

Displacement circular diffusers WO-S, WO-Z



General information

Circular displacement diffusers WO-S (standing) and WO-Z (hanging) are suitable for industrial rooms and where is the necessity to supply a large quantity of air flow directly into to the working area. The air flow is supplied on the entire surface of diffuser, has low turbulence and displaces used up air including chemicals, dusts and odours into the exhaust devices and outlets. Standing diffusers are made of dual perforated sheet steel jacket whilst hanging are made of single jacket. The changing of air flow direction is available in both executions: in standing version using adjustable damper and in hanging version using adjustable string.

An air velocity at the face of diffuser is between 0,3 and 1,0 m/s and permits to install diffusers near to workplaces.

The capacity of diffuser contains in the range of 1000-10 000 m³/h.

The throw length of diffuser contains in the range of 2,5-10 m.

Maximal temperature difference at heating $\Delta t_p \leq 10$ K.

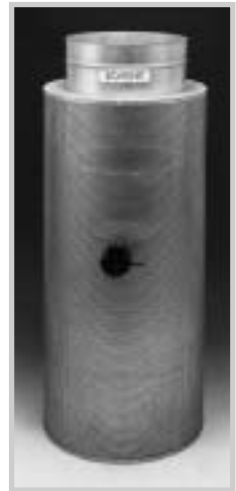
Maximal temperature difference at cooling $\Delta t_p \leq 8$ K.



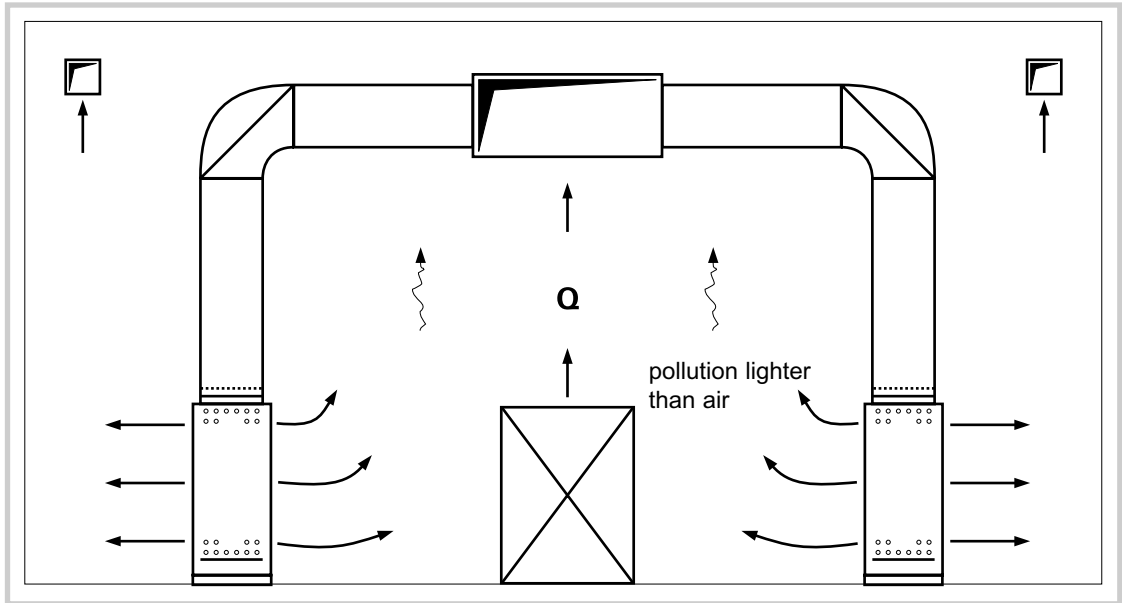
Circular displacement diffuser,
wall execution type WO-Z



Circular displacement diffuser,
floor execution type WO-S



CIRCULAR DISPLACEMENT DIFFUSER, STANDING EXECUTION, TYPE WO-S



Standing diffusers are destined to use in places where the large heat loads are produced (over than 150 W/m²) and where the harmful substances emitted are lighter than the air. The throw length of diffusers contains in the range of 2,5-10 m and depends on supplied quantity of air flow and supplied temperature.

