
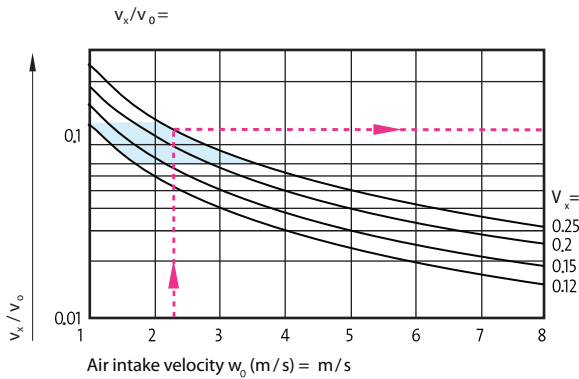


$$\frac{\text{Number of air diffusers} = \text{total air flow}}{\text{air volume per diffuser}} = \text{parts/diffusers}$$

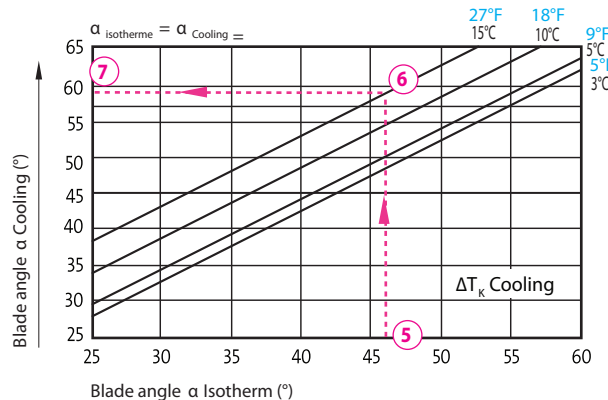


Cooling mode

suggested
planning



Suggested minimum air velocity for cooling, against temperature difference and minimum blade angle $\alpha > 45^\circ$



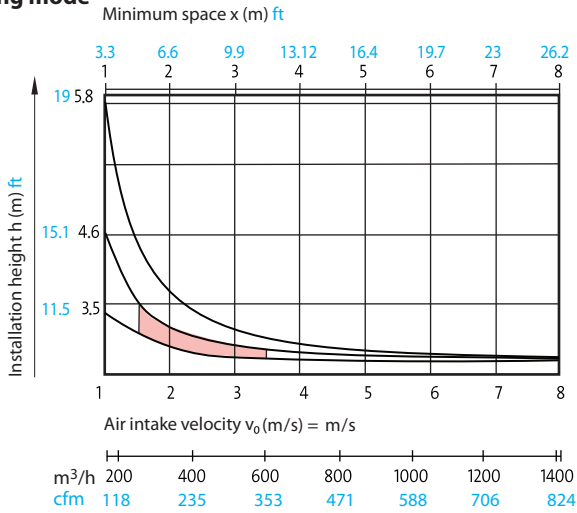
Diagrams

300

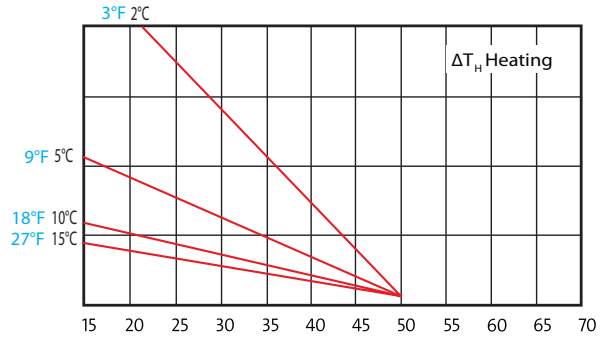


Heating mode

Suggested planning

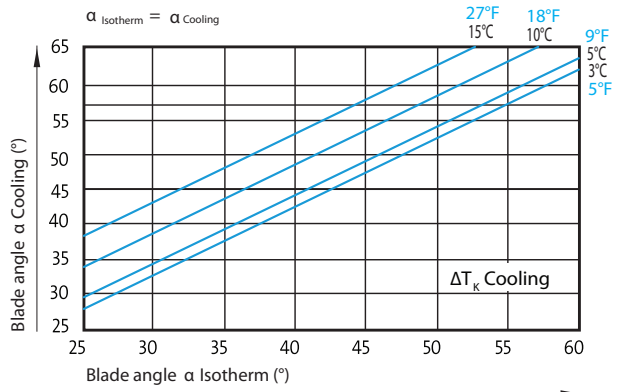
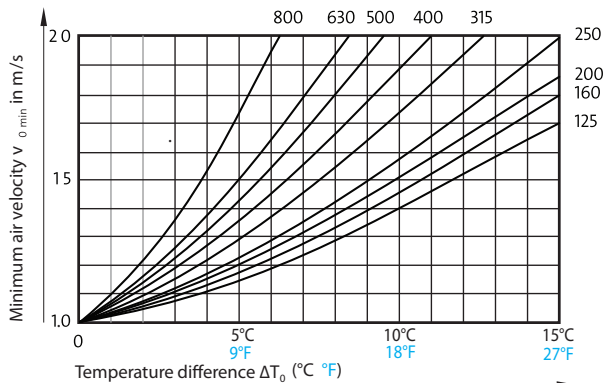
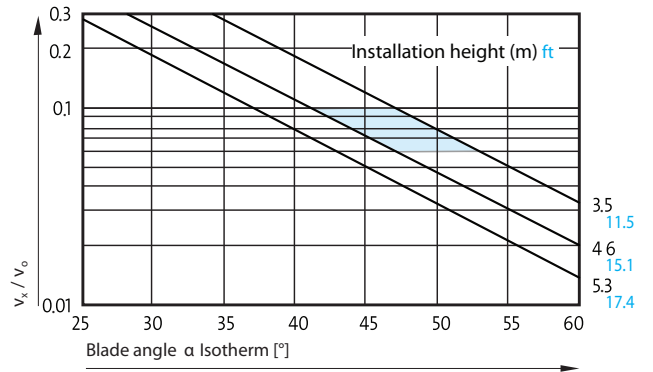
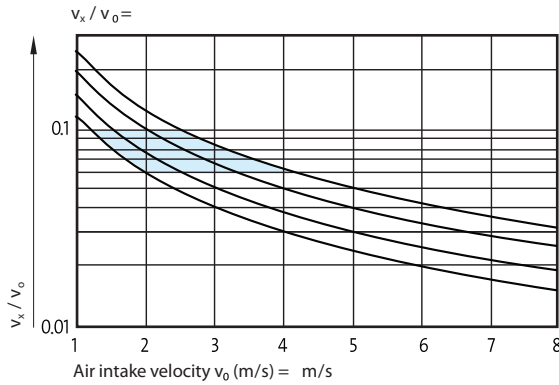


