

CAP-C

Multi-Nozzle Diffuser



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Description

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

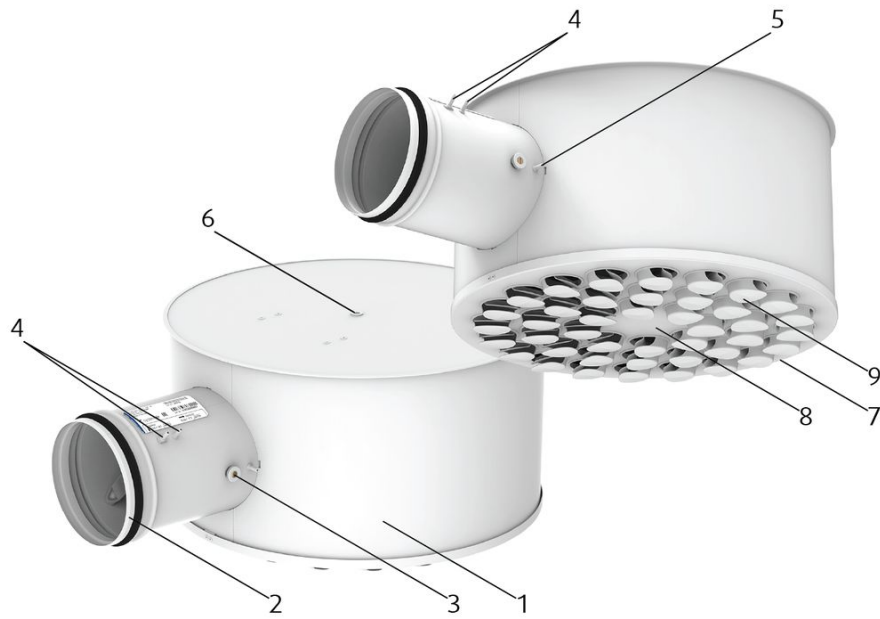
Highlights

- 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

CAP-C is manufactured from galvanized steel. The product is composed of a plenum box with a sideways oriented rubber gasket sealed circular connection and diffuser plate with polymer nozzles, attached by permanent magnets. The nozzles can be rotated by 360° in the plane of the diffuser plate. The proper directional adjustment of the individual nozzles results in the desired air discharge pattern. 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, there is a thread nut in the upper part of the plenum box. It is fit for fixing on the suspended thread bar. The product is powder painted to RAL9003 (signal white) as standard. Other RAL colours are available upon request.

Product Parts

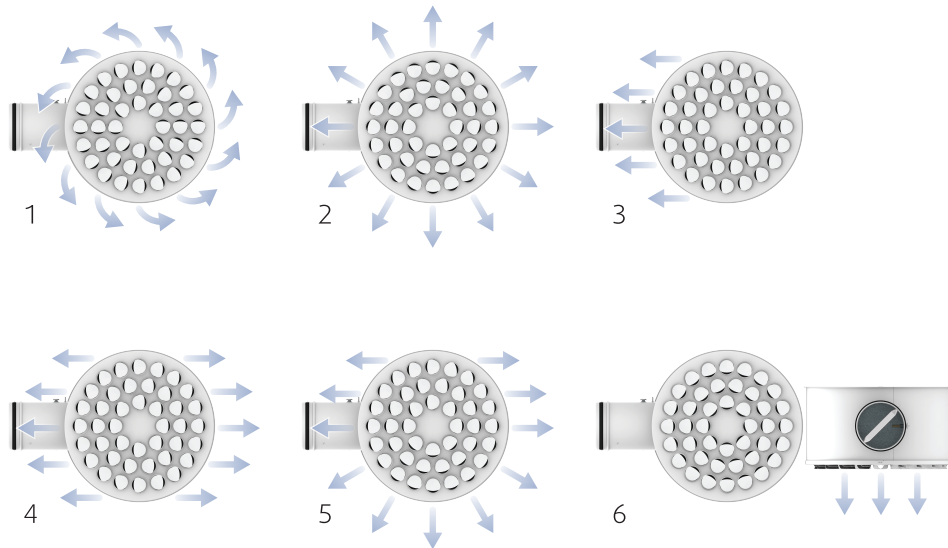


Legend

- 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 to hold diffuser plate in the plenum box
- 8 Diffuser plate
- 9 Nozzles