AIR CIRCULATION DIAGRAM IN THE ROOM; HEATING FUNCTION, COOLING FUNCTION

Maximal temperature difference between supplied and indoor air at heating

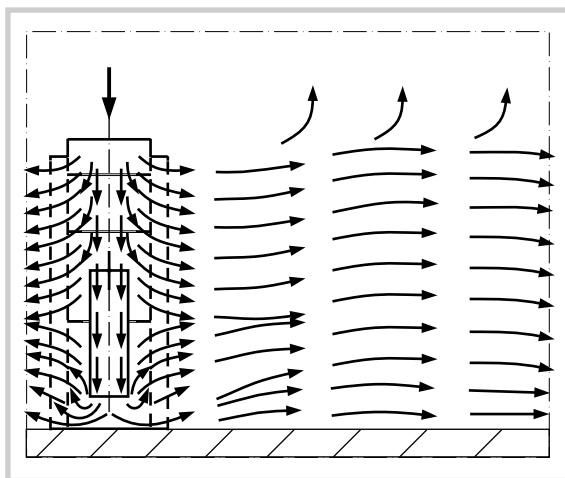
$$\Delta t_p \leq 10 \text{ K.}$$

Maximal temperature difference at cooling

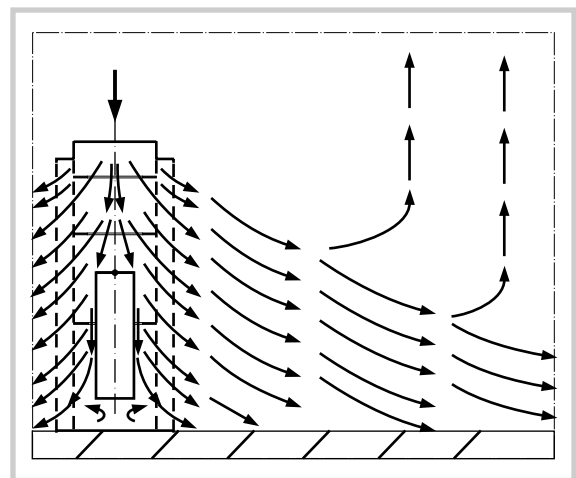
$$\Delta t_p \leq 5 \text{ K.}$$

Maximal temperature difference of 15-18 K between supplied and exhaust air depending on a room height.

