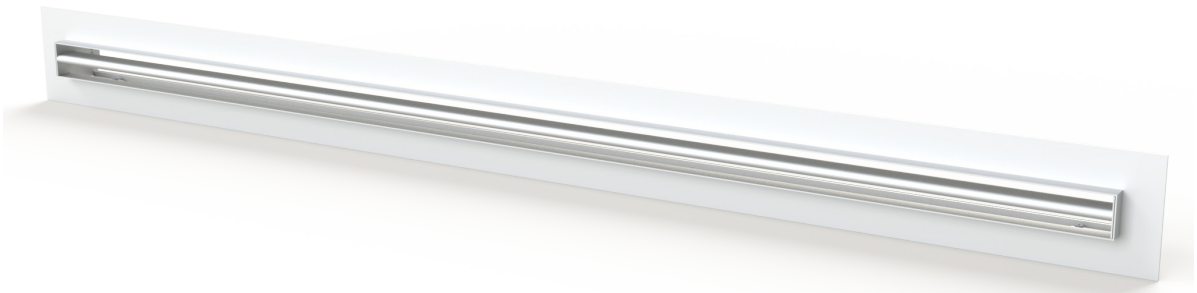
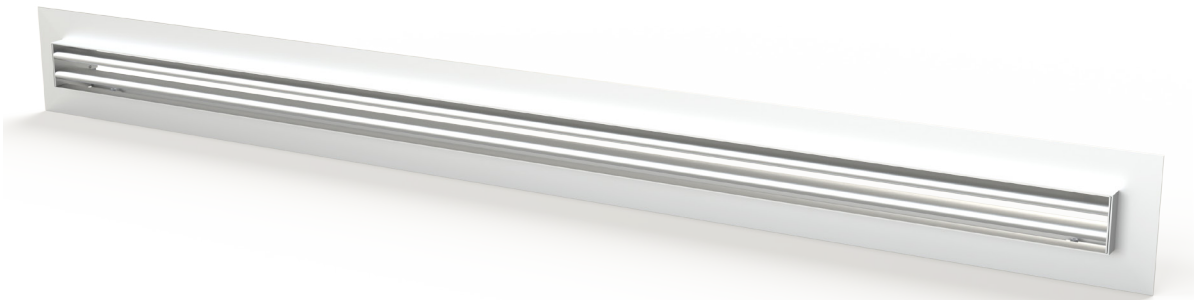
OFFICINE VOLTA
L'INNOVAZIONE È NELL'ARIA

## LINEAR DIFFUSERS

# BF.DRY





### CONSTRUCTION FEATURES:

The single slot linear diffusers with concealed perimeter frame of the BF.DRY series are generally installed in spaces with a height of between 2.7 and 4.0 m and with ventilation systems operating within ± 10 K temperature differential between internal and supplied air. The most frequently used type of installation is flush with plasterboard, with ceiling installation (vertical throw) and on the wall (horizontal throw). In the wall installation, if the distance between the upper edge of the diffuser and the ceiling is less than 200 mm, a Coanda effect is obtained; otherwise, a free throw is achieved. The concealed perimeter frame, designed to facilitate positioning on plasterboard, makes the BF.DRY series highly appreciated by designers who find in it not only functionality but also furnishing motifs. They can be used for both supply and return and in systems with variable air flow rates in the range 50…100%. In the special execution, they can be mounted one after the other to make continuous lines which, with the use of particular inactive corner pieces, are able to follow the ideal line of the perimeter of the room.

## FIXING

Based on plenum box choice.

## MATERIALS

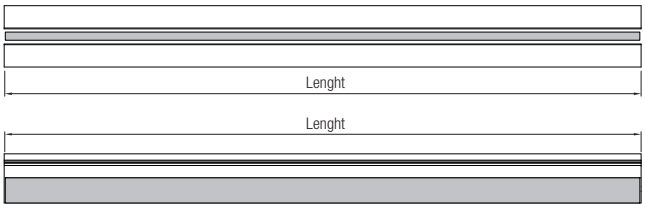
Perimeter frame, inverted T profiles, end caps, spacers and flow deviating blades in extruded aluminum painted in white, RAL 9016 or black, RAL 9005; raw or anodized aluminium on request.