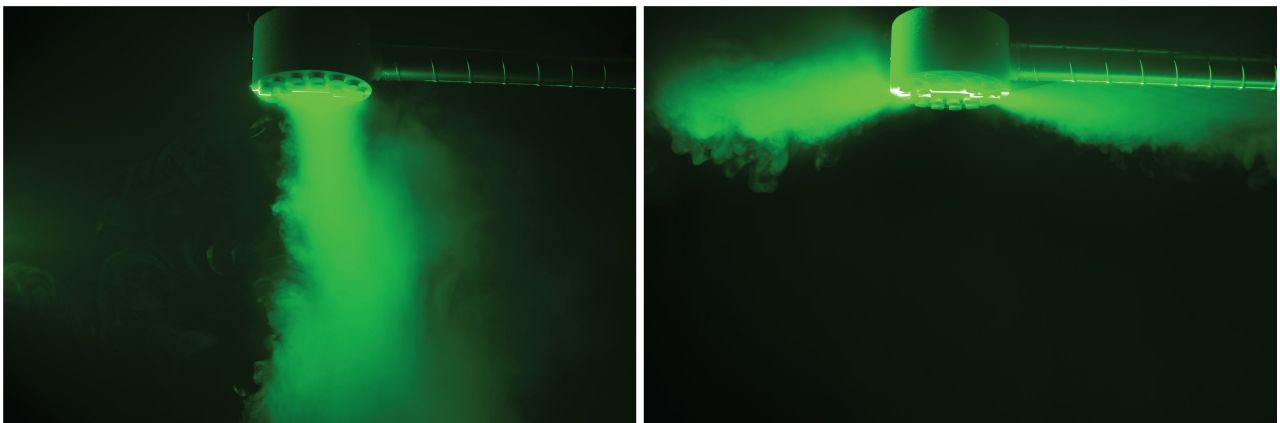
Setup Possibilities

Nozzle adjustments and resulting air flow pattern



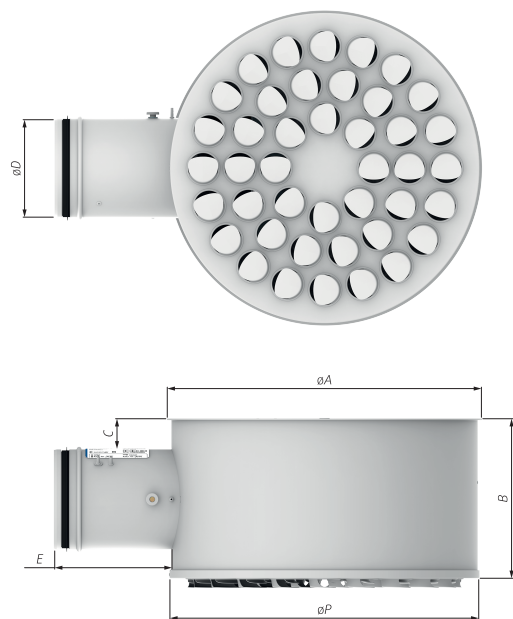
Legend

- 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



Air flow visualisation

Dimensions & Weights



DN	øD	øA	øP	B	C	E	m
	mm						kg
100	98	324	314	172	39	155	3,0
125	123	408	398	202	41	165	4,4
160	158	497	487	252	49	185	6,8
200	198	597	587	287	46	210	9,2
250	248	608	598	332	44	235	10,6
315	313	632	622	422	56	265	13,3
400	398	634	624	508	56	285	15,7

Ordering Codes

CAP-C-

Size - inlet ø (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-C-200-SW

Diffuser of size 200 mm, signal white colour.

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)		40 dB(A)	
	m ³ /h	l/s	m ³ /h	l/s	m ³ /h	l/s	m ³ /h	l/s
CAP-C-100-SW	106	30	131	36	157	44	187	52
CAP-C-125-SW	163	45	199	55	238	66	283	79
CAP-C-160-SW	261	72	318	88	379	105	448	124
CAP-C-200-SW	388	108	472	131	561	156	662	184
CAP-C-250-SW	547	152	675	187	808	224	951	264
CAP-C-315-SW	763	212	919	255	1088	302	1272	353
CAP-C-400-SW	804	223	971	270	1152	320	1353	376

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)		35 dB(A)	
	m ³ /h	l/s	m ³ /h	l/s	m ³ /h	l/s	m ³ /h	l/s
CAP-C-100-SW	102	28	126	35	152	42	181	50
CAP-C-125-SW	157	44	191	53	230	64	274	76
CAP-C-160-SW	250	69	305	85	366	102	434	120
CAP-C-200-SW	371	103	454	126	543	151	641	178
CAP-C-250-SW	521	145	649	180	780	217	922	256
CAP-C-315-SW	732	203	887	246	1054	293	1234	343
CAP-C-400-SW	771	214	938	260	1114	310	1311	364