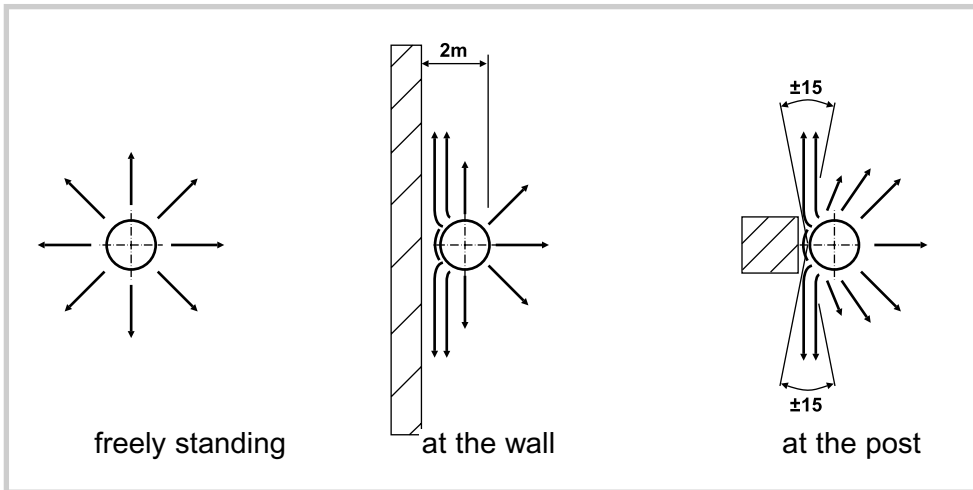
Cooling function



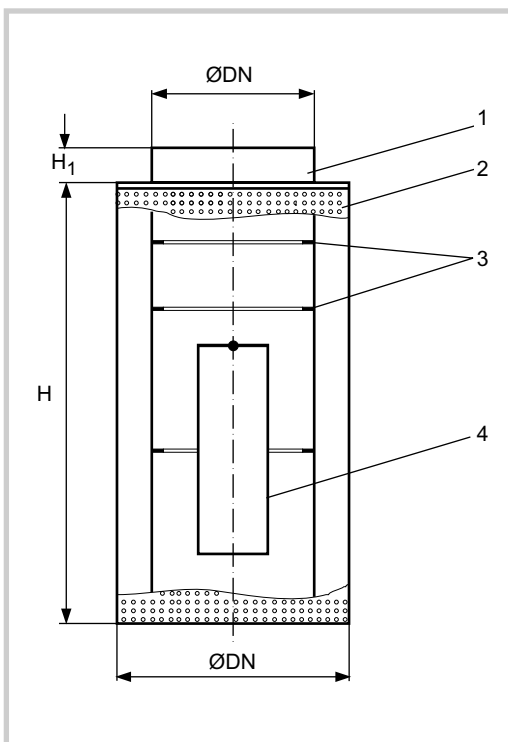
Heating function



INSTALLATION ALTERNATIVES FOR DIFFUSER WO-S

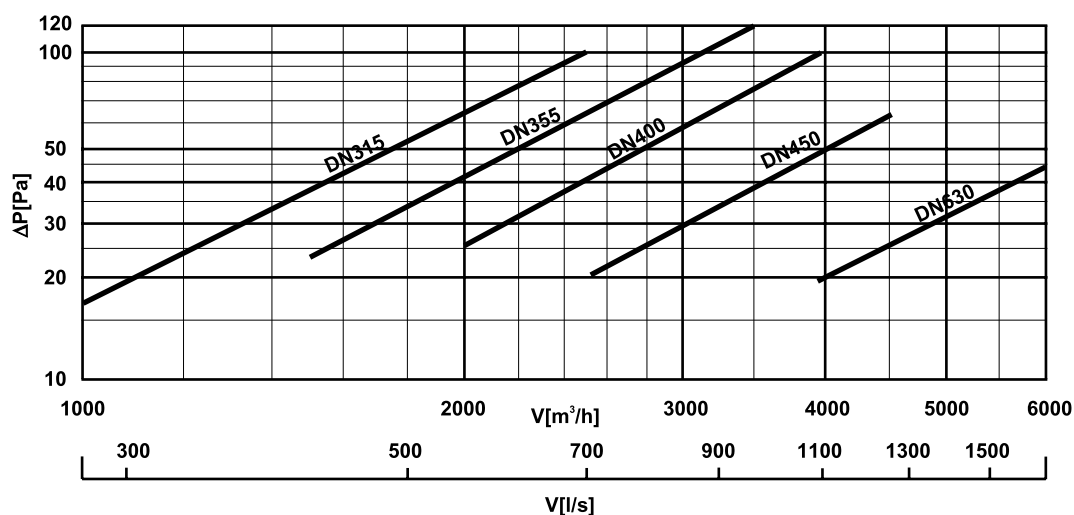
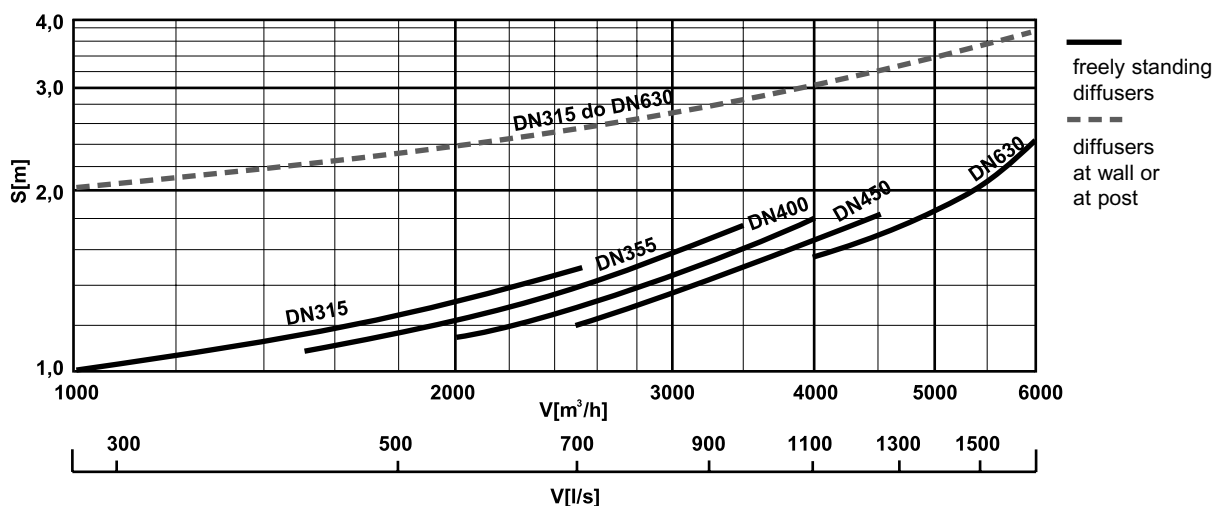