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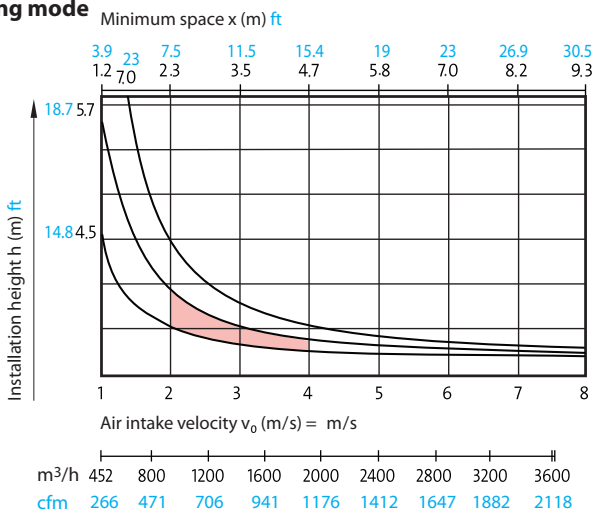
Diagrams

400

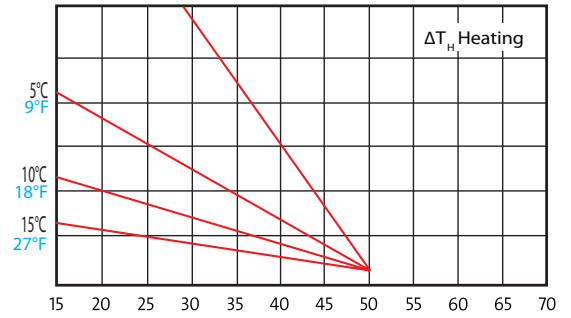


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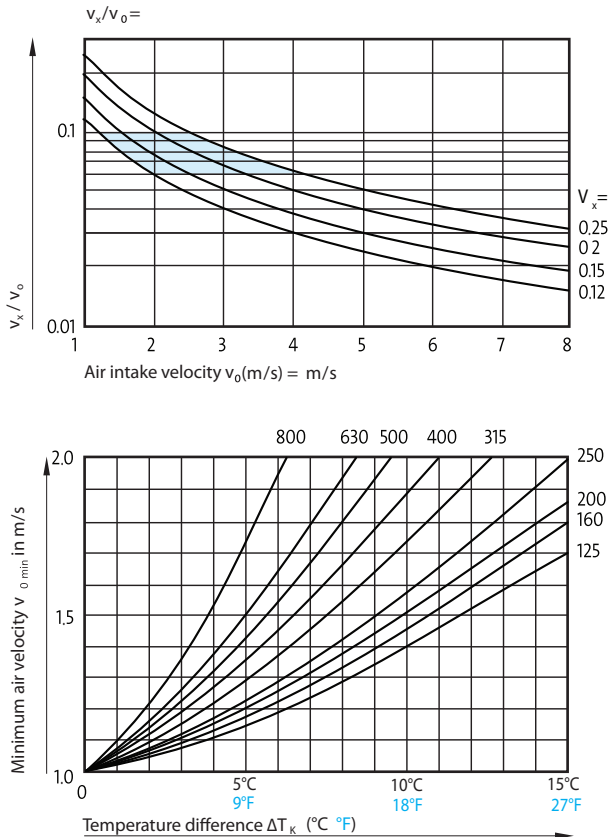


Blade angle α Heating (°) =
 v_x = Room air velocity
 ΔT = Temperature difference

