

CAP-CT

Multi-Nozzle Diffuser



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Description

CAP-CT is a multi-nozzle diffuser with a plenum box. The product is mainly intended for air supply in comfort ventilation systems. The product is installed in the open space under the ceiling. The field of application is offices, shops, medical rooms, school classrooms, etc.

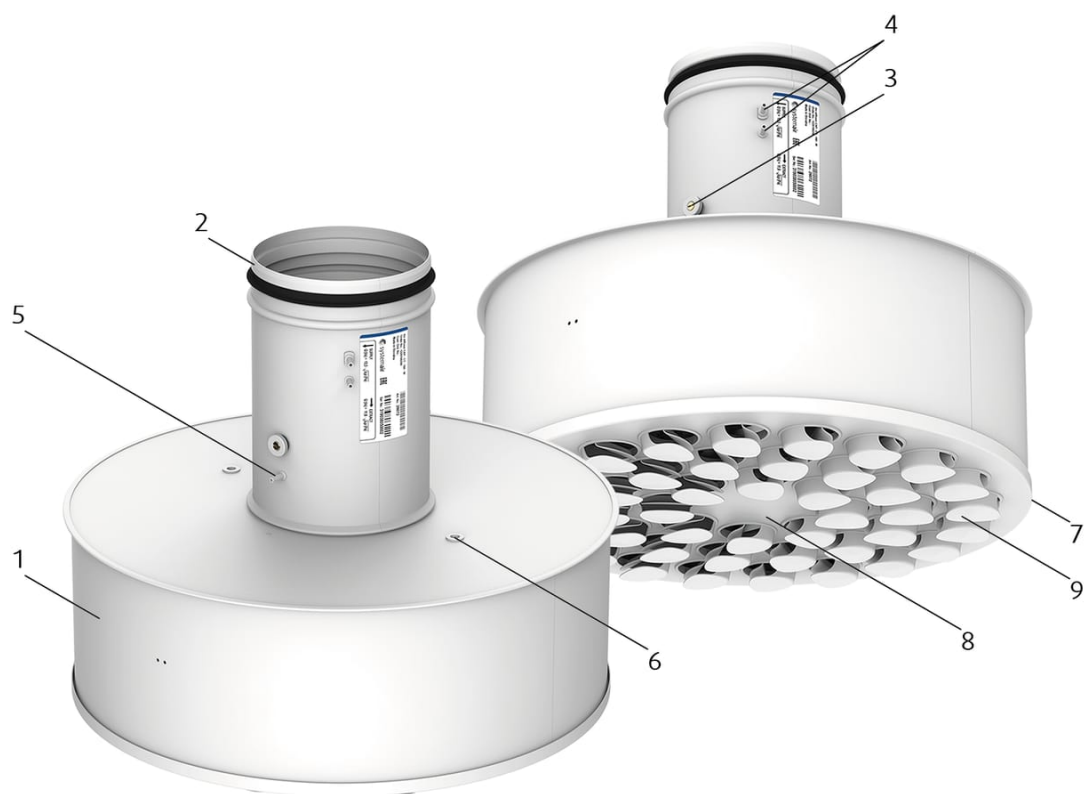
Highlights

- Versatile adjustability of air discharge patterns
- Excellent air induction and mixing even with small air flow volumes, fit for VAV ventilation
- High air flow capacity with low noise and moderate pressure drop
- Compact design with adjustment damper and flow measurement probes for supply and extract

Design

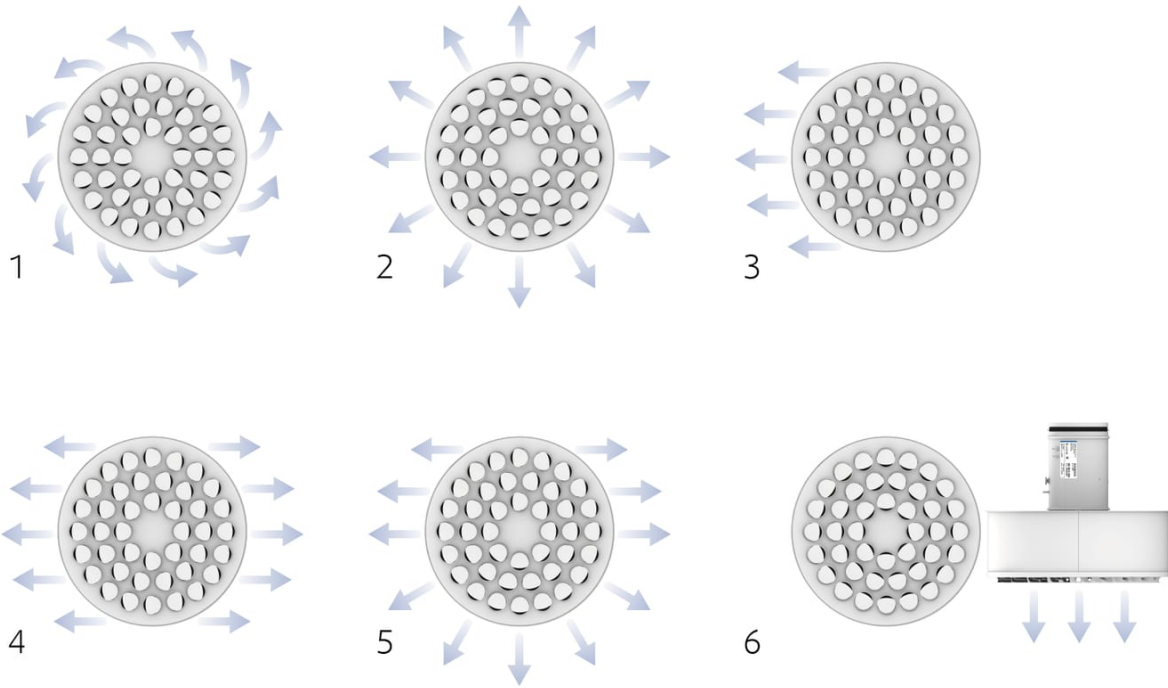
The CAP-CT body is manufactured from galvanized steel. The product consists of a diffuser plate with polymer nozzles, attached by permanent magnets to the plenum box. The nozzles can be rotated by 360° in the plane of the diffuser plate to reach the desired air discharge pattern. The plenum box has a top oriented rubber gasket sealed circular connection. The connection spigot is equipped with an air flow adjustment damper and the air flow measurement probe tapings for air supply and extract. All these parts are accessible from outside, so measurement and adjustment require no dismantling of the diffuser. For the installation of the diffuser on the suspended thread bar, there are two thread nuts in the upper part of the plenum box. The product is provided powder painted to RAL9003 (signal white) as standard. Other RAL colours are available upon request. Nozzles only available in RAL9003.