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

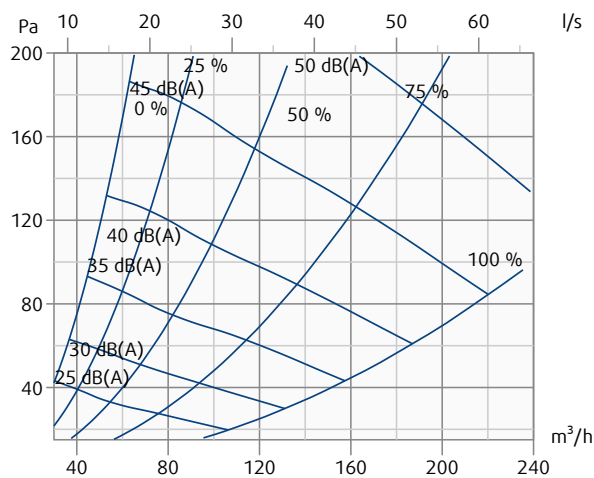
0%, 25%, 50%, 75%, 100% The plenum box damper positions in pressure drop/noise diagrams are represented as percentage. 0% is full damper restriction. 100% is fully open damper.

Calculation of Air Throw for Different Terminal Velocities

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

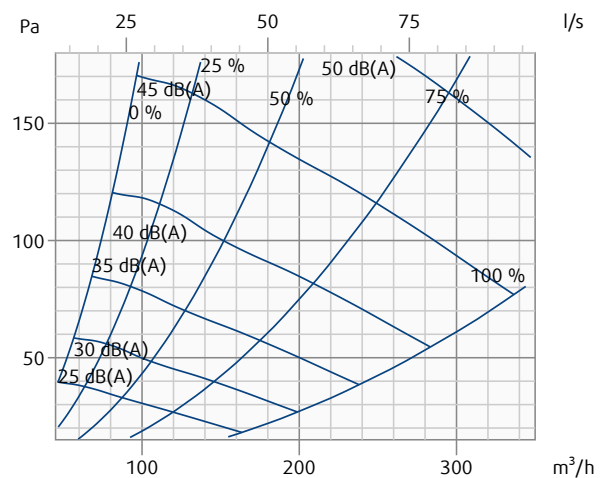
CAP-C-100-SW

Pressure drop & A-weighted sound power level in dB(A)



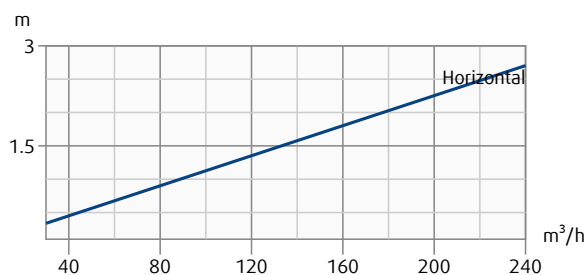
CAP-C-125-SW

Pressure drop & A-weighted sound power level in dB(A)



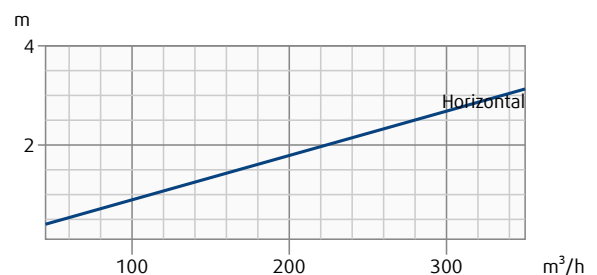
CAP-C-100-SW

Throw length (terminal velocity 0.2 m/s)



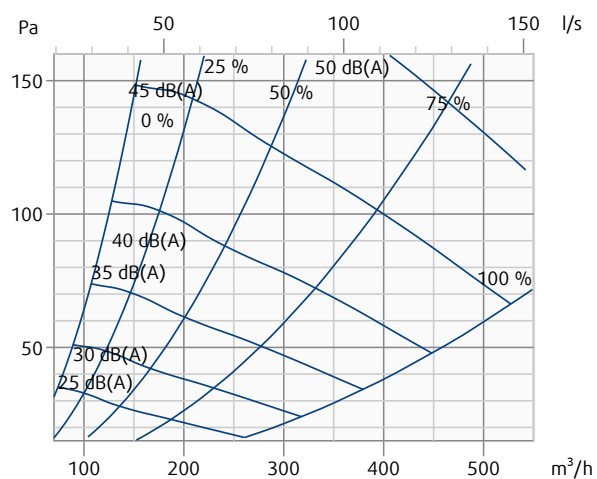
CAP-C-125-SW

Throw length (terminal velocity 0.2 m/s)