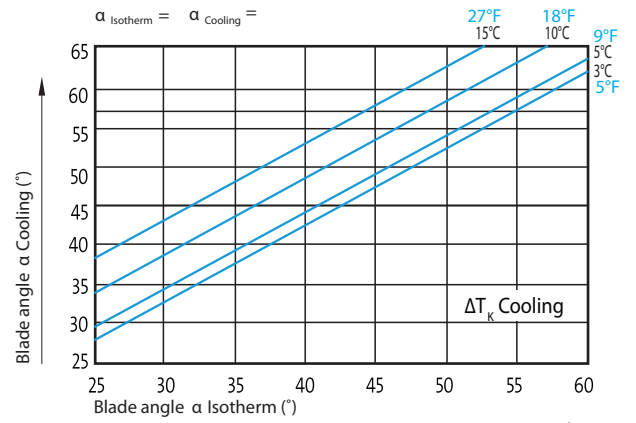
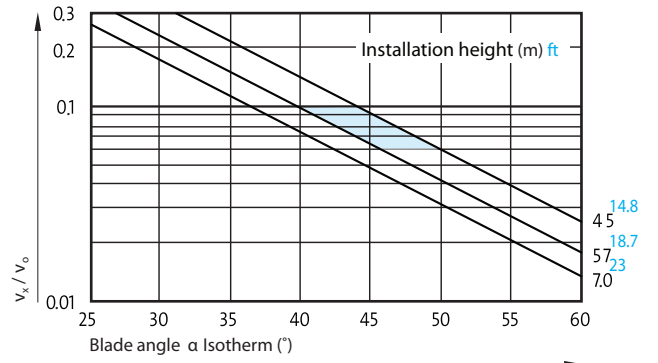


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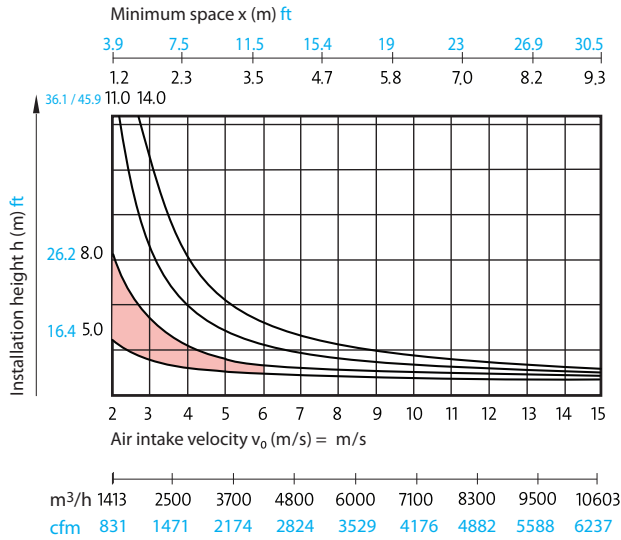
Diagrams

500

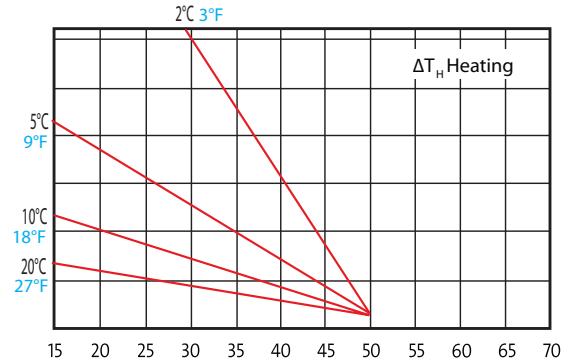


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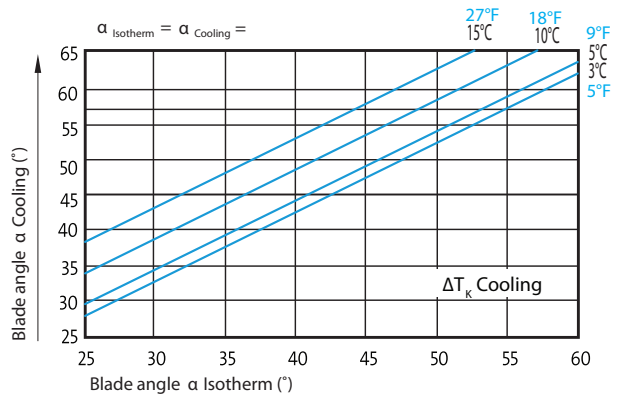
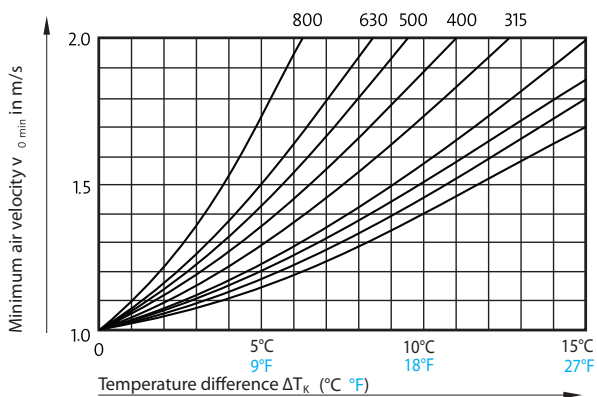
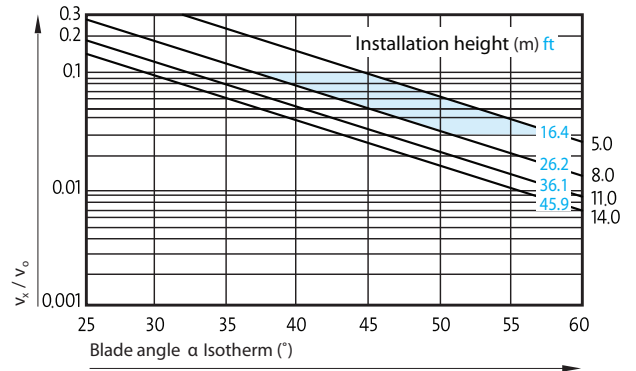
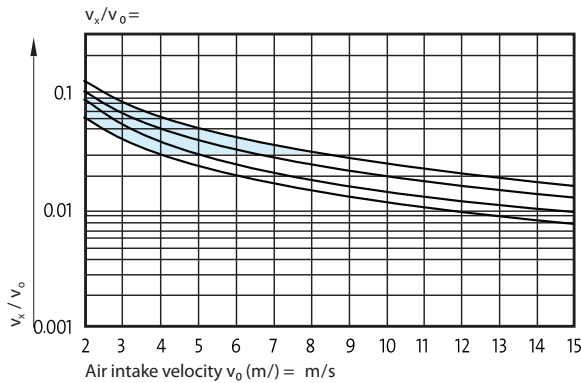


