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GENERAL

Diffusers of series S are linear diffusers with a number of slot outlets. They are usually used in ventilation systems for air supply, but they may also be used for return air applications. Series S diffusers provide a flat air jet, which combined with their morphology, make them appropriate for cases where long diffuser systems with controlled air supply and throw direction at individual parts are required. The flat air jet resulting from their outlets is ideal for counterbalancing, i.e. jet streams descending in front of glass walls.

Series S linear diffusers are mounted either on ceilings, resulting in a flat vertical jet, or on walls, resulting in a horizontal flat air jet. They may also be mounted on inclined surfaces. The air jet principal direction and spread may be easily manipulated even after mounting, without affecting the noise level or the diffuser's pressure requirements. The use of S type linear diffusers with more than one series of slots may result in the formation of a non-flat air jet, depending on the positioning of the guiding cylinders they are equipped with, as shown below.

They are manufactured in any size and a variety of types, such as cornered types. The diffuser width varies with the series of slots that are between 1 and 4 but may be more as well.

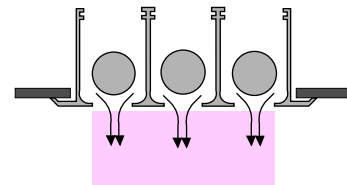
Anodized aluminum profile of 12 µm anodic depth is used for their construction providing long life. Alternatively, electrostatic painting in a variety of colors is available (RAL).

Air throw types

Guiding cylindrical blade positioning

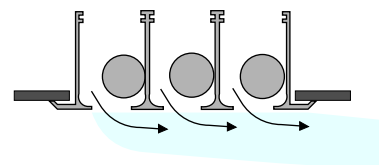
Position 1.

The air throw direction is vertical to the diffuser face resulting in a flat air jet. In this way the resulting vertical throw is maximum. This position is used in heating applications when the throw should be as large as possible for the hot air to reach the lower room space with a uniform temperature distribution.



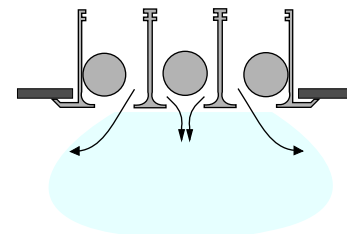
Position 2.

The air throw direction is parallel to the ceiling and the resulting flat jet is in contact with it. This position is used for ceiling mounted diffusers and for cooling applications.



Position 3.

The air throw direction is vertical as in Position 1 but with an air jet of larger spread and smaller throw.

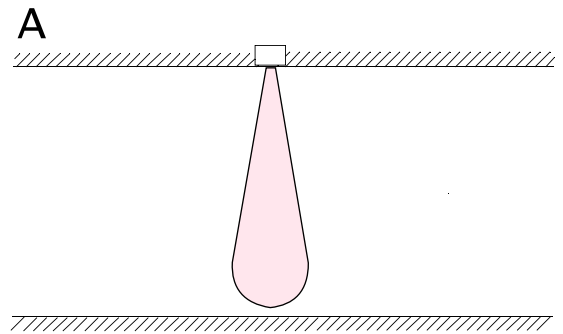


Evidently, depending on the positioning of the guiding cylinders, the resulting air jet can be something in between the jets described in the above situations.

Space cover

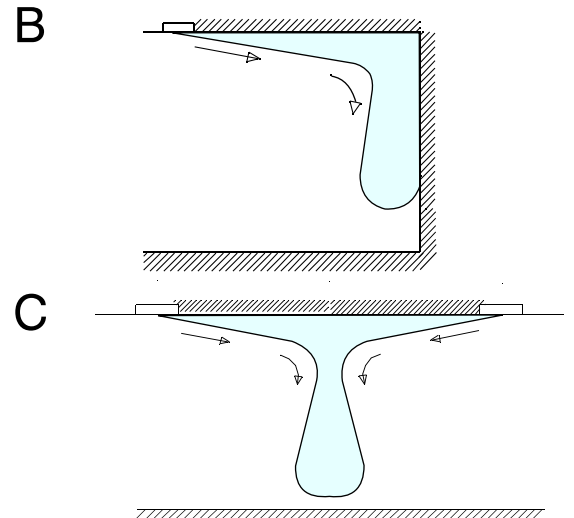
Vertical air throw Throw type A

This is the most usual type of air throw in heating applications. Position 1 should be used. By modifying the position of the guiding cylinders an air jet direction may result, having up to 80° angle with the vertical. When this angle exceeds 60° due to ceiling effects the air jet attaches to the ceiling.