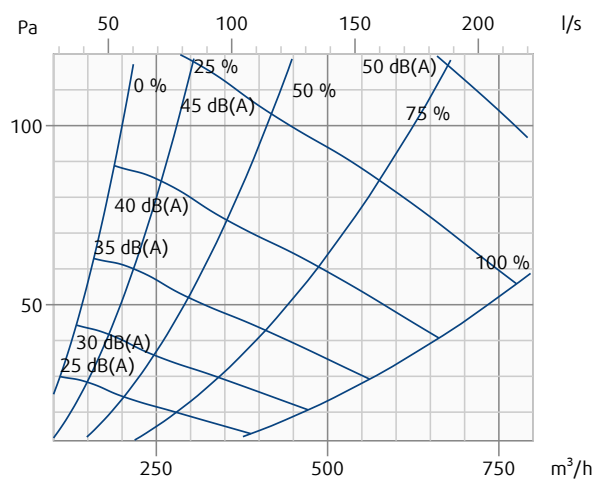
CAP-C-160-SW

Pressure drop & A-weighted sound power level in dB(A)



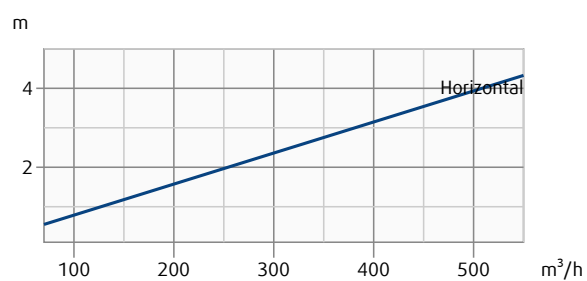
CAP-C-200-SW

Pressure drop & A-weighted sound power level in dB(A)



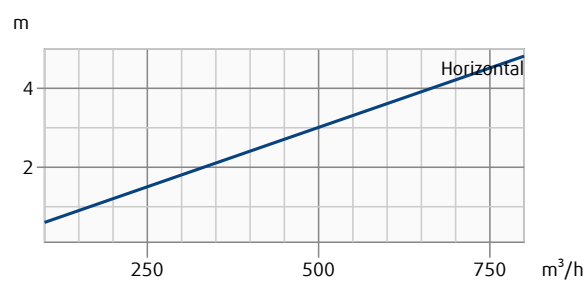
CAP-C-160-SW

Throw length (terminal velocity 0.2 m/s)



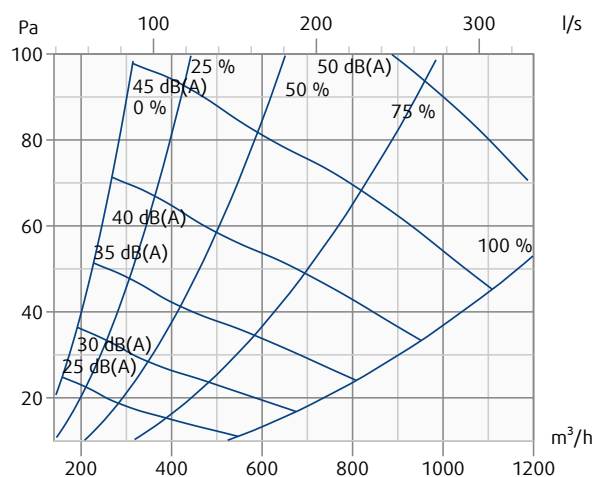
CAP-C-200-SW

Throw length (terminal velocity 0.2 m/s)



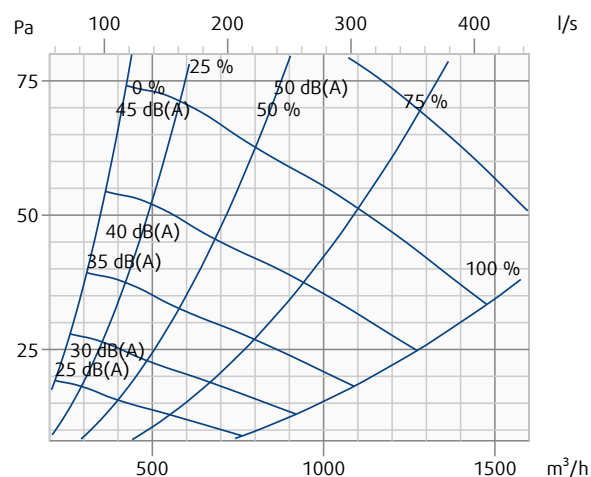
CAP-C-250-SW

Pressure drop & A-weighted sound power level in dB(A)