Equalising stretched sheet and slinding damper in galvanized steel.

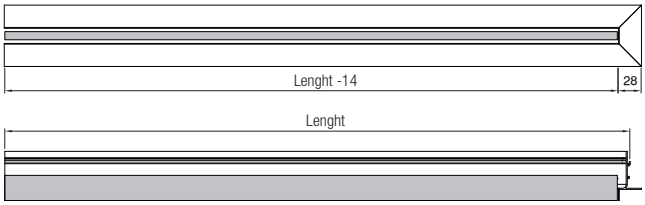
Plenum box in galvanized sheet steel; possible external insulation in polyethylene foam (fire reaction Euroclass, according to UNI EN 13501-1:2009, B-s2, d0).

## DIMENSIONS - customized lenght on request

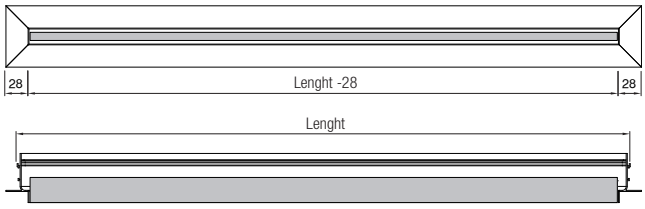
BF.DRY.1.NT




BF.DRY.1.T1

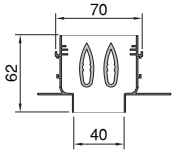



BF.DRY.1.T2

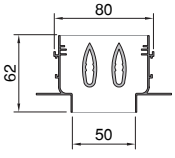



| n° of slots | lenght | n° of inlets | Ø inlet |
|---|---|---|---|
| | *mm* | | *mm* |
| 1 BF.DRY.1 | 1000 | 1 | 125 |
| | 1500 | 2 | |
| | 2000 | 3 | |
| | 2500 | 3 | |
| | 3000 | 4 | |
| 2 BF.DRY.40 BF.DRY.50 | 1000 | 1 | 150 |
| | 1500 | 2 | |
| | 2000 | 3 | |
| | 2500 | 3 | |
| | 3000 | 4 | |
| 3 BF.DRY.70 | 1000 | 1 | 180 |
| | 1500 | 2 | |
| | 2000 | 3 | |
| | 2500 | 3 | |
| | 3000 | 4 | |

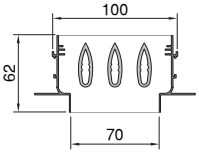
BF.DRY.40.A



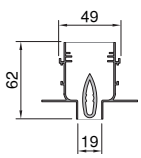

BF.DRY.50.A



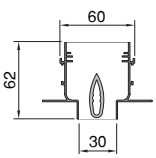

BF.DRY.70.A



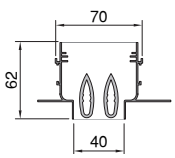

BF.DRY.1.B



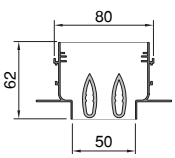

BF.DRY.30.B



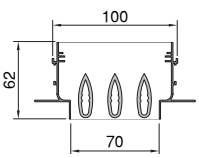

BF.DRY.40.B



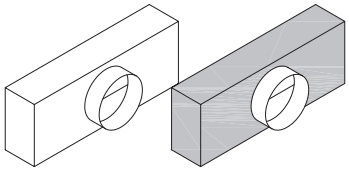

BF.DRY.50.B




BF.DRY.70.B

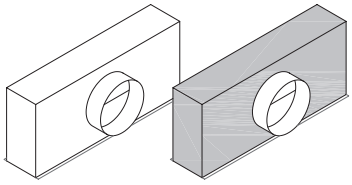


ACCESSORIIES



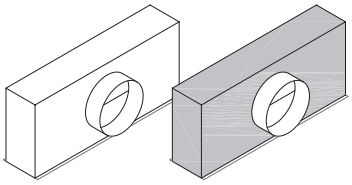
## PL.BF and PL.BF.ISO

Plenum box, with or without external insulation, with lateral circular inlet, riveted in the factory to the diffuser.



