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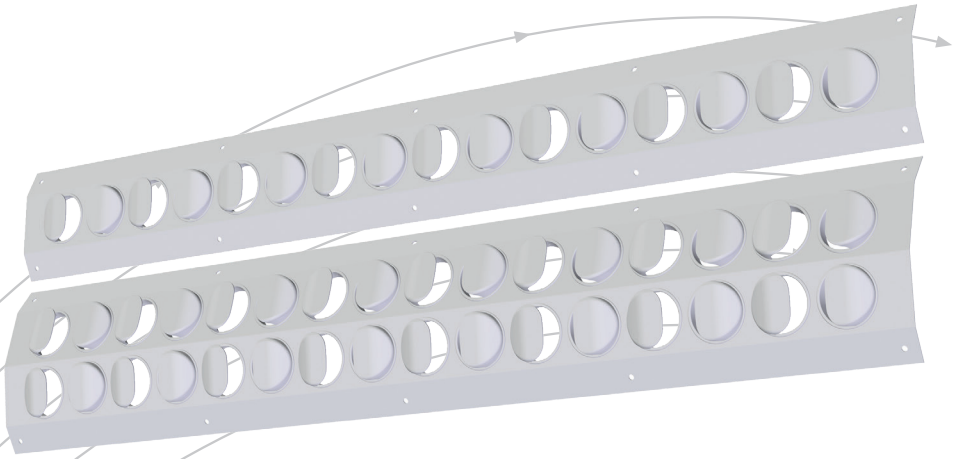
Opus-4 and Opus-5

Diffuser for installation directly in duct



- For circular and rectangular air ducts
- Integrated diffuser plate
- Adjustable flow pattern
- Available in galvanised design

TROX® TECHNIK

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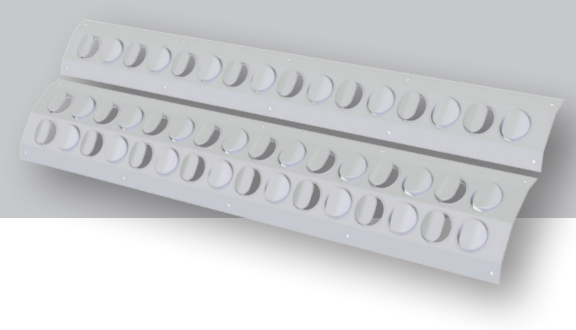
Opus-4 and Opus-5



APPLICATION

Opus-4 and Opus-5 are rectangular supply diffusers fitted to the side of circular and rectangular air ducts. The diffusers offer an adjustable flow pattern and are ideal for both under- and overheated air. Duct velocity ahead of the first diffuser should not exceed 5 m/s.

DESIGN

Opus-4D and 4DD are made for installation in circular ducts, whereas Opus-5D and 5DD are designed for installation in rectangular ducts. The diffusers are equipped with adjustable Opus nozzles. Each unit is fitted with a diffuser plate to the rear which ensures even distribution at the front. The system is available with one (D) or two (DD) nozzle rows. In addition to the standard dimensions, made-to-measure diffusers with different numbers of nozzles are also available. Please contact your local dealer for more information. The standard nozzle settings are shown in fig. 1.

MATERIALS AND SURFACE COATING

The diffusers are steel plated, with a RAL 9003 - gloss 30 finish. Opus nozzles are in ABS plastic. Black RAL 9005, aluminium RAL 9006 and galvanised design can be provided on request. Other colours are also available, but without adjustable nozzles.

QUICK SELECTION Opus 4 and Opus-5

Product	[m^3/h]		
Type	25 dB(A)	30 dB(A)	35 dB(A)
Opus 4/5D	138	163	193
Opus 4/5DD	251	308	377

Table 1: The table shows airflow rates at given sound power levels. (Duct velocity ahead of first diffuser ≤ 5 m/s).

ORDER CODE

Opus - 4 / DD / 315 / 0

Product:
Type:
4 = For circular duct
5 = For rectangular duct

D = Single row of nozzles
DD = Double row of nozzles
MA = Special dimensions and number of nozzles

Dim: Ø200 - Ø1250

SL = Special finish
G = Galvanized
0 = RAL 9003 - gloss 30

Example:
Opus-4 / DD / 315 / 0

Explanation:
Opus-4 for circular duct, double row of nozzles, dimension Ø315 finished in RAL 9003 - gloss 30.

DIMENSIONS AND WEIGHT, Opus-4 and Opus-5

Opus-4D with single nozzle row is suitable from and incl. dim. Ø200 to and incl. dim. Ø1000. Opus-4DD with double nozzle row is suitable from and incl. dim. Ø315 to and incl. dim. Ø1250.