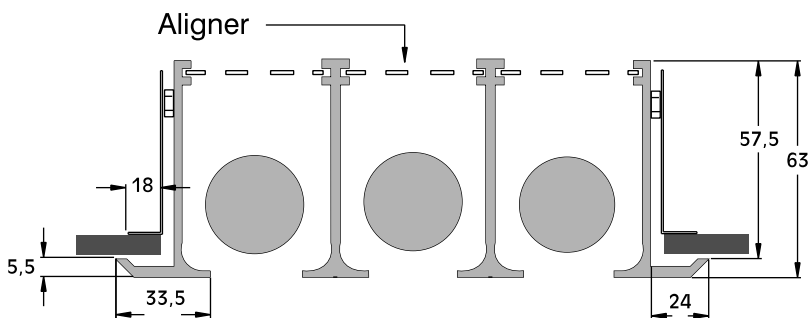
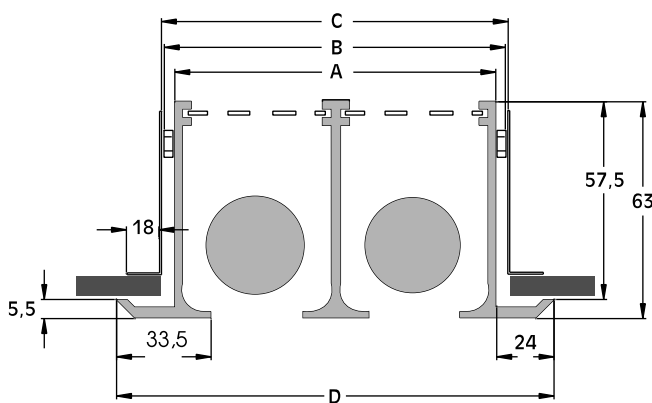
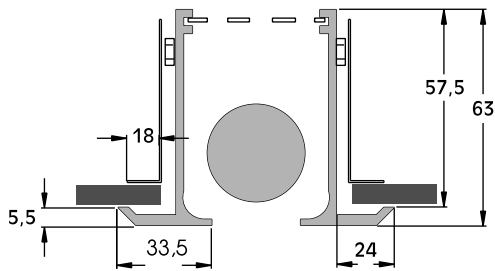


Indirect air throw Throw types B & C

The throw types can be seen in the adjacent figure. The air reaches the people moving area either by impinging on another air jet created by an opposing diffuser, or on a side wall. These types are employed in cooling applications when the direct cold air supply to the people moving area should be avoided. Both types may be achieved using Position 2.

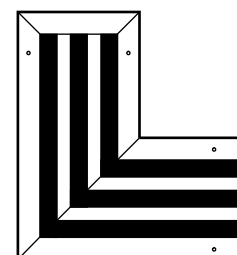


Dimensions



	A	B	C	D
1 BLADE	40	44	50	88
2 BLADES	79	83	90	127
3 BLADES	117	121	130	165
4 BLADES	156	160	165	204
5 BLADES	193,5	198	205	241

Front view



Selection examples

For the series S diffuser selection the diagrams of the following pages are used, depending on the diffuser type.