Product parts



- 1 Plenum box
- 2 Connection with rubber gasket
- 3 Damper (adjustable from outside)
- 4 Supply air measurement tapping
- 5 Extract air measurement tapping
- 6 Nut M8 for fixing on thread bar
- 7 Magnets for holding the diffuser plate inside the box
- 8 Diffuser plate
- 9 Nozzles

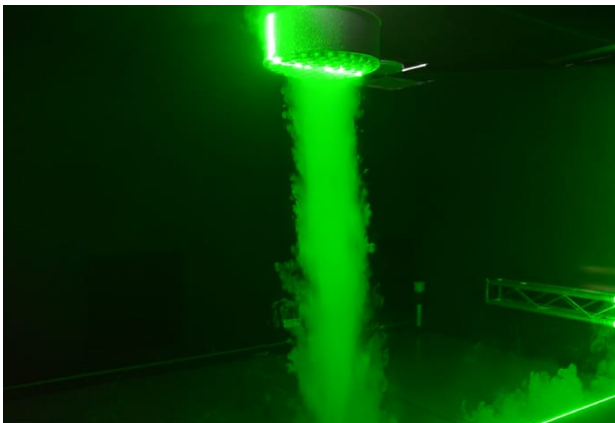
Setup possibilities



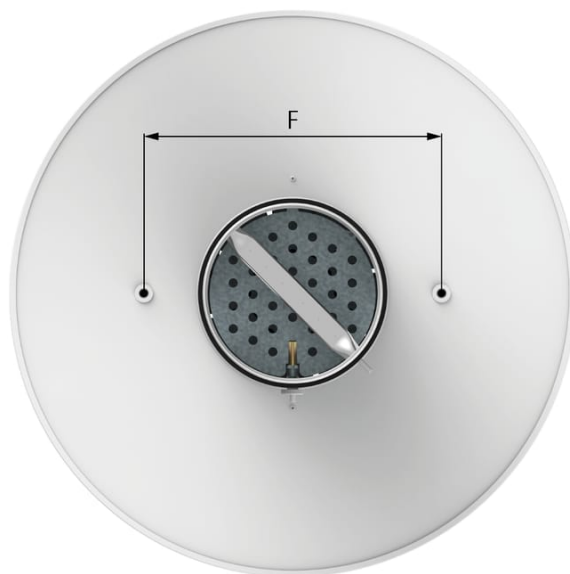
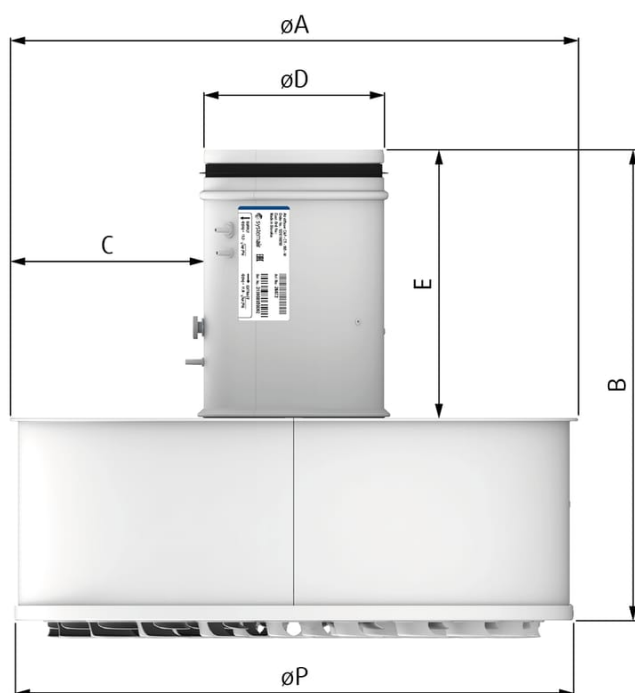
- 1 Tangential horizontal swirl discharge
- 2 Radial horizontal omnidirectional discharge
- 3 Horizontal discharge, single direction
- 4 Horizontal discharge, 2 directions
- 5 Horizontal discharge, 3 directions
- 6 Vertical discharge

Airflow visualisation

Vertical discharge (6), Horizontal discharge, 2 directions (4)



Dimensions & Weights



DN	$\varnothing D$	$\varnothing A$	$\varnothing P$	B	C	E	F	m
	mm							kg
100	98	324	314	315	110	194	200	2,9
125	123	408	398	345	141	204	225	3,8
160	158	497	487	409	168	234	260	5,9
200	198	597	587	469	198	269	300	8,1
250	248	608	598	525	178	294	350	9,1
315	313	632	622	634	158	339	415	11,1
400	398	634	624	694	118	399	500	13,0

Ordering Codes

CAP-CT

Size - inlet mm

100

125

160

200

250

315

400

Surface finish

SW Signal white (RAL9003, gloss 30%)

RALXXXX Other RAL colour

Example of the Ordering Code

CAP-CT-250-SW

CAP-CT diffuser, inlet size 250 mm, in signal white colour (RAL 9003)

Quick Selection

Air flow volume q_v at different A-weighted sound power levels L_{WA}

Item	25 dB(A)		30 dB(A)		35 dB(A)	
	m ³ /h	l/s	m ³ /h	l/s	m ³ /h	l/s
CAP-CT-100-SW	106	30	131	36	157	44
CAP-CT-125-SW	163	45	199	55	238	66
CAP-CT-160-SW	261	72	318	88	379	105
CAP-CT-200-SW	388	108	472	131	561	156
CAP-CT-250-SW	547	152	675	187	808	224
CAP-CT-315-SW	763	212	919	255	1088	302
CAP-CT-400-SW	804	223	971	270	1152	320

NOTE: The working points were measured with open adjustment damper.

Air flow volume q_v at different A-weighted sound pressure levels L_{pA} with 10m² absorbtion area

Item	20 dB(A)		25 dB(A)		30 dB(A)	
	m ³ /h	l/s	m ³ /h	l/s	m ³ /h	l/s
CAP-CT-100-SW	102	28	126	35	152	42
CAP-CT-125-SW	157	44	191	53	230	64
CAP-CT-160-SW	250	69	305	85	366	102
CAP-CT-200-SW	371	103	454	126	543	151
CAP-CT-250-SW	521	145	649	180	780	217
CAP-CT-315-SW	732	203	887	246	1054	293
CAP-CT-400-SW	771	214	938	260	1114	310

NOTE: The working points were measured with open adjustment damper.