DIFFUSER CONSTRUCTION



- 1 – connection duct
- 2 – perforated casing
- 3 – orifice
- 4 – internal cylinder with regulating damper

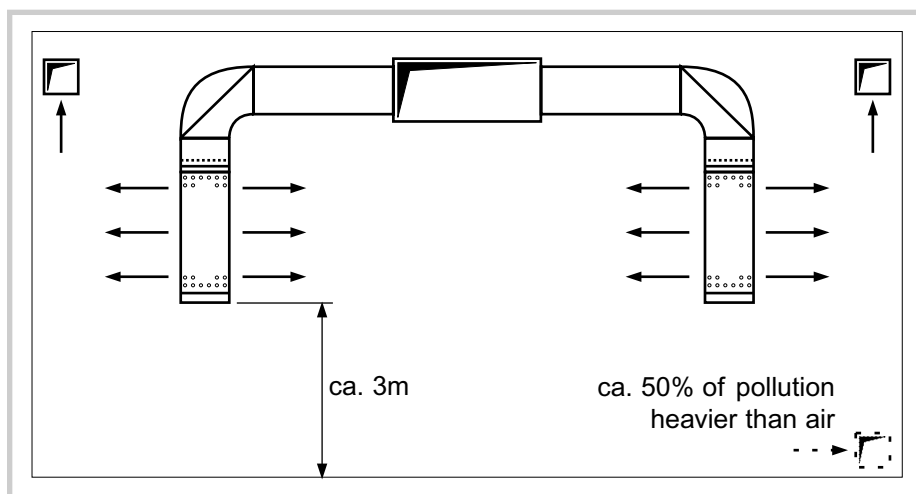
Nominal diameter	Air flow		$\varnothing D_A$	H	H_1
DN [mm]	$V[m^3/h]$	$V[l/s]$	[mm]		
315	1000÷2500	277÷695	475	1100	150
355	1500÷3500	416÷972	482	1100	150
400	2000÷4000	555÷1111	540	1400	150
450	2500÷4500	694÷4500	590	1400	150
630	4000÷6000	1111÷1666	780	1400	150



SOUND POWER LEVEL L_{WA} [dB]

Nominal diameter	Air flow	Air flow	Sound power level
DN [mm]	V [m³/h]	V [l/s]	L_{WA} [dB]
315	1000	277	38
	2000	555	57
	2500	694	63
355	1500	416	41
	2500	694	57
	3500	972	65
400	2000	555	42
	3000	833	56
	4000	1111	64
450	2500	694	43
	3000	833	50
	4500	1250	60
630	4000	1111	47
	5000	1388	53
	6000	1666	58

CIRCULAR DISPLACEMENT DIFFUSER, HANGING EXECUTION, TYPE WO-Z



Hanging diffusers are destined to use in places where the low heat loads are produced (lower than 150 W/m²) and where the harmful substances emitted are heavier than the air.