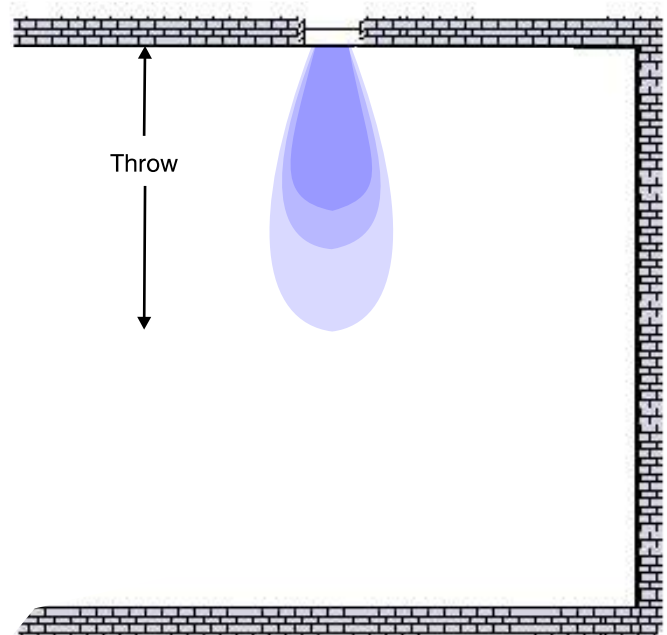
Selection example.

For a space to be properly ventilated 2500 m³/h of air are required. The space has a height of 3,5 m. The acceptable noise level is 30 dBA and the selected diffusers are series S, mounted on the ceiling and along the outer glazing of a space 5 meters long. For aesthetic reasons another series of 5 meters long diffusers are mounted of the opposite side of the glazing.

Heating application.

For a uniform air distribution the air supply should be 250 m³/h per diffuser meter. From the corresponding diagrams for up to 30 dBA noise level, the slot diffuser should have 2 or more slots.

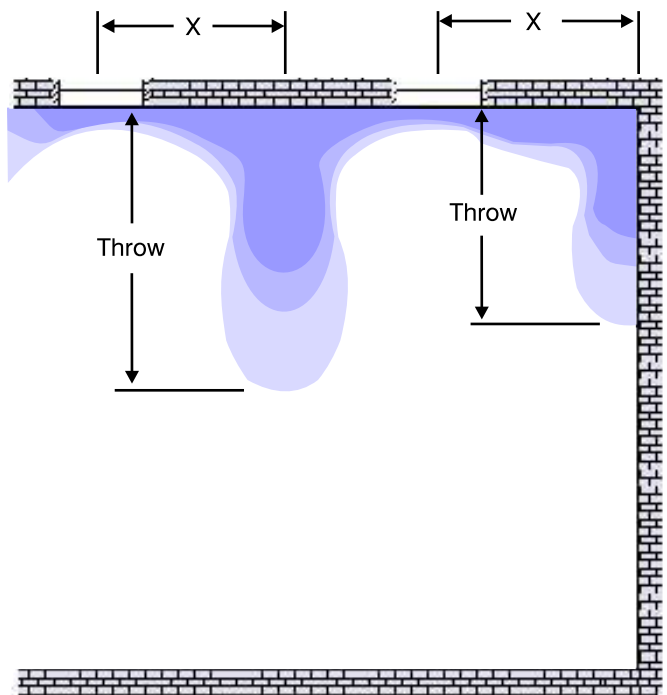
The hot air should be entering the people moving area 1,8 m from the floor- that is 1,7 m from the ceiling. From the non-isothermal air jet diagram of the SLOT 2 diffuser in vertical air projection for 250³/h per meter and for ΔT = 20°C, we get a throw of 1,9 m (for terminal velocity 0,1 m/s). Thus, the SLOT 2 diffuser may be used to cover the previous need. For room temperature 25°C, the supply air temperature may rise up to 45°C. The pressure requirements are calculated to be 12 Pa.



Cooling application.