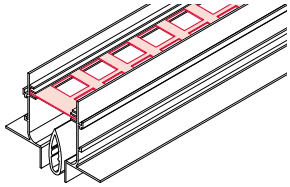
## PL.BF.PE and PL.BF.PE.ISO

Plenum box, with or without external insulation, with lateral circular inlet and external perimeter flange with internal support brackets for diffuser installation.



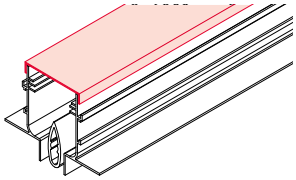
## PL.BF.PC and PL.BF.PC.ISO

Plenum box, with or without external insulation, with lateral circular inlet and external perimeter flange with fixed and sliding u-brackets for diffuser installation.



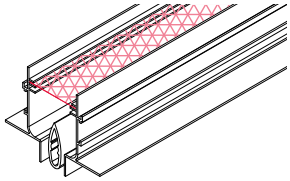
## SER.BF

Sliding regulation damper, handling from the front of the diffuser.



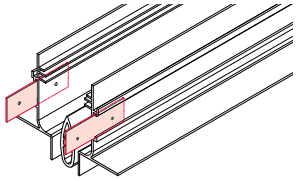
## TEG.BF

Closing plate for the air passage, suitable for making part of the diffuser inactive.



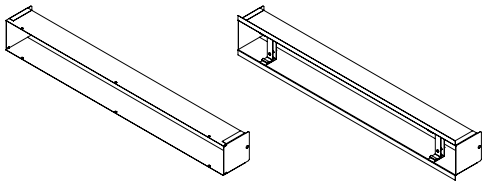
## LE.BF

Equalising stretched sheet steel fitted on the back of the diffuser.



## PG.BF

Steel junction plate for diffusers alignment.

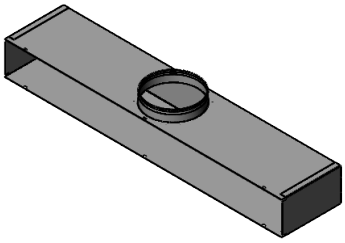


## CM.BF

Open end frame, riveted or screwed to the diffuser.

## PLENUM

### PL.BF / PL.BF.ISO

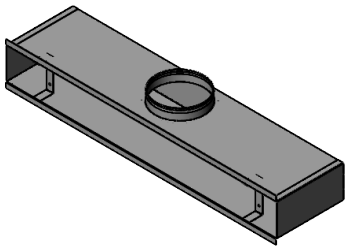


Galvanized steel plenum box

- riveted to the diffuser.
- standard inlet or with built-in damper on request.
- eyebolts for fixing.

PL.BF.ISO: external insulated version with CE marked polyethylene foam (Euroclass of reaction to fire, according to UNI EN 13501-1:2009, B-s2, d0).
Note that the insulation layer provides +6mm thickness on each covered side.

### PL.BF.PE / PL.BF.PE.ISO

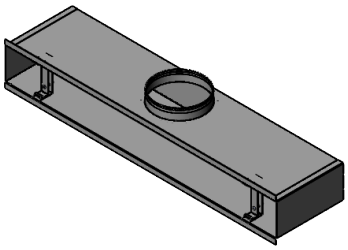


Galvanized steel plenum box

- diffuser to be installed on site.
- standard inlet or with built-in damper on request.
- outer perimeter flange (including inner support brackets for the diffuser frontal installation).
- eyebolts for fixing.