Technical Parameters

Legend

$L_{0,2}$ (m) Air throw length with terminal velocity 0,2 m/s

L_x (m) Air throw length calculated for specific terminal velocity

x (m/s) Terminal velocity in range of 0,1 m/s ... 1 m/s

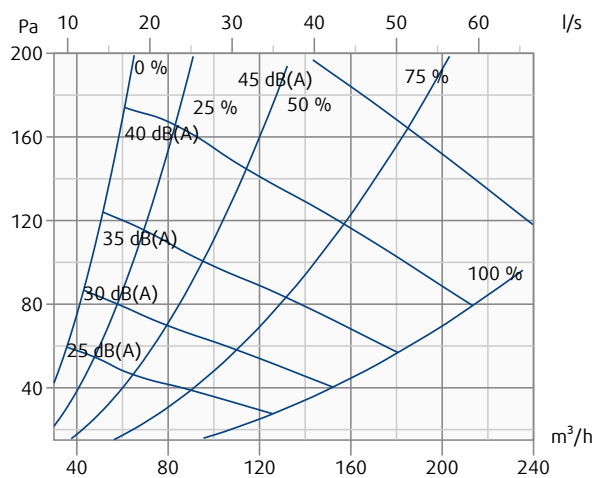
0%, 25%, 50%, 75%, 100% The plenum box damper positions in pressure drop/noise diagrams are represented as percentage. 0% is full damper restriction. 100% is fully open damper.

Calculation of Air Throw for Different Terminal Velocities

$$L_x = L_{0,2} \cdot 0,2/x$$

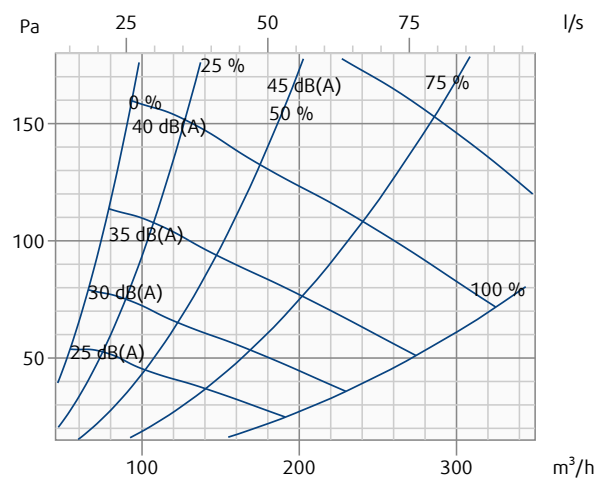
CAP-CT-100-SW

Pressure drop & A-weighted sound pressure level (10 m² room absorption, dB(A))



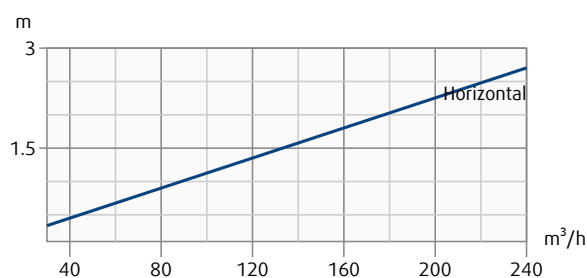
CAP-CT-125-SW

Pressure drop & A-weighted sound pressure level (10 m² room absorption, dB(A))



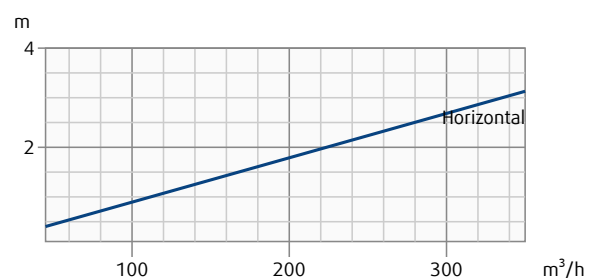
CAP-CT-100-SW

Throw length (terminal velocity 0.2 m/s)



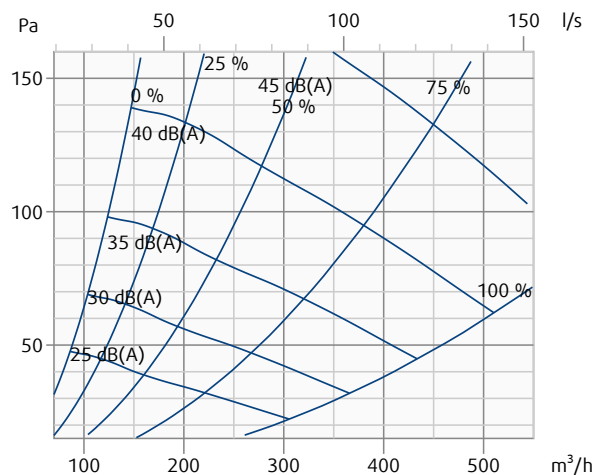
CAP-CT-125-SW

Throw length (terminal velocity 0.2 m/s)



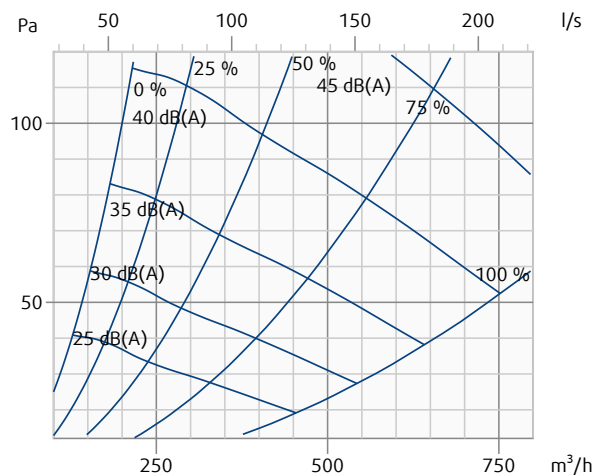
CAP-CT-160-SW

Pressure drop & A-weighted sound pressure level (10 m² room absorption, dB(A))



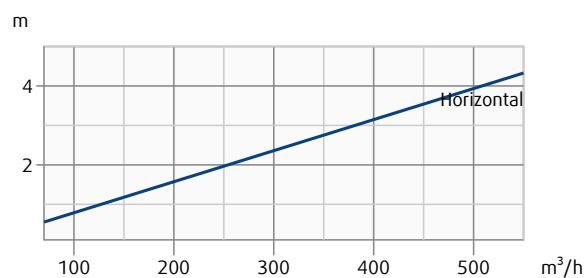
CAP-CT-200-SW

Pressure drop & A-weighted sound pressure level (10 m² room absorption, dB(A))



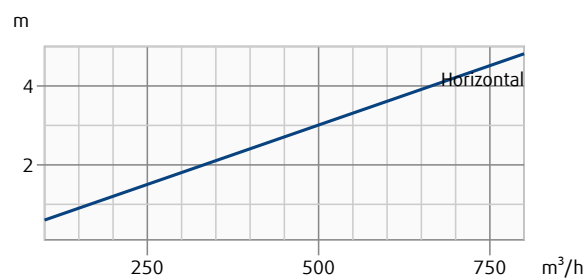
CAP-CT-160-SW

Throw length (terminal velocity 0.2 m/s)