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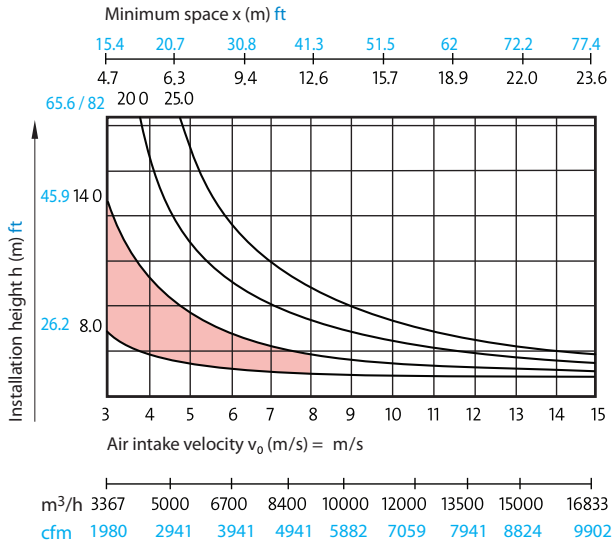
Diagrams

600

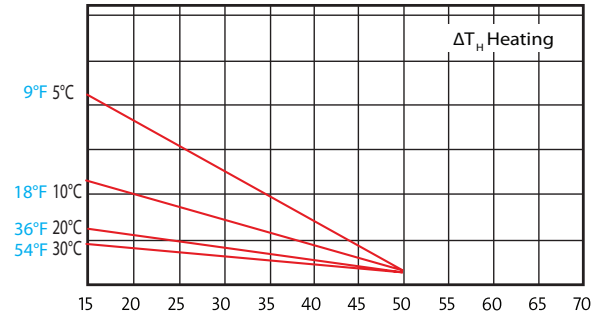


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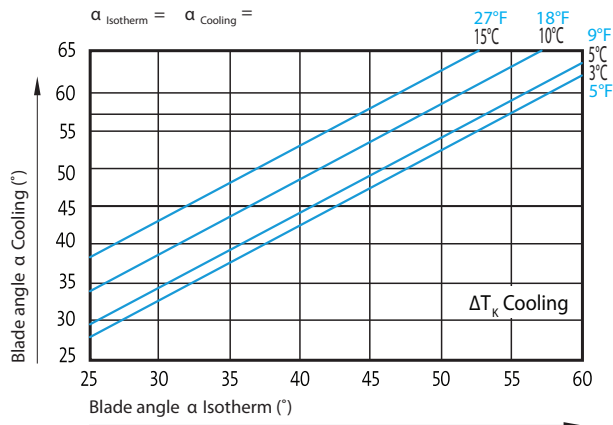
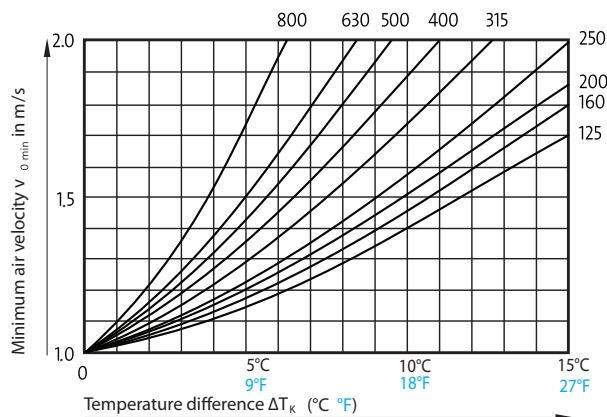
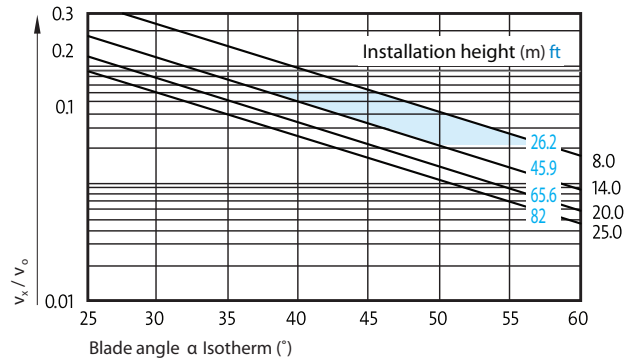
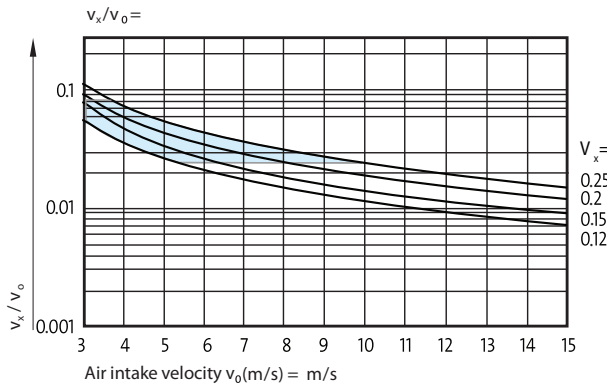