PL.BF.PE.ISO: external insulated version with CE marked polyethylene foam (Euroclass of reaction to fire, according to UNI EN 13501-1:2009, B-s2, d0).
Note that the insulation layer provides +6mm thickness on each covered side.

### PL.BF.PC / PL.BF.PC.ISO



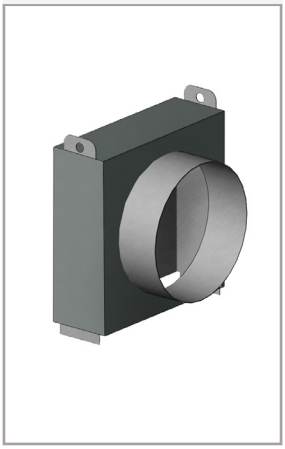
Galvanized steel plenum box

- diffuser to be installed on site.
- standard inlet or with built-in damper on request.
- outer perimeter flange (including u-brackets for the diffuser frontal installation).
- eyebolts for fixing.

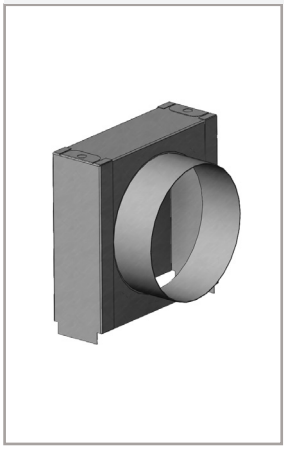
PL.BF.PC.ISO: external insulated version with CE marked polyethylene foam (Euroclass of reaction to fire, according to UNI EN 13501-1:2009, B-s2, d0).
Note that the insulation layer provides +6mm thickness on each covered side.

## PARTS IN DETAIL

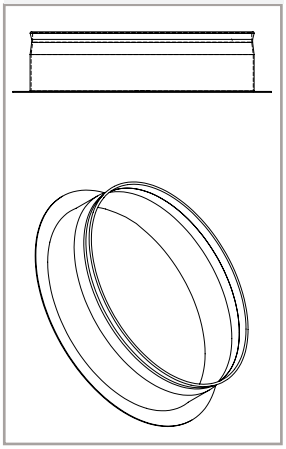
Straight eyebolts for fixing in a PL.ISO (insulated)



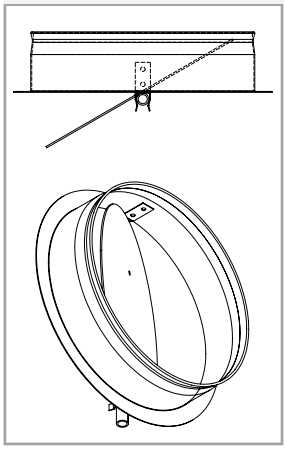
Folded eyebolts for fixing in a PL. (non insulated)



Standard inlet



Inlet with built-in damper

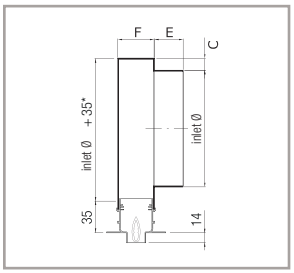


DIMENSIONS

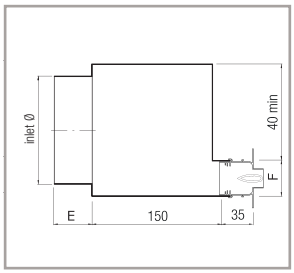
| N° of slots | Inlet Ø | F | F1 | C | E |
|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm |
| 1 - BF.DRY.1 | 125 | 44 | 55 | 15 | 40 |
| 1 - BF.DRY.30 | 150 | 55 | 66 | 15 | 40 |
| 2 - BF.DRY.40 | 150 | 65 | 76 | 15 | 40 |
| 2 - BF.DRY.50 | 150 | 75 | 86 | 15 | 40 |
| 3 - BF.DRY.70 | 180 | 85 | 106 | 15 | 40 |