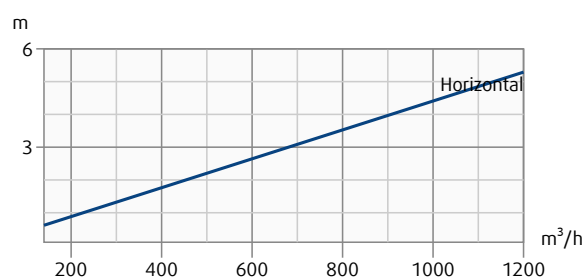
CAP-C-315-SW

Pressure drop & A-weighted sound power level in dB(A)



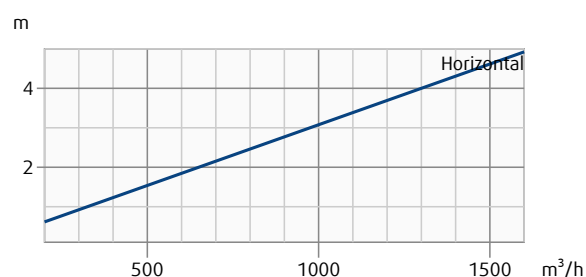
CAP-C-250-SW

Throw length (terminal velocity 0.2 m/s)



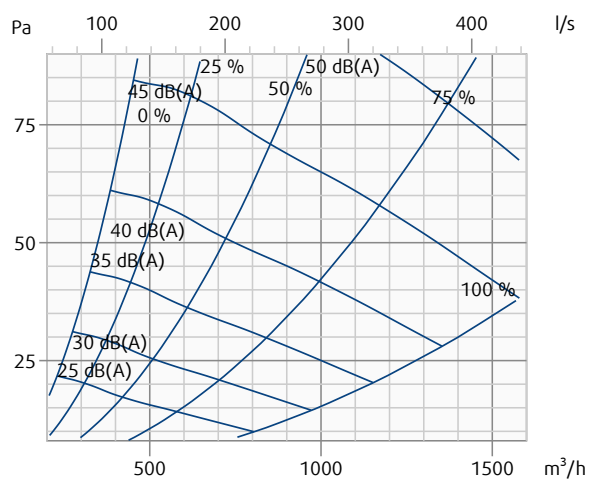
CAP-C-315-SW

Throw length (terminal velocity 0.2 m/s)



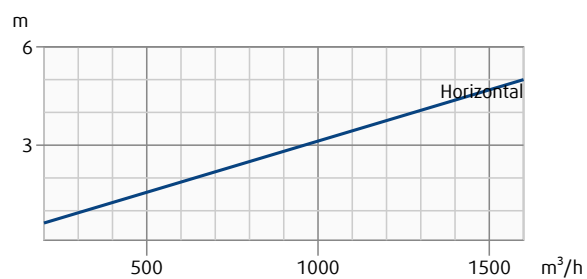
CAP-C-400-SW

Pressure drop & A-weighted sound power level in dB(A)