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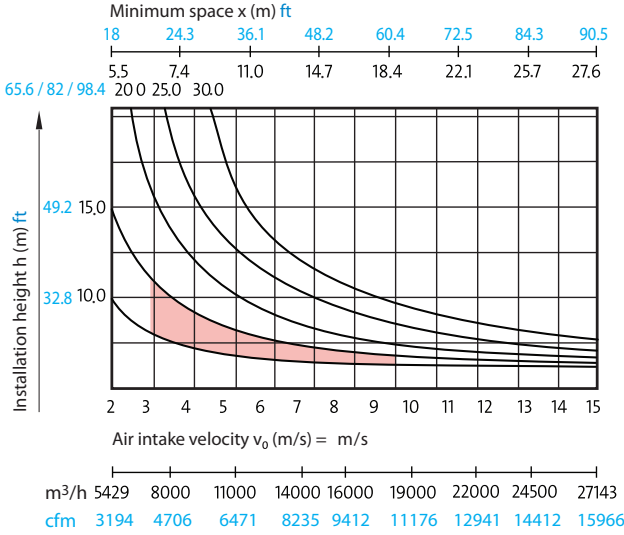
Diagrams

800

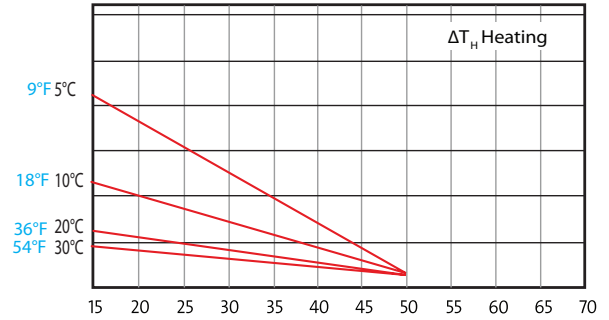


Heating mode

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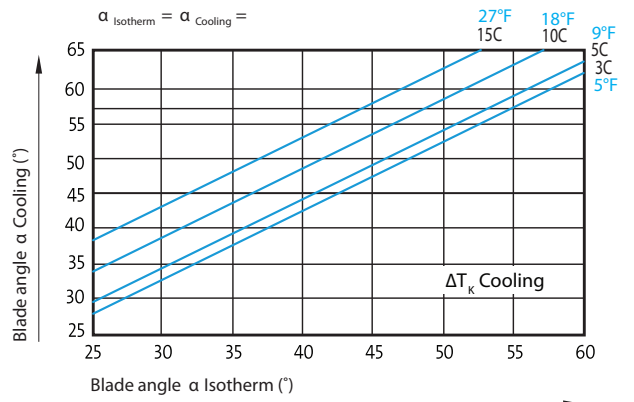
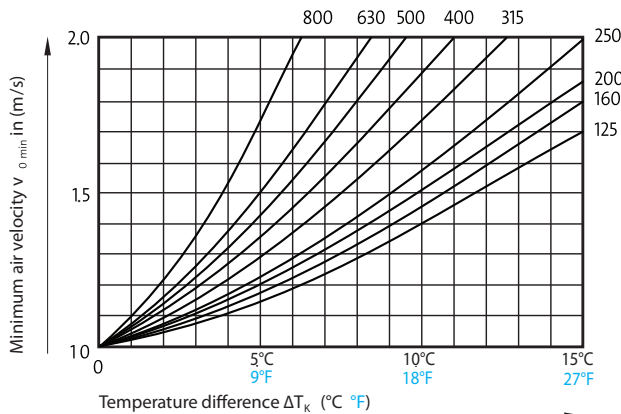
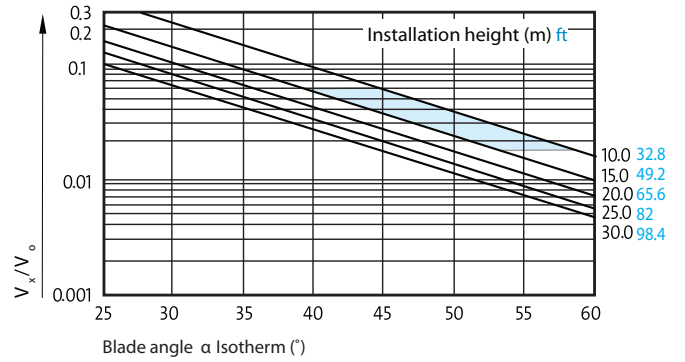
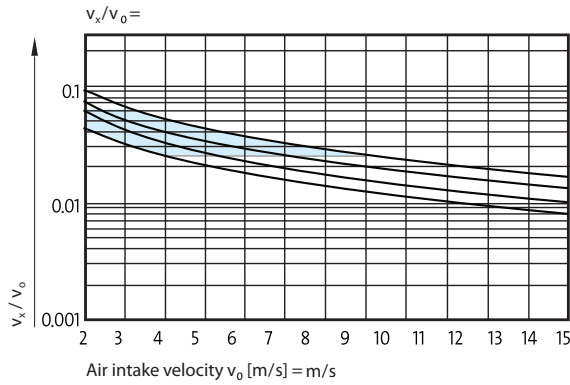