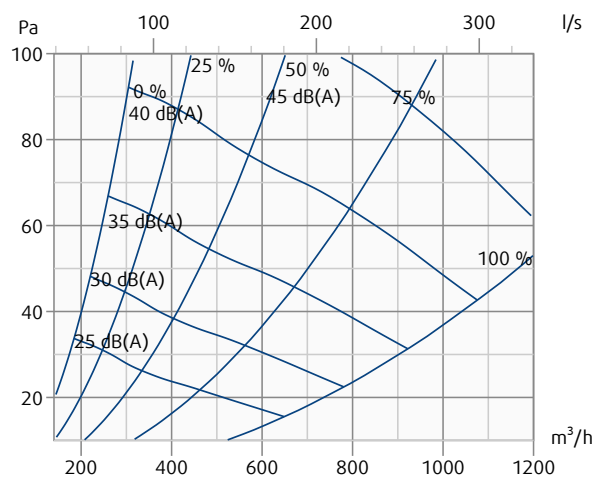
CAP-CT-200-SW

Throw length (terminal velocity 0.2 m/s)



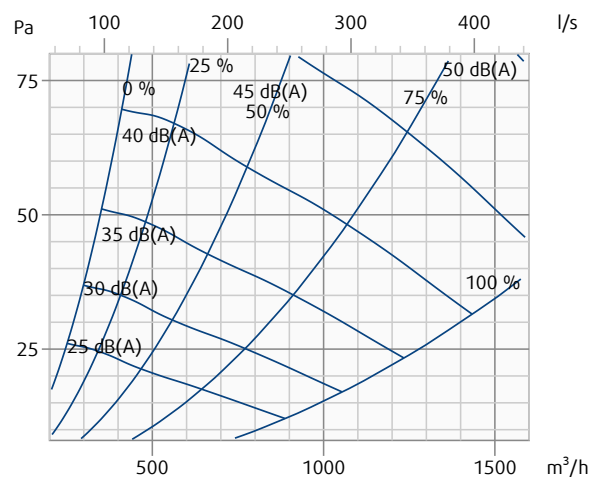
CAP-CT-250-SW

Pressure drop & A-weighted sound pressure level (10 m² room absorption, dB(A))



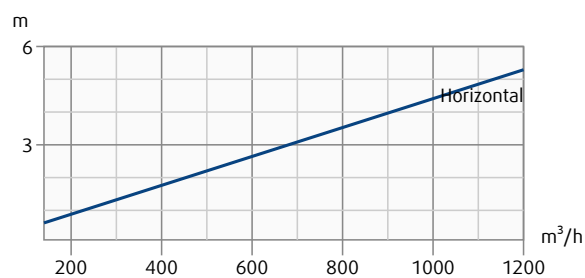
CAP-CT-315-SW

Pressure drop & A-weighted sound pressure level (10 m² room absorption, dB(A))



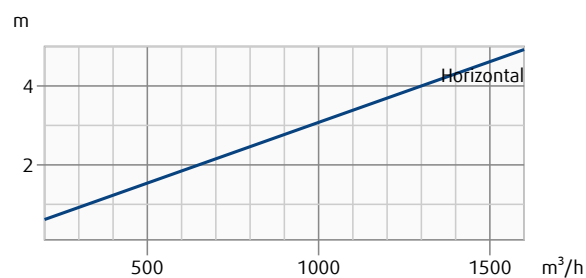
CAP-CT-250-SW

Throw length (terminal velocity 0.2 m/s)



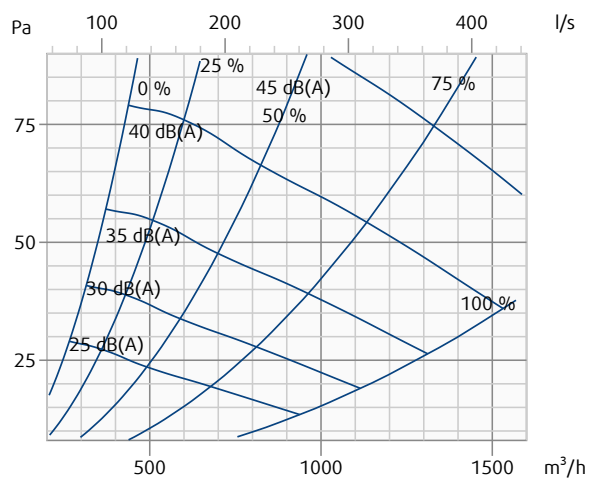
CAP-CT-315-SW

Throw length (terminal velocity 0.2 m/s)



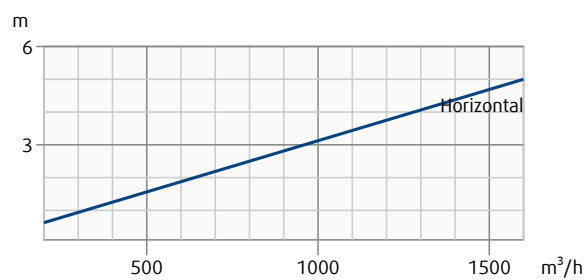
CAP-CT-400-SW

Pressure drop & A-weighted sound pressure level (10 m² room absorption, dB(A))



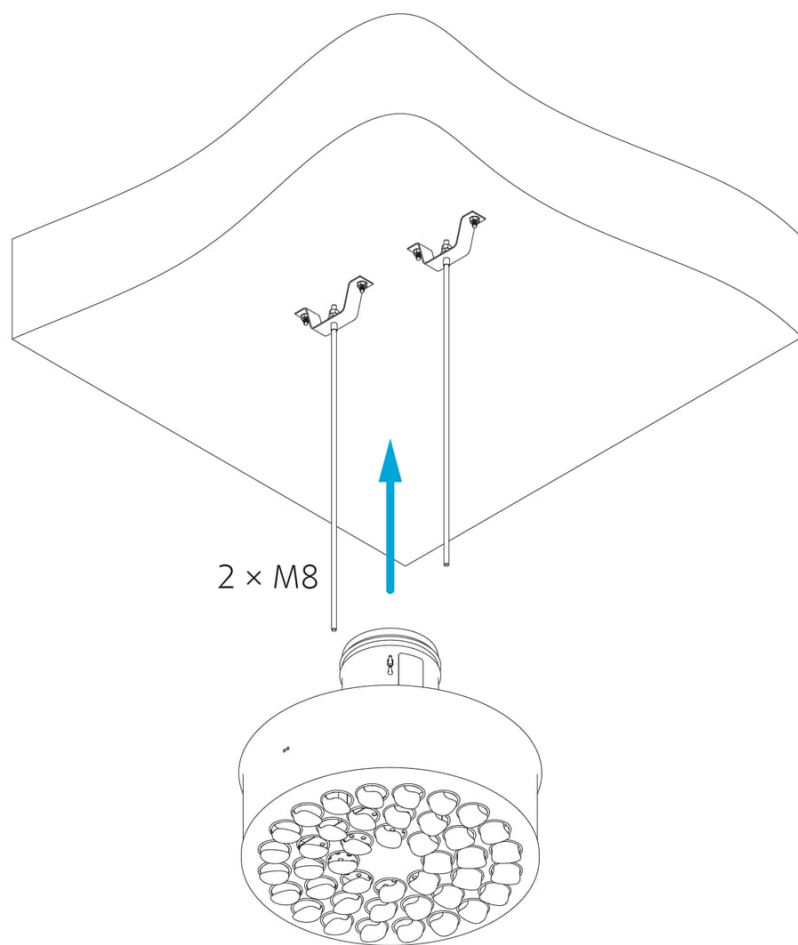
CAP-CT-400-SW

Throw length (terminal velocity 0.2 m/s)