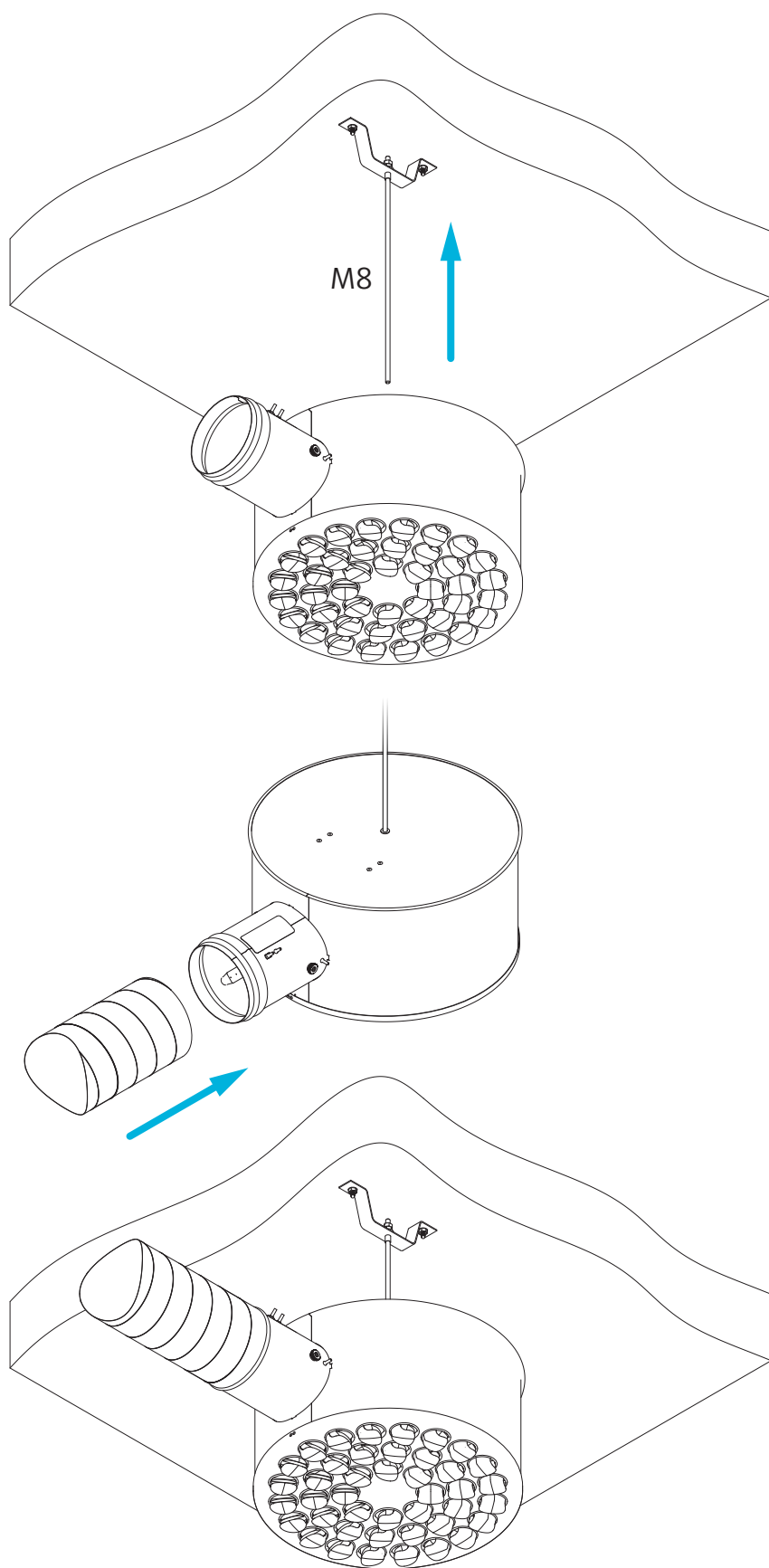


CAP-C-400-SW

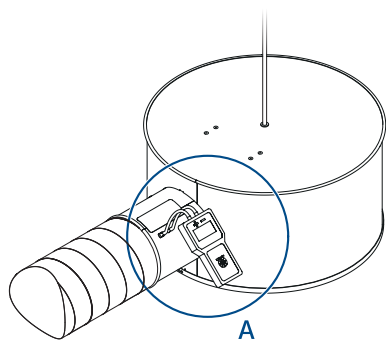
Throw length (terminal velocity 0.2 m/s)



Installation

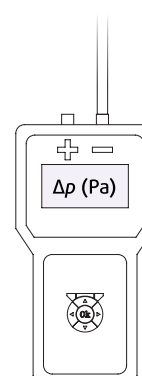
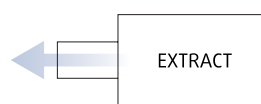
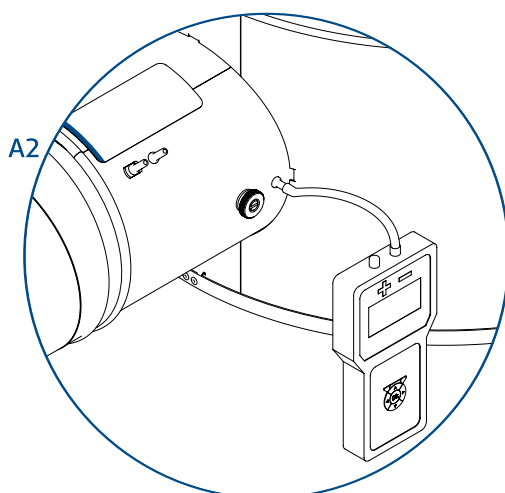
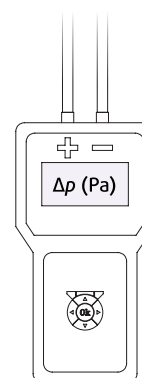
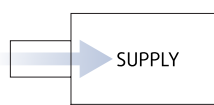
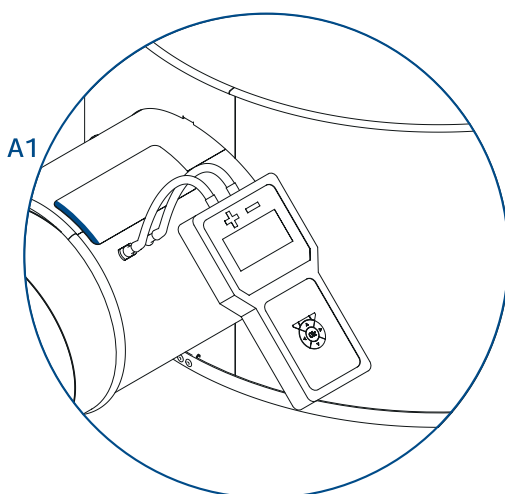