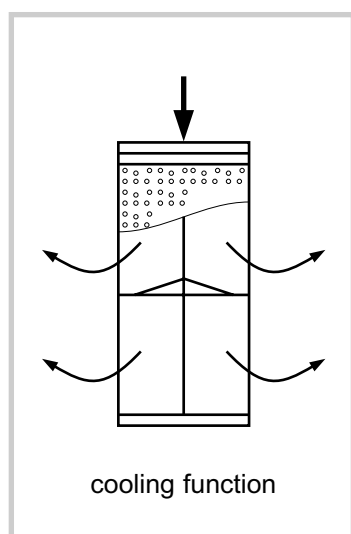
The throw length of diffuser contains in the range of 2,5 -10 m and depends on supplied quantity of air flow and supplied temperature

Recommended mounting height of diffuser 3-4 m above floor:

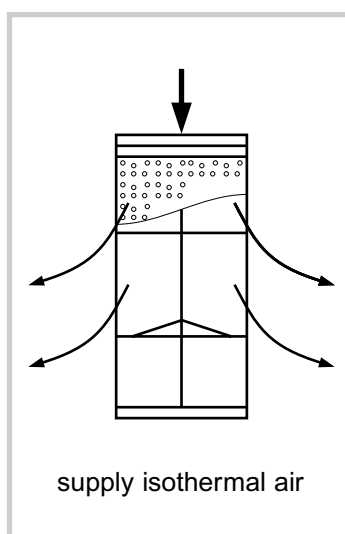
Maximal temperature difference at heating $\Delta t_p \leq 10 \text{ K}$

Maximal temperature difference at cooling $\Delta t_p \leq 8 \text{ K}$.

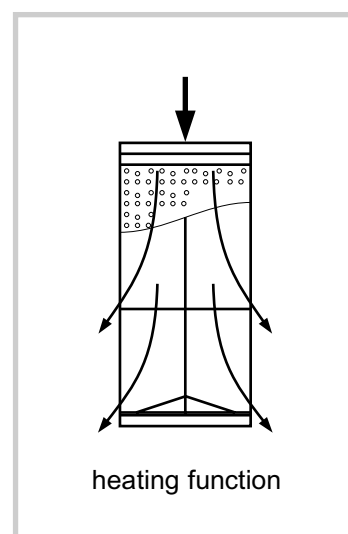
AIR FLOW CHARACTERISTICS IN FUNCTION OF INTERNAL RINGS POSITION