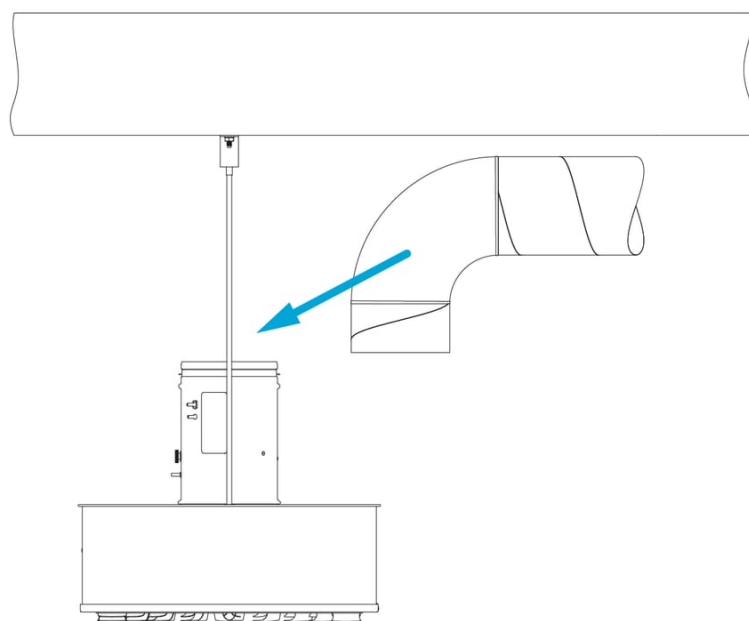


Installation

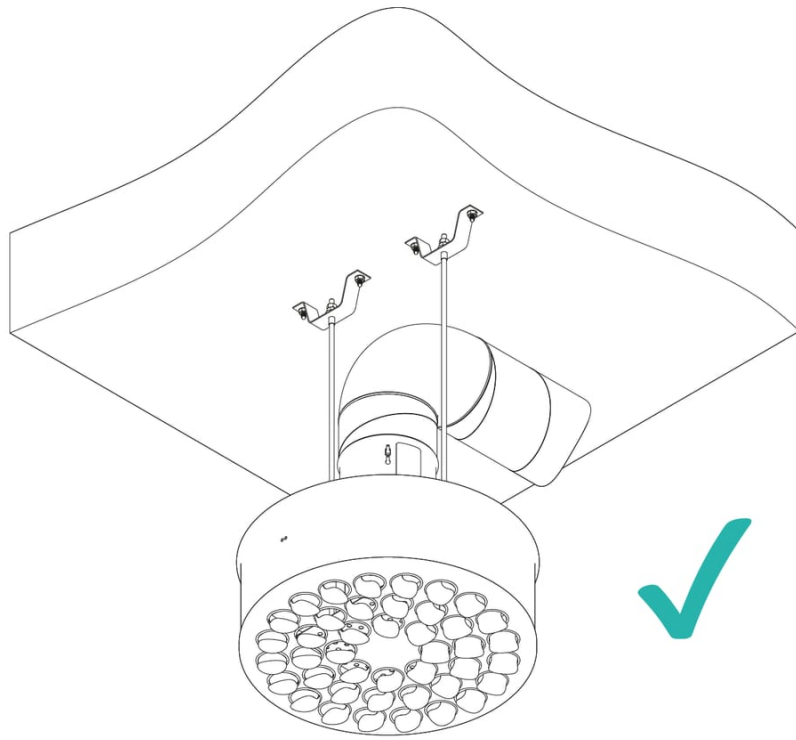
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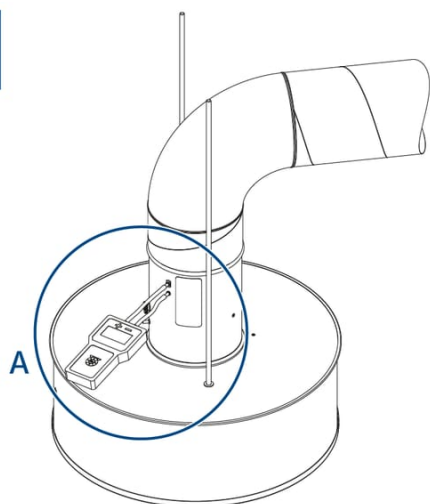


3.



Setting

1.



Air diffuser CAP - CT - 160 - W
Order No.: 1220190290
Cust. Ord. No.: 2430641
Made in Slovakia



Art. No.: 98643



systemair



Ser. No.: 319038050002

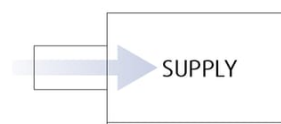
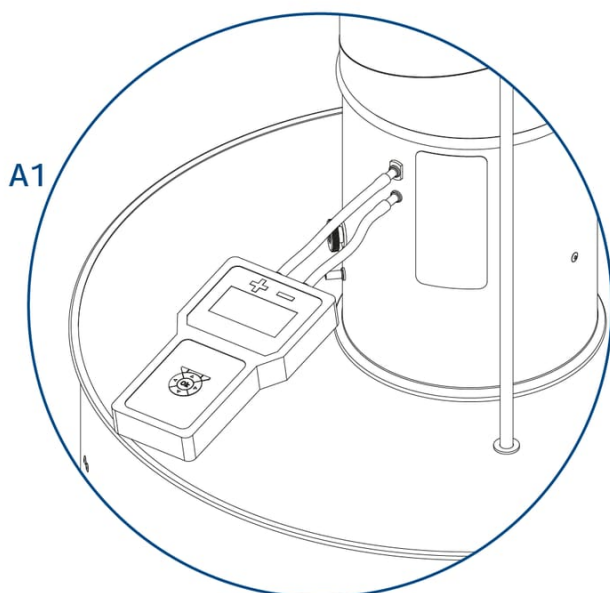
↓ SUPPLY