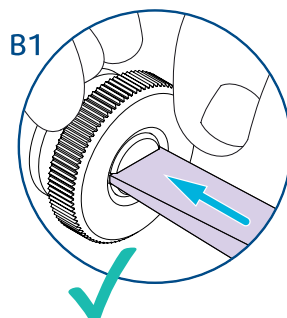
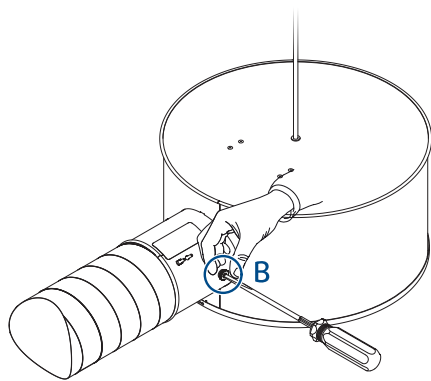
Setting



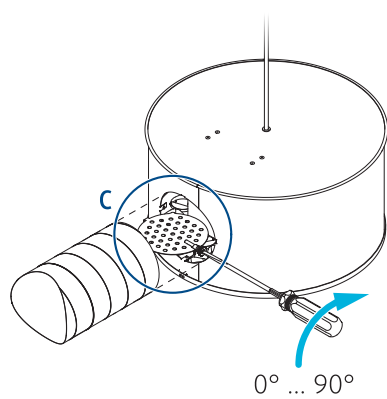
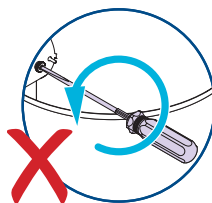
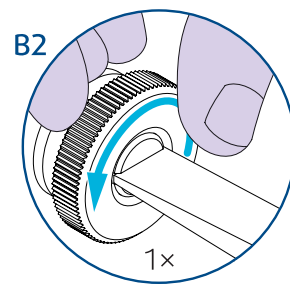
Air diffuser CAP - C - 160 - W			
Order No.: 1220190290		Art. No.: 26072	
Cust. Ord. No.:			
Made in Slovakia		Ser. No.: 319038050002	
 systemair 			
↓ SUPPLY $Q \text{ (l/s)} = 13,3 \cdot \sqrt{\Delta p \text{ (Pa)}}$		→ EXTRACT $Q \text{ (l/s)} = 11,6 \cdot \sqrt{\Delta p \text{ (Pa)}}$	

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

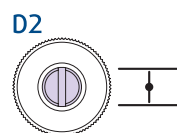
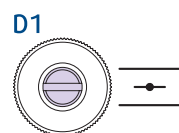
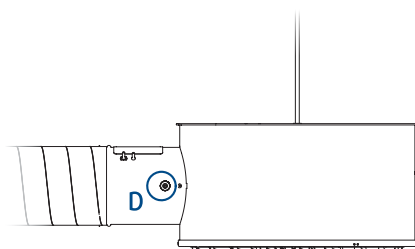
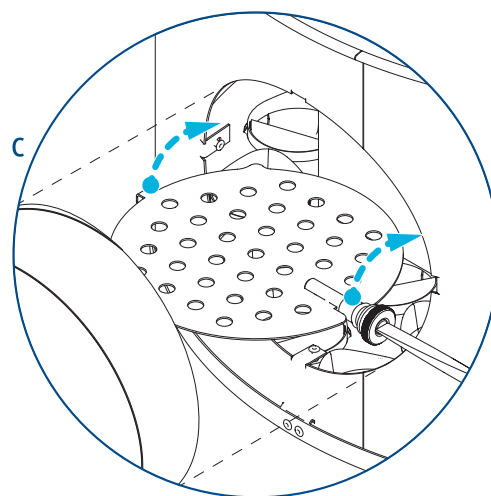