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Cooling mode

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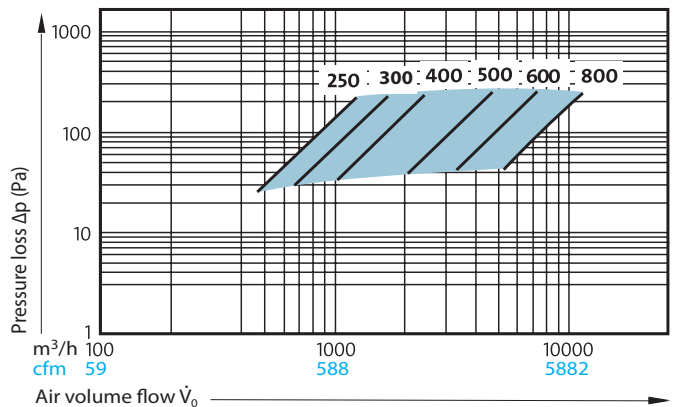
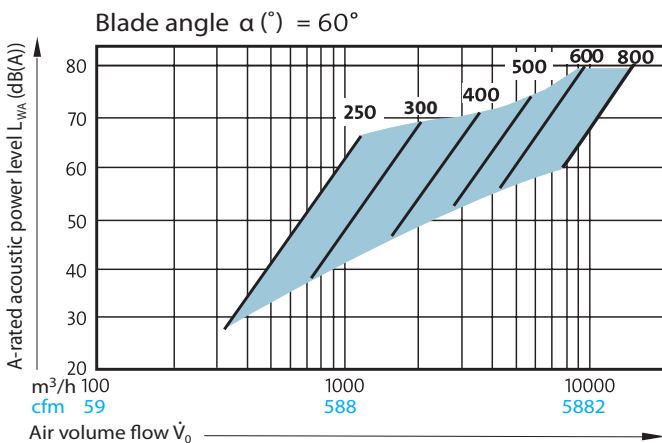
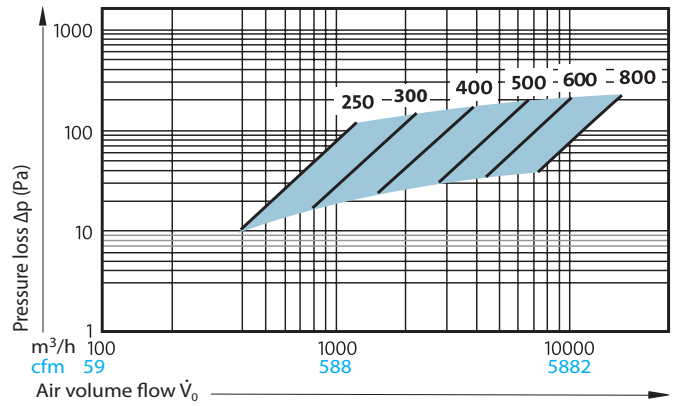
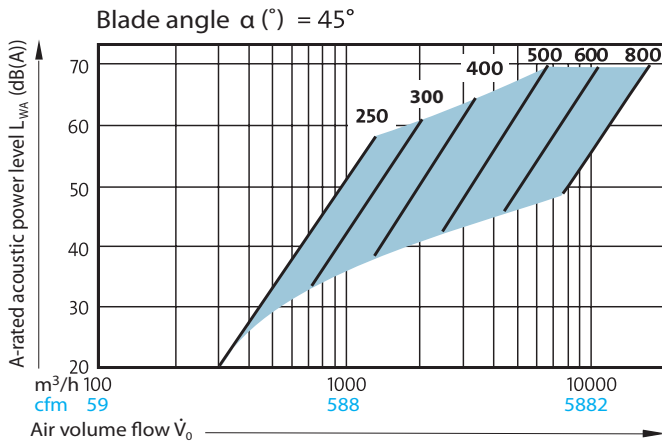
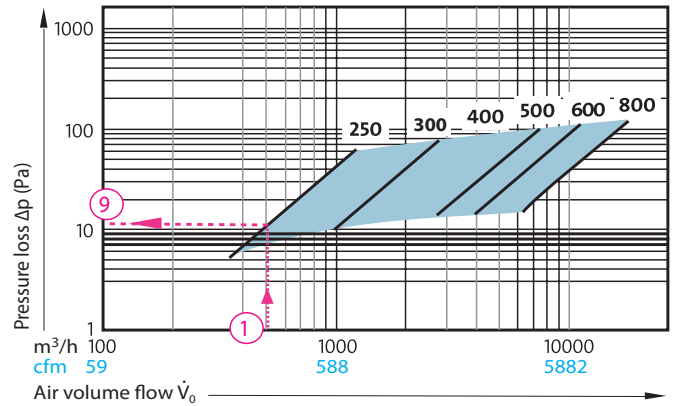
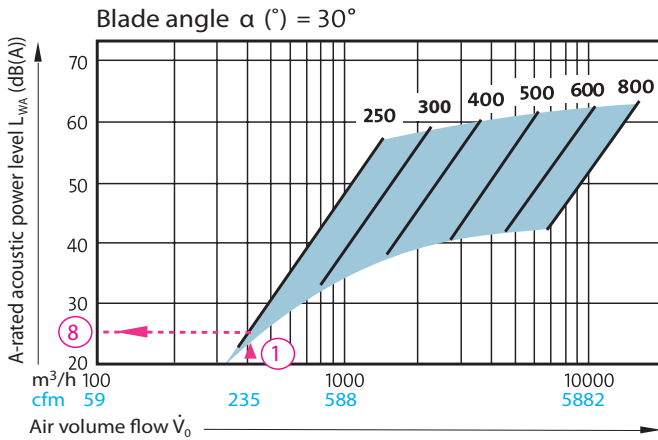