$Q \text{ (l/s)} = 13,3 \cdot \sqrt{\Delta p \text{ (Pa)}}$

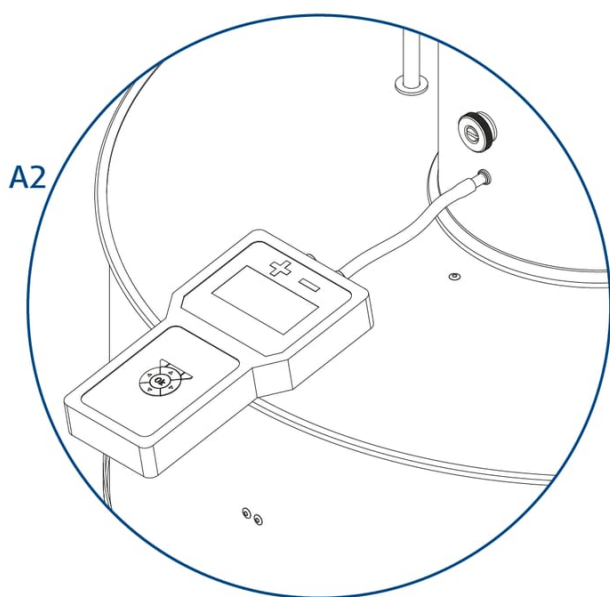
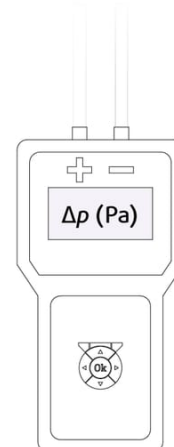
→ EXTRACT

$Q \text{ (l/s)} = 11,6 \cdot \sqrt{\Delta p \text{ (Pa)}}$

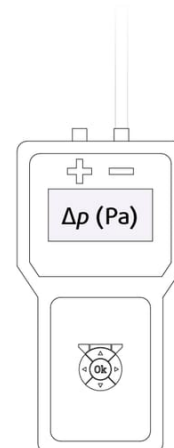
$$Q = \text{k-factor} \cdot \sqrt{\Delta p \text{ (Pa)}}$$



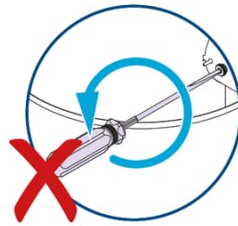
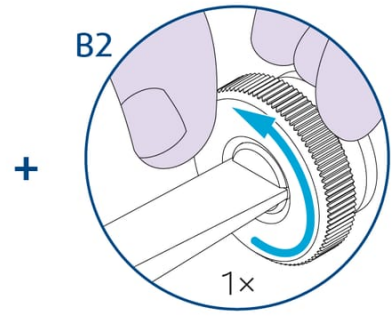
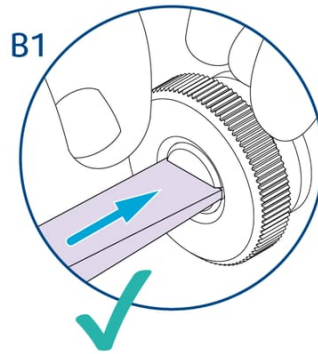
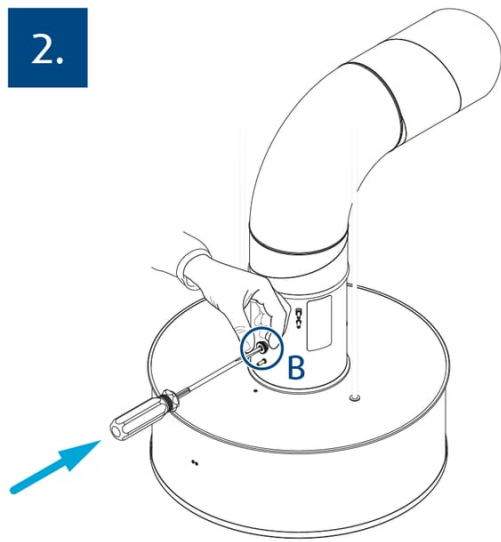
k-factor	l/s	m³/h
CAP-CT-100	4,3	15,5
CAP-CT-125	7,5	27
CAP-CT-160	13,3	47,9
CAP-CT-200	21,7	78,1
CAP-CT-250	34,6	124,6
CAP-CT-315	56,5	203,4
CAP-CT-400	105,5	379,8



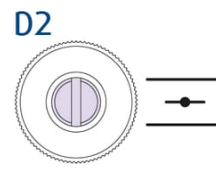
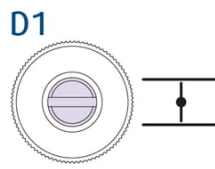
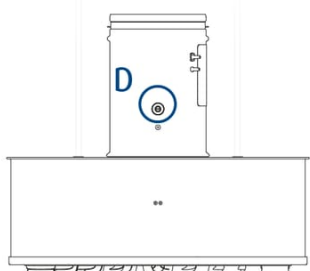
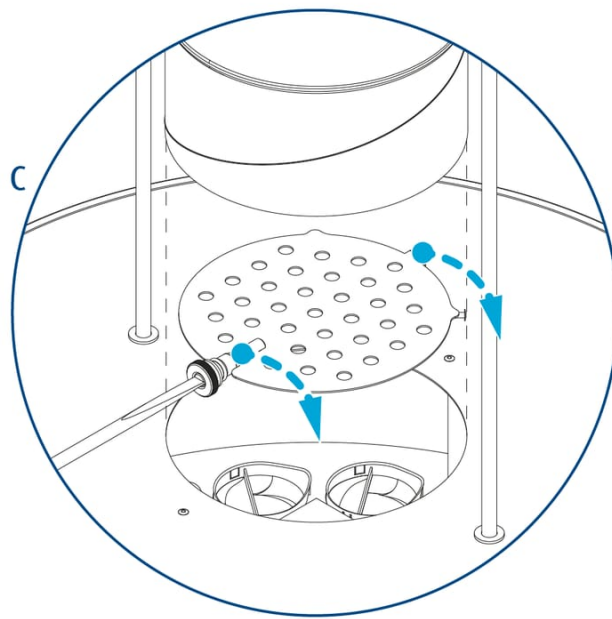
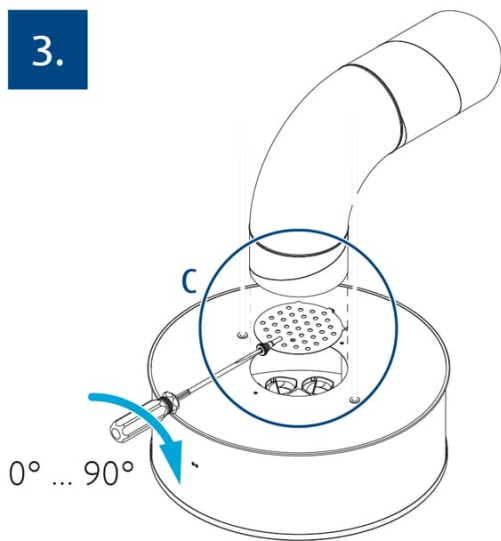
k-factor	l/s	m³/h
CAP-CT-100	4,4	15,8
CAP-CT-125	7,2	25,9
CAP-CT-160	11,4	41,0
CAP-CT-200	18,3	65,9
CAP-CT-250	26,3	94,7
CAP-CT-315	41,8	150,5
CAP-CT-400	56,4	203,0