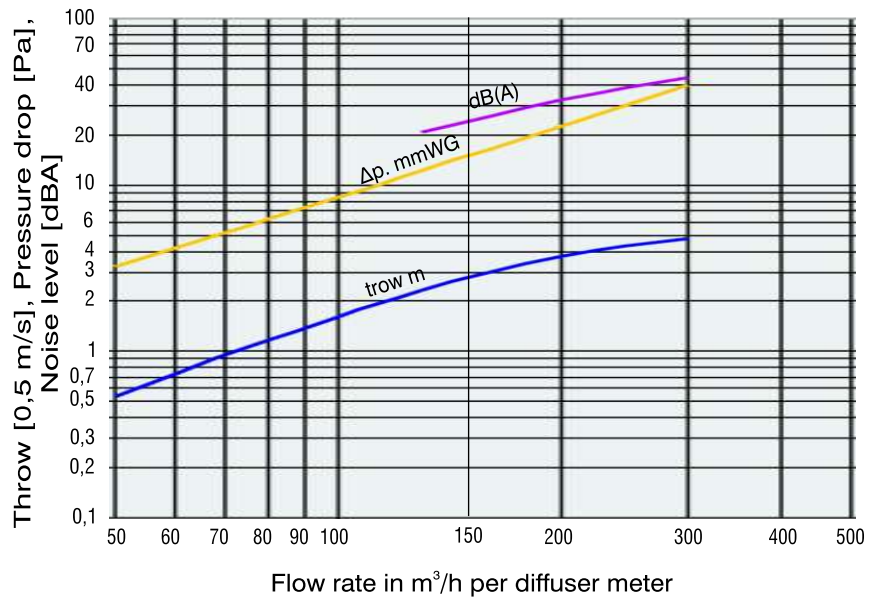
During the summer period we should make sure that no direct cool air streams enter the people moving area. Thus, throw type C should be used, i.e. impingement of facing air jets.

For diffuser selection the Breezmaster v1.2 software may be used.

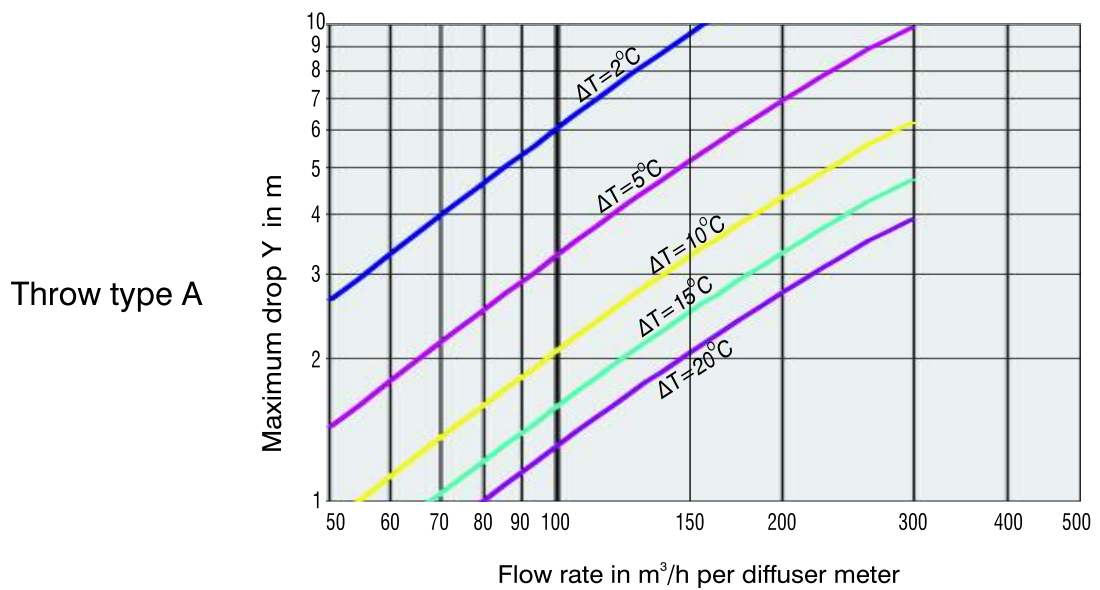


The diagrams correspond situations when the diffuser is not couple with an aligner. In case an aligner is used, the noise level is 5 dBA larger and the pressure requirement should be multiplied by 1,05. In case series S diffusers are used in return air applications, the value estimated from the adjacent diagram should be reduced by 9 dBA.

Horizontal isothermal air throw for wall mounting, pressure drop, noise level in air supply diffusers.