Product	Weight [kg]	Groove dimensions [mm]
Opus-4D	1,3	950 x 70
Opus-5D	1,3	950 x 70
Opus-4DD	1,7	950 x 125
Opus-5DD	1,7	950 x 125

Table 2

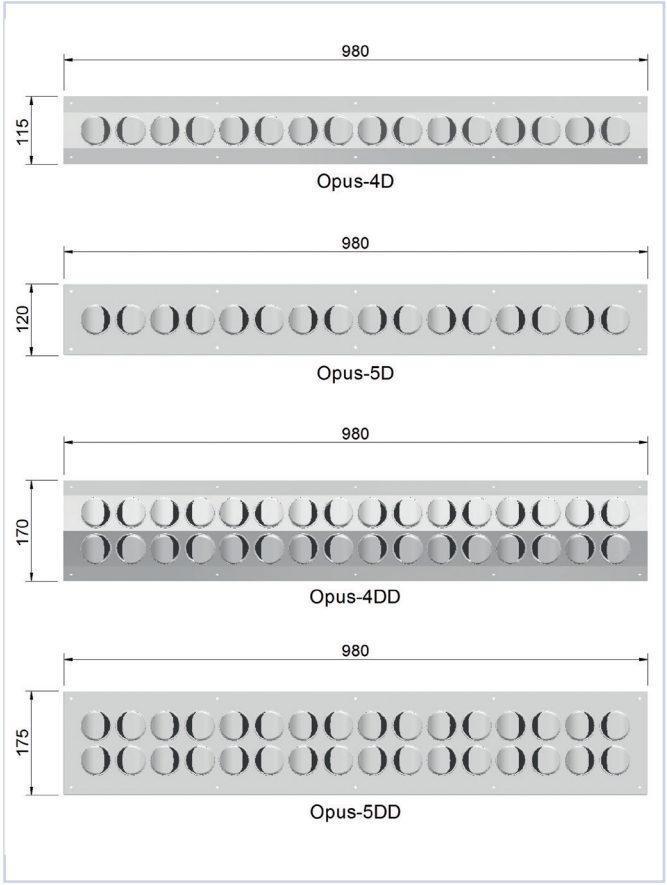


Fig. 1

Opus-4 and Opus-5

ACOUSTIC DATA

The diagram provides a summary of the A-weighted sound power level from diffuser, L_{WA}. Correction factors in table 4 are used to calculate emitted sound power level at the respective frequencies, $L_W = L_{WA} + KO$. A room with absorption equivalent to 10 m^2 Sabine will have a sound pressure level which is 4 dB below the sound power level emitted.

Example:
Opus-4, 25 l/s, 30 Pa
According to the diagram, L_{WA} = 29 dB(A).
We aim to find:
a) Emitted sound power level at 250 Hz
b) A-weighted sound pressure level in an office.
   a) The correction factor is 0 dB. Emitted sound power level at 250 Hz is thus: $L_W = L_{WA} + KO = 29 + (0) = 29$ dB
   b) If we assume a room absorption equivalent to 10 m^2 Sabine, the A-weighted sound pressure level will be: 29-4 = 25 dB(A)

THROW LENGTHS

Throw lengths for the various air flow rates are shown in diagram 2.

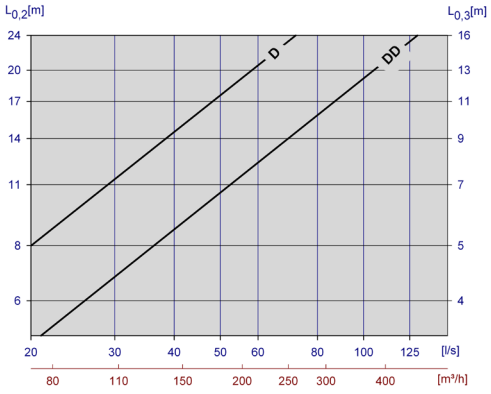


Diagram 2, Opus-4 and Opus-5

CALCULATION DIAGRAM

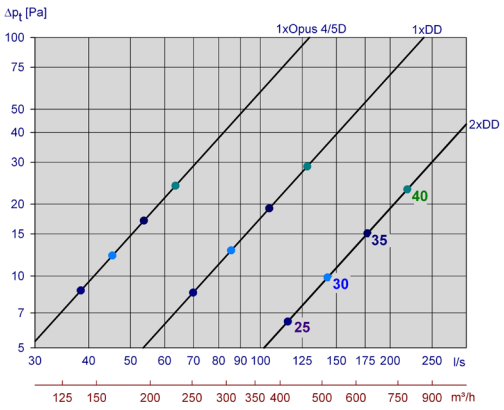


Diagram 1, Opus-4 and Opus-5

FLOW PATTERN

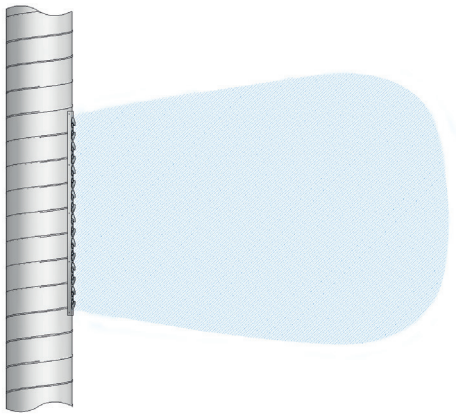


Fig. 2

Sound attenuation:

The table provides an example of the diffuser's static sound attenuation including end reflection when mounted in duct dim. Ø200. A smaller duct diameter will increase attenuation, and a larger duct diameter will reduce attenuation.

Opus-4 and Opus-5	Attenuation [dB]							
Type	63	125	250	500	1k	2k	4k	8k
Opus 4/5 D	18	16	12	7	5	4	6	6
Opus 4/5 DD	16	14	9	6	4	4	5	5

Table 3

Correction factor [KO]

Opus-4 og Opus-5	KO [dB]							
Type	63	125	250	500	1k	2k	4k	8k
Opus 4/5 D	4	5	5	-6	-11	-19	-19	-15
Opus 4/5 DD	5	5	2	-3	-8	-15	-15	-13
2xOpus 4/5 D	5	4	3	-5	-11	-17	-15	-11

Table 4

Opus-4 and Opus-5

INSTALLATION
Grooves in ducting are made as described below and shown in fig. 3. The diffuser plate and front panel are positioned over the groove and attached by using the screws provided. Opus-4D and Opus-5D, grooves in ducting: L= 950, H=70
Opus-4DD and Opus-5DD, grooves in ducting: L= 950, H= 125

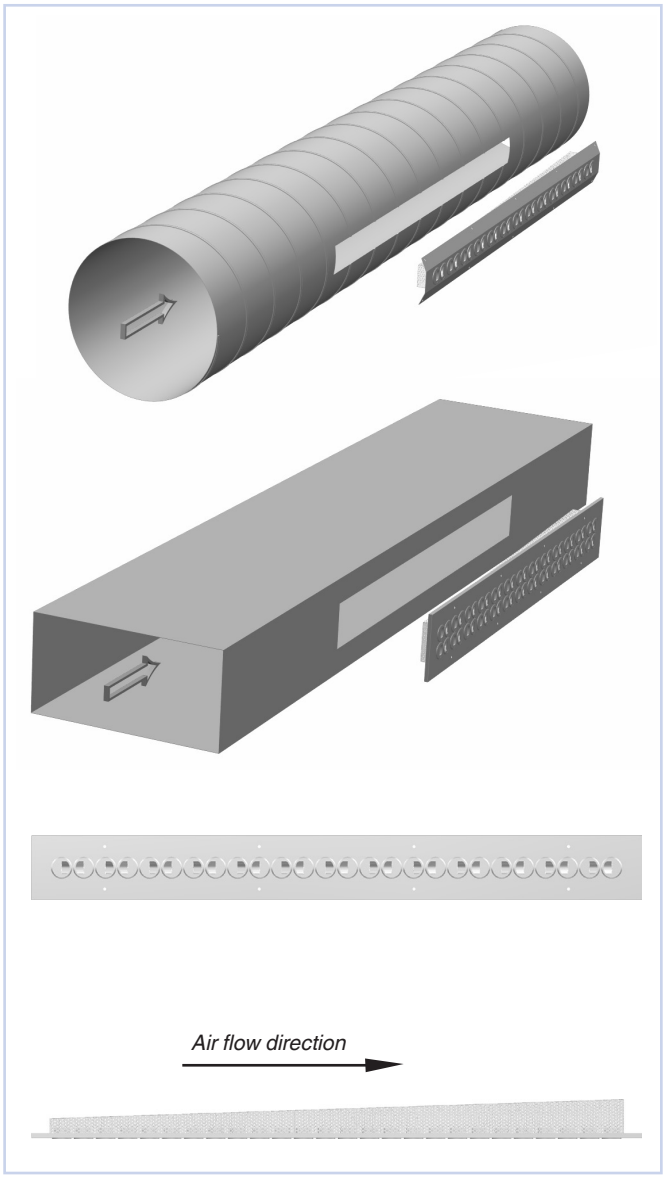


Fig. 3 Installation

COMMISSIONING
For commissioning, use of damper in duct ahead of first diffuser is recommended.

MAINTENANCE
The diffuser can be cleaned by using a damp cloth.

ENVIRONMENT
Enquiries regarding product declaration can be directed to our sales team, or information can be found at our website: www.trox.no

Opus-4 and Opus-5 is developed and manufactured by:

The company reserves the right to make amendments without prior notice.

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