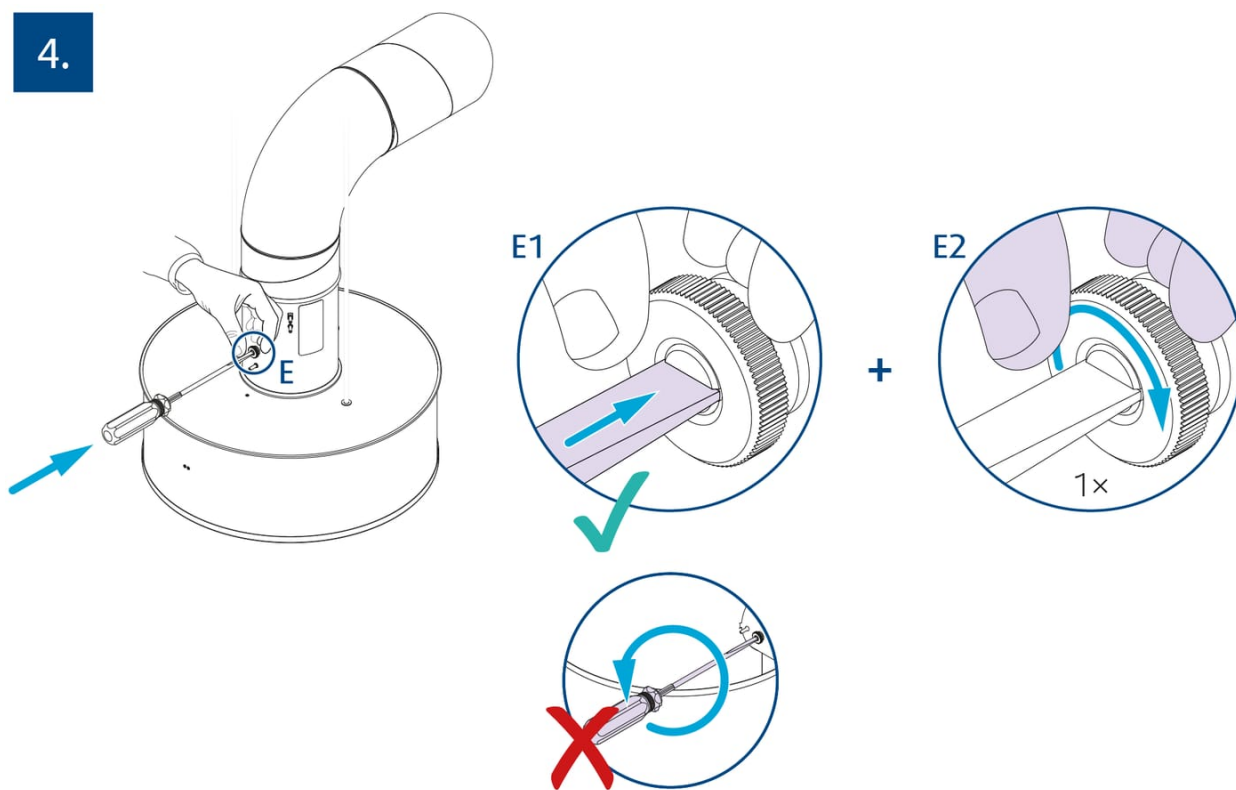
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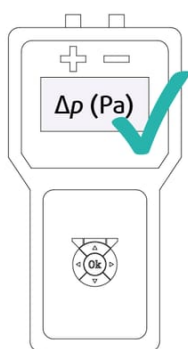


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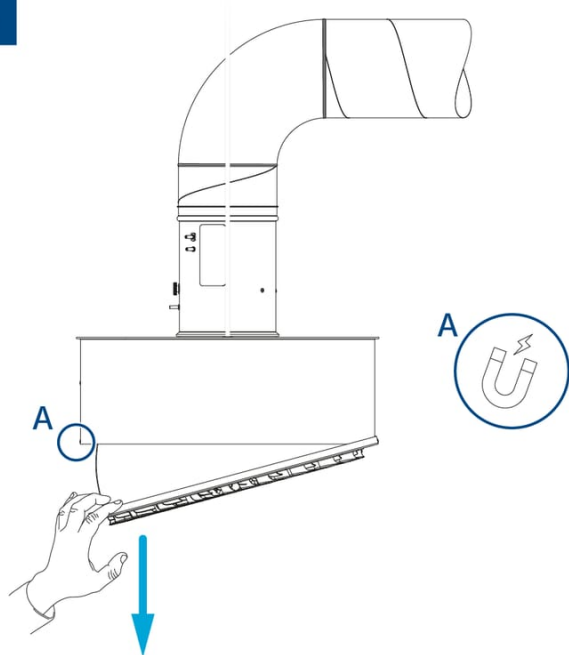
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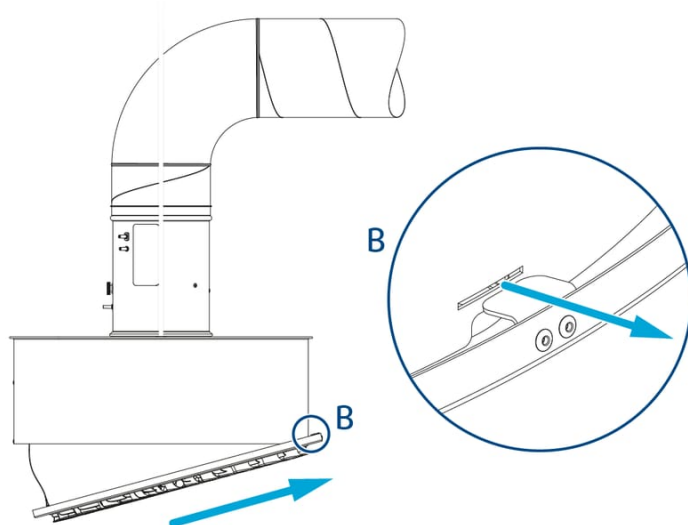