Suggested minimum air velocity for cooling, against temperature difference and minimum blade angle $\alpha > 45^\circ$

Level of acoustic power and loss of pressure

LDI 250, 300, 400, 500, 600, 800

Suggested planning =

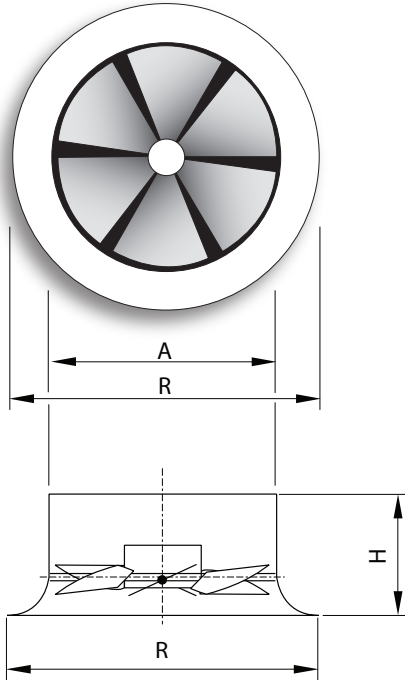


Important

Room acoustic absorption is not accounted for.
 For a comparison with north american values, reduce the acoustic power by ten (10) dB.
 The values are based on an isothermal flow.

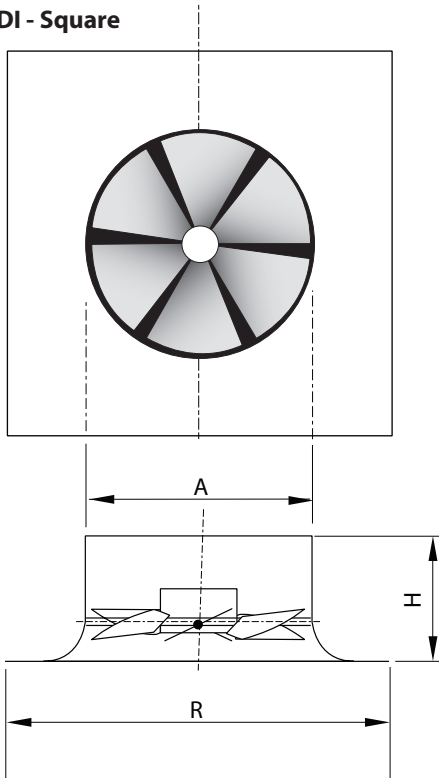
Dimensions and weight

LDI - Round



	250	300	400	500	600	800
Size. ØA (mm)	250	302	400	505	603	804
Size. ØR (mm)	373	415	677	603	830	1100
Size. H (mm)	140	175	215	280	355	425
Weight (kg)	2.4	3.6	6.0	8.5	12.2	24.0

LDI - Square



	250	300	400
Size ØA (mm)	250	302	400
Size. R (mm)	603	603	603
Size. H (mm)	140	175	215
Weight (kg)	2.4	3.6	6.0

Example and plenum
Example
Specifications:

Height of the installation : $H = 3.0 \text{ m (10 ft)}$ **(2)**
 Airflow / diffuser: $V = 400 \text{ m}^3/\text{h}$ **(1)**
 Heating mode: $\Delta T_H = +15^\circ\text{C}$ **(3)**
 Cooling mode: $\Delta T_C = -15^\circ\text{C}$ **(6)**

Required:

- 1- Nominal diffuser dimension
- 2- Minimum space between diffusers
- 3- Blade angles in heating mode, isothermal mode and cooling mode
- 4- Level of acoustic power L_{WA}
- 5- Loss of pressure Δp_t

Solution:

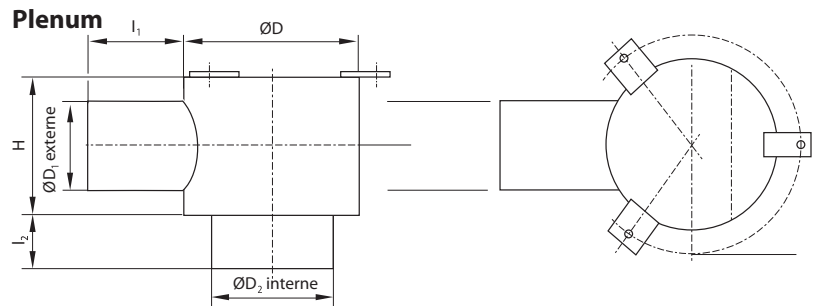
1. From the "Range of application" diagram, we read the nominal dimension DN 250.

2. For an airflow of $400 \text{ m}^3/\text{h}$ and an installation height of $H = 3.0 \text{ m (10 ft)}$, the minimum necessary space between diffusers is $\pm 2 \text{ m}$.

3. From the intersection with the heating line at 15°C , we determine the blade angle:
 heating mode = 32°C
 In isothermal mode, we read: isothermal = 47°C , **(5)** following an angle in cooling mode at 15°C **(6)**: a cooling mode 59°C . **(7)**

4 and 5. From the "Level of acoustic power and loss of pressure" diagram, we see:

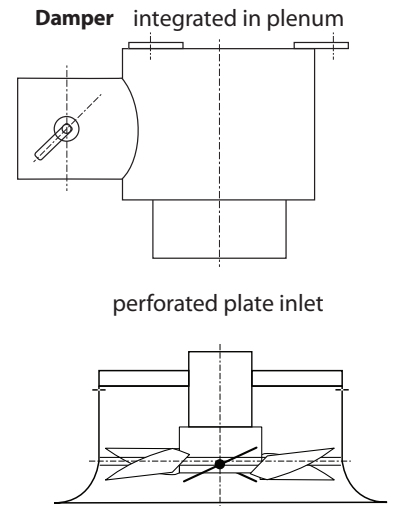
$L_{WA} = 25 \text{ dB}$ **(8)**
 $\Delta P_t = 10 \text{ Pa}$ **(9)**


Assembly

- Rapid assembly with a collar
- Steel cover for rapid connection
- Secure attachment due to a perforated plate at the air inlet
- Honeycomb flow regulator
- Round plenum
- Flange
- Optional protection piece
- TDR III type elements to control temperature difference

Option (upon request):

- Custom made plenum
- Square frontal plate



	250	315	400	500	600
Size Ø D (mm)	376	376	476	576	676
Size H (mm)	386	381	483	533	610
Size Ø D ₁ (mm)	250	300	403	454	556
Size Ø D ₂ (mm)	254	305	406	508	609
Size Ø l ₁ (mm)	50	50	50	50	50
Size Ø l ₂ (mm)	150	150	150	150	150

Specifications

1. Description and physical characteristics

- 1.1 The LDI helical air jet diffuser shall be manufactured in steel. The square or round diffuser shall be supplied with adjustable blades to guide the air.
- 1.2 The diffuser shall be designed with a outlet cone favoring a horizontal airflow on 360 degrees, even with a freely suspended diffuser.
- 1.3 The diffuser shall be powder coated with a polyester TGIC-free paint, providing a smooth, easy-to-clean, chip and fade resistant finish. The architect or client shall choose a standard colour from the RAL colour chart.

2. Performances

Diffusers performance shall be guaranteed with the help of diagrams indicating the loss of pressure, acoustic pressure generated, nominal speed in the occupied zone, airflow trajectory according to the initial temperature differential in heating, isothermal and in cooling modes in the critical areas.

3. Installation

- 3.1 The diffuser shall be mounted on a circular duct or on a galvanised steel plenum, supplied by the manufacturer.
- 3.2 Balancing key
When required, the plenum will be provided with a radial balancing key, allowing flow rate adjustment between 0% and 100%.

4. Balancing

The NAD Klima LDI diffusers balancing shall be executed by a certified ventilation system balancing technician, with a recognised professional qualification.

5. Quality required: NAD Klima, LDI model

Codification

LDI	Product
Q = Square R = Round	Configuration
250, 300, 400 500, 600, 800 (round only)	Nominal dimension
330, 415, 535, 603 830, 1100 (round only)	Outer size
H = Hand adjustment	Adjustment
9003 = White 9010 = Cream 00SB = Solar Black (Standard matte black) 00SM = Silver Matte (Standard metallic grey) ___ = RAL Color (write the RAL color number)	Diffuser color
S = With plenum inlet on the side X = Without plenum	Plenum
I = With insulation (plenum only) X = Without insulation	Insulation
D = With damper X = Without damper	Balancing damper
LDI - Q - 250 - 330 - H - 9003 - X - X - X	Example

nad
K L I M A

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ontario@nadklima.com

MADE IN

CANADA