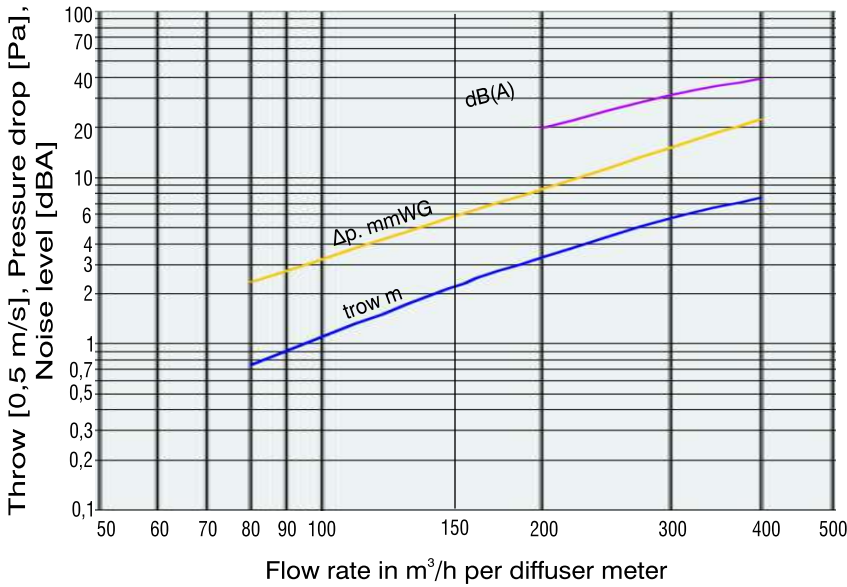


Anisothermal jet drop in vertical air supply

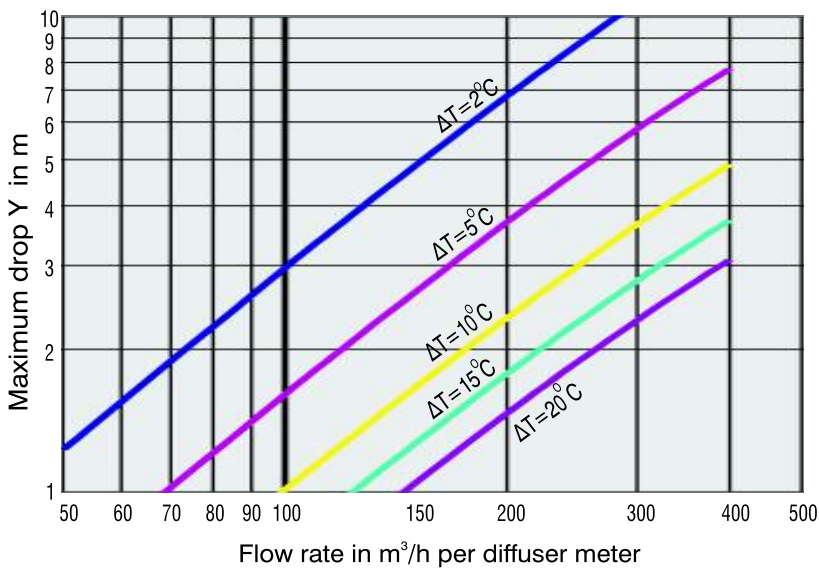


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Horizontal isothermal air throw for wall mounting, pressure drop, noise level in air supply diffusers.