Cleaning

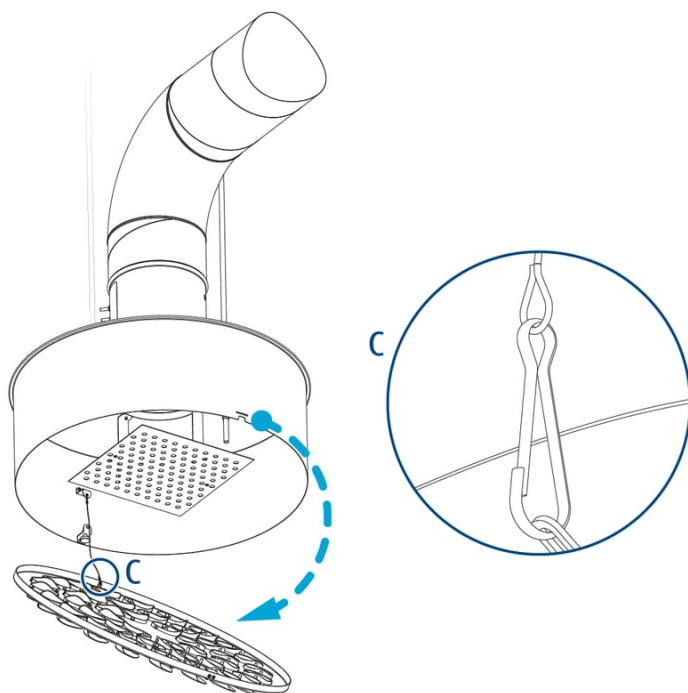
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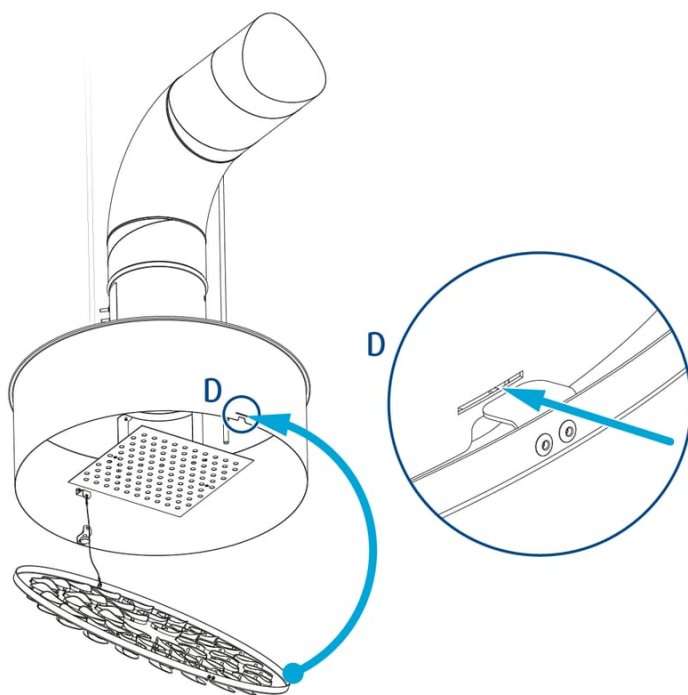
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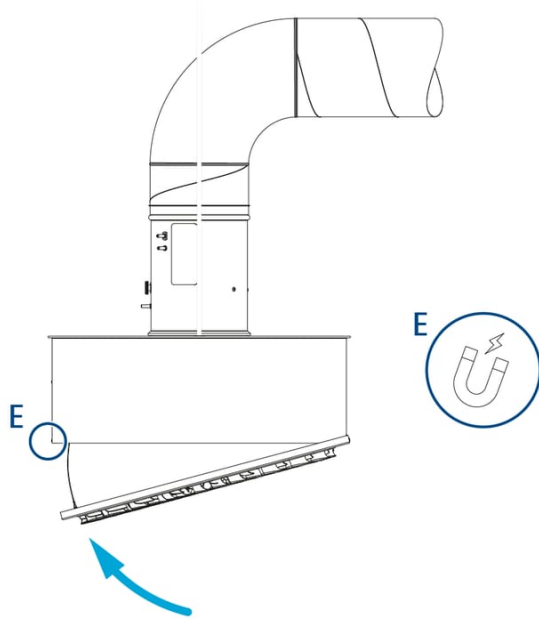
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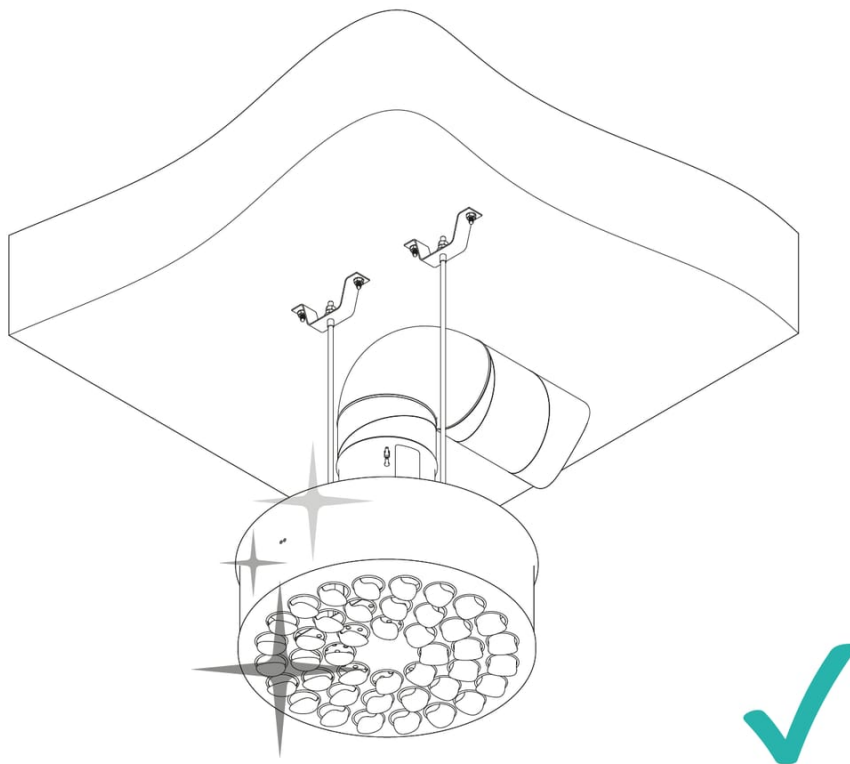
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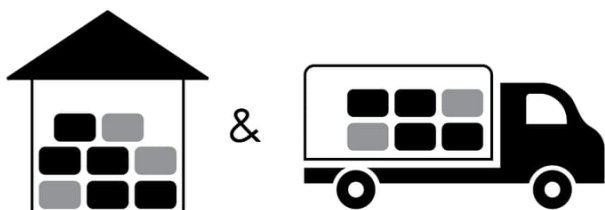
6.



7.



Transport, Storage and Operation



 °C -40 °C ... +50 °C

 % ≤ 95%



 °C -20 °C ... +70 °C

 % ≤ 95%

Supplement

Any deviations from the technical specifications contained herein and the terms should be discussed with the manufacturer. We reserve the right to make any changes to the product without prior notice, provided that these changes do not affect the quality of the product and the required parameters. Current information on all products is available on design.systemair.com.



Handbook_CAP_CT_en-GB

design.systemair.com

www.systemair.com

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E&OE

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This also applies to products already ordered, as long as it does not affect the previously agreed specifications.