Movable rings lift up

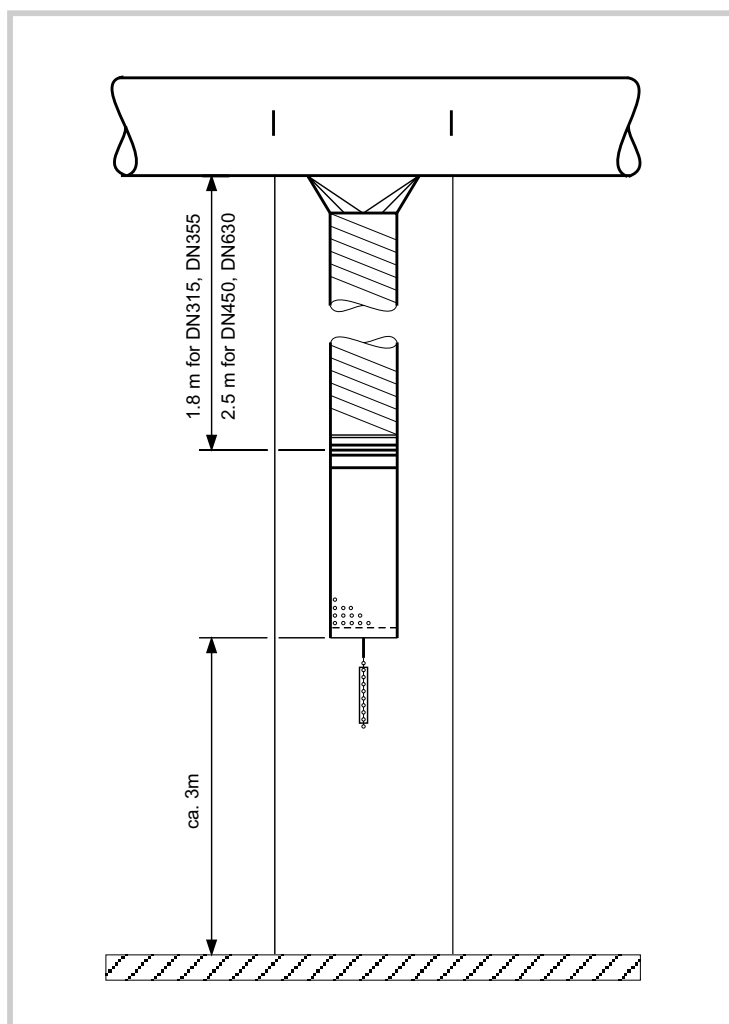


Movable rings in the middle position

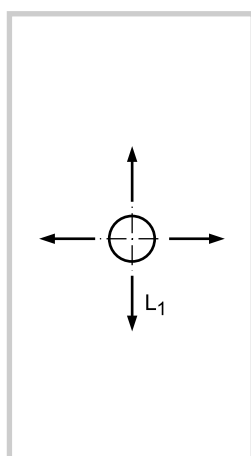


Movable rings dropped down

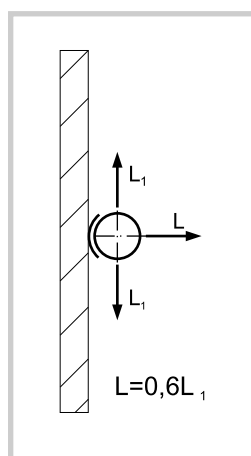
To ensure optimal diffuser operation, installation of straight piece of duct (before diffuser) is recommended. Straight duct should have 1.8 m length for DN315, DN355 and 2.5 m length for DN450, DN630.



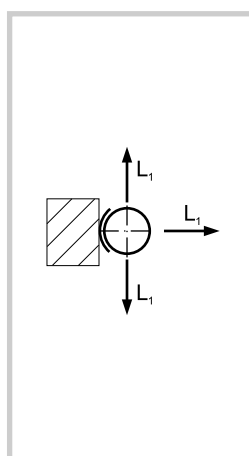
INSTALLATION ALTERNATIVES FOR DIFFUSER WO-Z