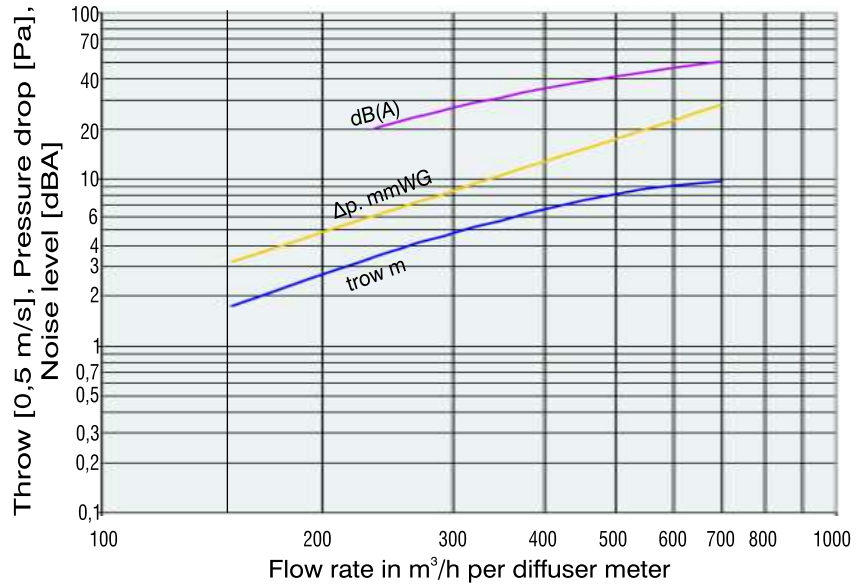


Anisothermal jet drop in vertical air supply



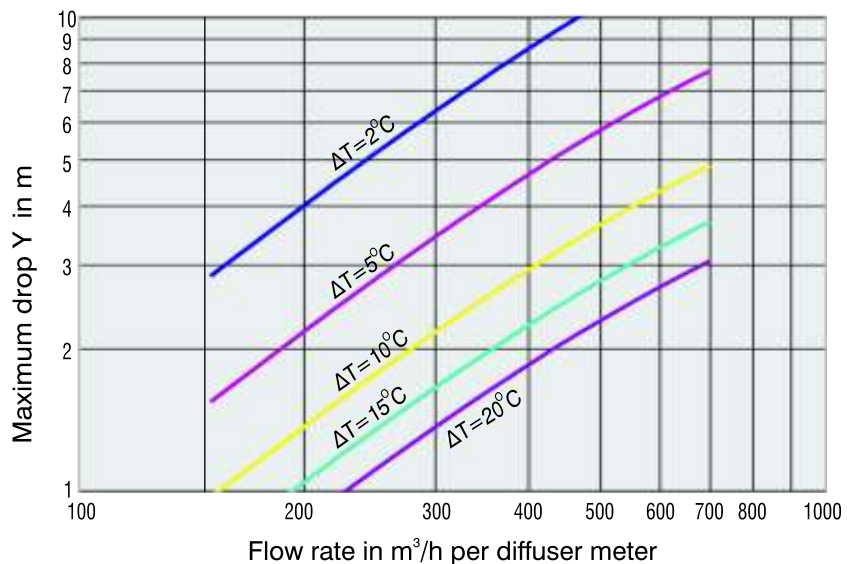
Throw type A

Horizontal isothermal air throw for wall mounting, pressure drop, noise level in air supply diffusers.