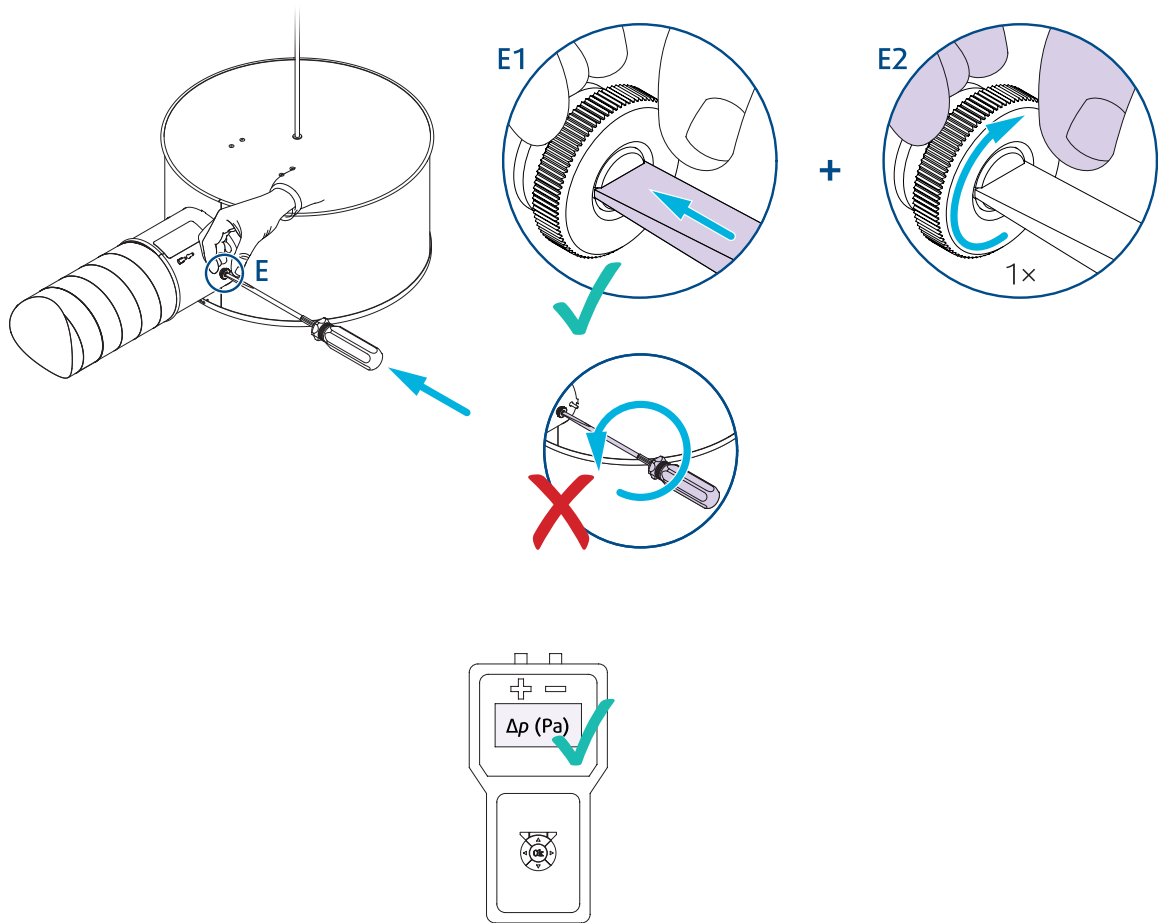


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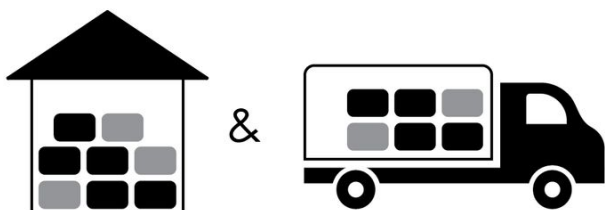


0° ... 90°





Transport, Storage and Operation



 °C -40 °C ... +50 °C

 % ≤ 95%



 °C -20 °C ... +50 °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_C_en-GB

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