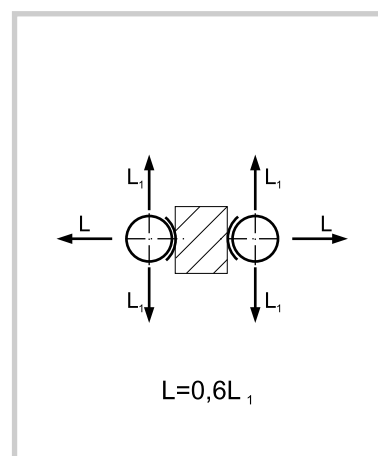
freely standing



at the wall

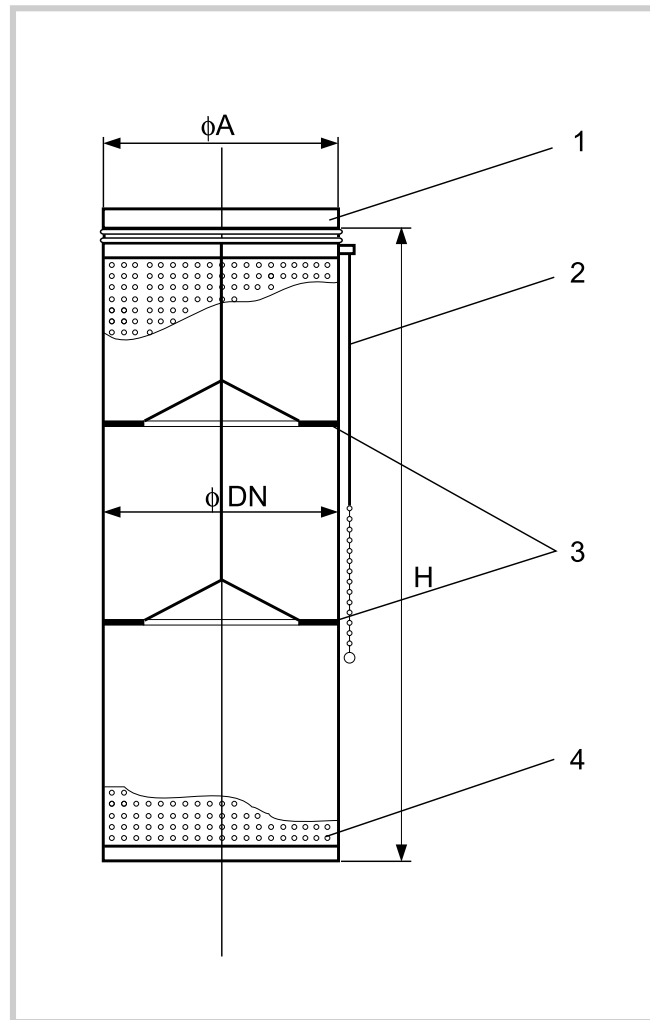


at the post



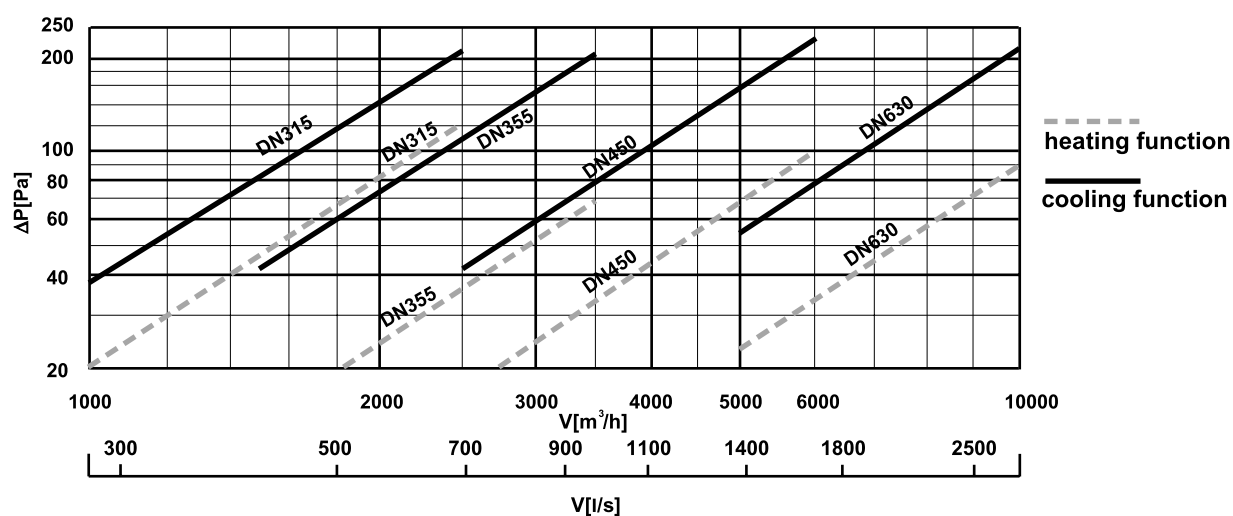
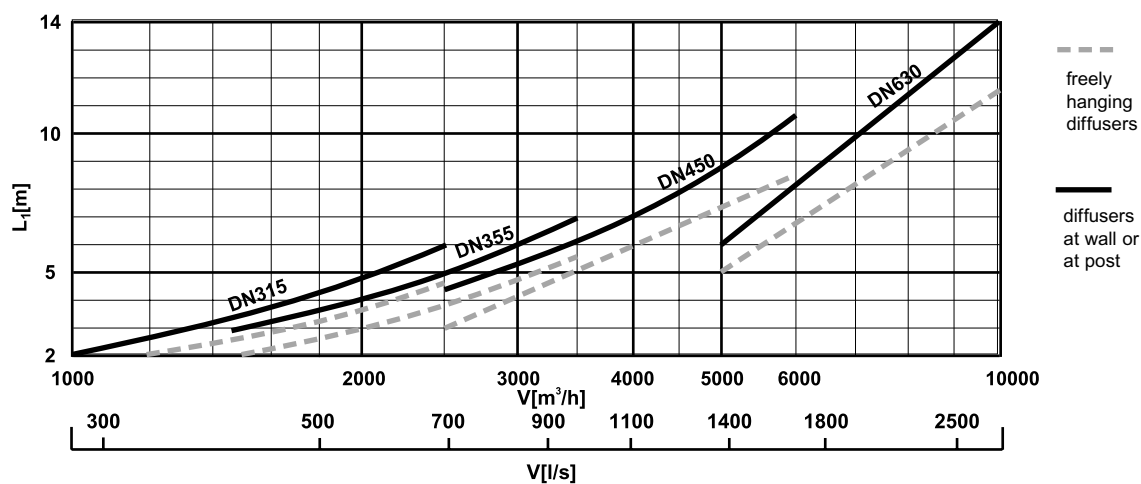
two diffusers
at the post

DIFFUSER CONSTRUCTION



- 1 – connection duct
- 2 – regulating string
- 3 – movable internal rings
- 4 – perforated casing

Nominal diameter	Air flow		ϕA	H
DN [mm]	V[m ³ /h]	V[l/s]	[mm]	
315	1000÷2500	277÷695	313	755
355	1500÷3500	416÷972	353	1055
450	2500÷6000	694÷1666	448	1055
630	5000÷10000	1388÷2777	628	1055



SOUND POWER LEVEL L_{WA} [dB]

Nominal diameter	Air flow	Air flow	Sound power level
DN [mm]	V [m³/h]	V [l/s]	L_{WA} [dB]
315	1000	277	50
	2000	555	62
	2500	694	67
355	1500	416	45
	2500	694	57
	3500	972	66
450	2500	694	56
	3000	1111	64
	6000	1666	73
630	5000	1388	47
	7000	1944	53
	10000	2777	58

DEFINITIONS

V	- air volume	(m ³ /h), (l/s)
ΔP	- pressure drop	(Pa)
Q	- heat load	(W/m ²)
S	- minimal distance from permanent workplace	(m)
L ₁	- length of air flow corresponding 0,2 m/s final velocity	(m)
L _{WA}	- sound power level	(dB)

BUILDING PHOTOS FROM REFERENCE LIST

ELDRUK Printing Office in Warsaw



ORDERING KEY

Technical data:

Circular displacement diffuser WO

Z - DN - H - W - M - A

Type:

standing - S

hanging - Z

Nominal diameter
(315, 355, 450, 630)

Diffuser height

S-1100, 1400

Z-755, 1055

Freely standing - W

At the wall - P

Equipment

Manual regulation - M

Without - O

Optional

Additional swirl nozzles in the lower part of diffuser - A

Fläkt Bøvent company reserves the right to make technical changes without prior notice.



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