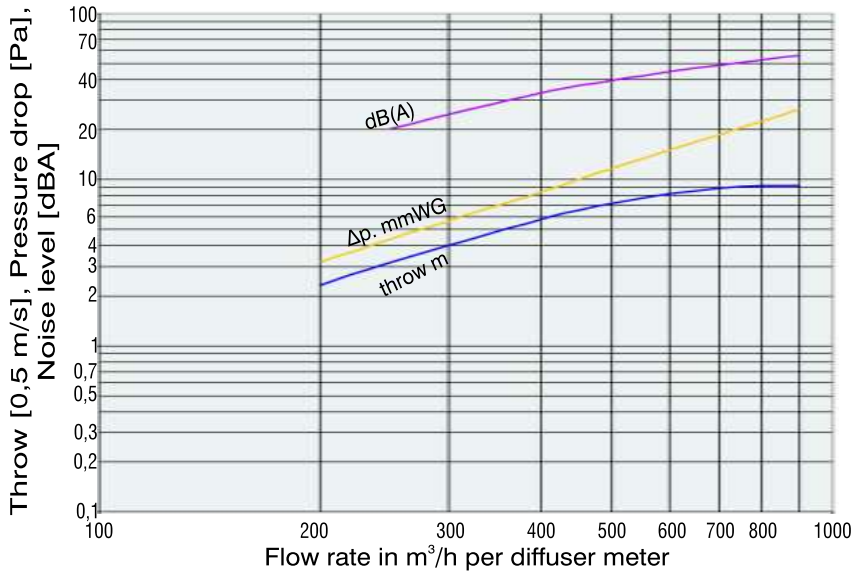


Anisothermal jet drop in vertical air supply

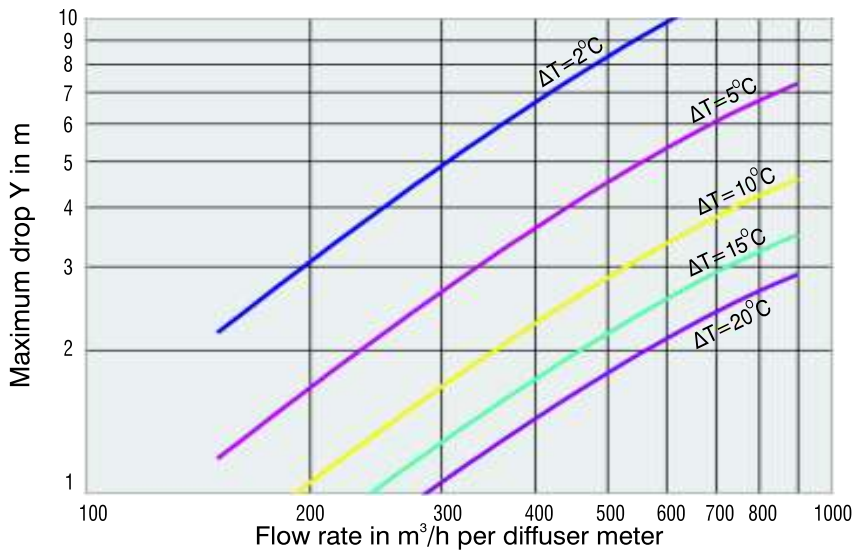
Throw type A



Horizontal isothermal air throw for wall mounting, pressure drop, noise level in air supply diffusers.



Anisothermal jet drop in vertical air supply

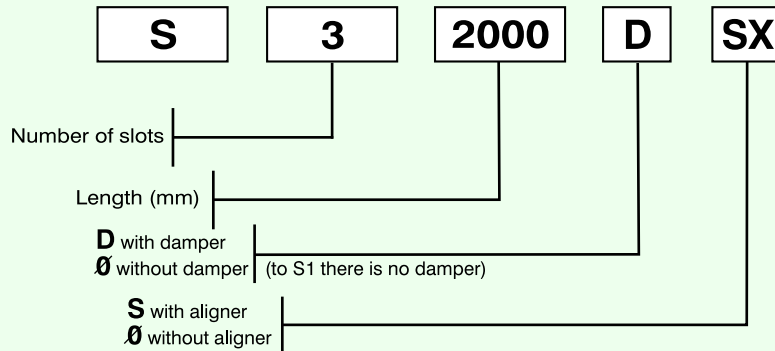


Throw type A

Order guidelines/technical description

ORDER GUIDELINES

A series of numbers and letters is used to order S series diffusers. The characteristics of the air grille are defined according to the following code:



Technical description

Slot type diffusers, providing flat air jet, equipped with easily adjustable guiding cylindrical blades. Air direction can be manipulated manually without diffuser unmounting. Pressure requirements and noise level do not differ substantially when positioning the blades. Optional coupling with aligner.

Frame and blades both made out of anodized aluminum, 12 µm thick, electrostatically painted (optional, RAL.....). Their operational characteristics should be :

SUPPLY AIR

Air supply : [m³/h per diffuser meter]

Pressure drop (total) : [Pa]

Air throw : [m] (for temperature difference of ...K)

Distance between diffusers or between wall and diffuser : ... [m] (for 0,5 m drop from the ceiling, type C throw, 0,5 m/s final jet velocity)

Noise level :.... [dBA]

RETURN AIR

Air supply : [m³/h per diffuser meter]

Pressure drop (total) :..... [Pa]

Noise level : [dBA]