POSSIBILE SHAPES FOR PLENUM PL.BF / PL.BF.ISO

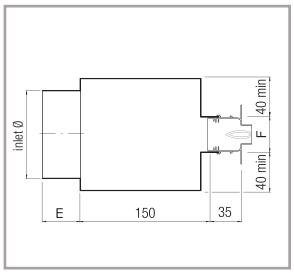
Standard



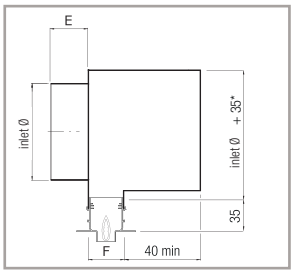

A-shaped - rear inlet




B-shaped - rear inlet



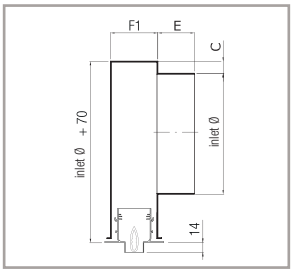

A-shaped - side inlet



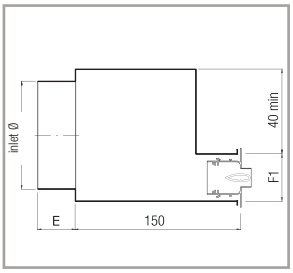

*Ø + 50 with inlet with built-in damper

POSSIBILE SHAPES FOR PLENUM PL.BF.PC / PL.BF.PC.ISO / PL.BF.PE / PL.BF.PE.ISO

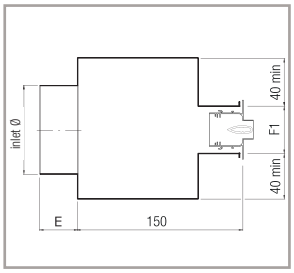
Standard



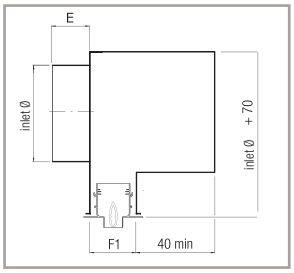

A-shaped - rear inlet




B-shaped - rear inlet



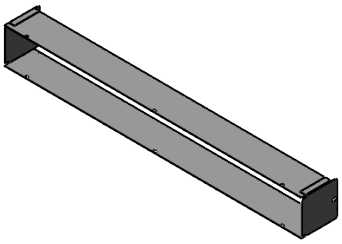

A-shaped - side inlet




The air flow damper is not the same product (SER.BF) mentioned in the accessories page. SER.BF is located in the diffuser.

## FRAMES

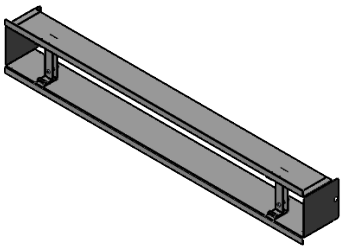
CM.BF



Galvanized steel frame

- riveted to the diffuser.
- eyebolts for fixing.

CM.BF.PC



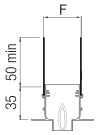
Galvanized steel frame

- diffuser to be installed on site.
- outer perimeter flange (including u-brackets for the diffuser frontal installation).
- eyebolts for fixing.

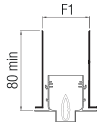
## DIMENSIONS

| N° of slots | F | F1 |
|---|---|---|
| | mm | mm |
| 1 - BF.DRY.1 | 44 | 55 |
| 2 - BF.DRY.40 | 65 | 76 |
| 2 - BF.DRY.50 | 75 | 86 |
| 3 - BF.DRY.70 | 95 | 106 |

CM.BF




CM.BF.PC

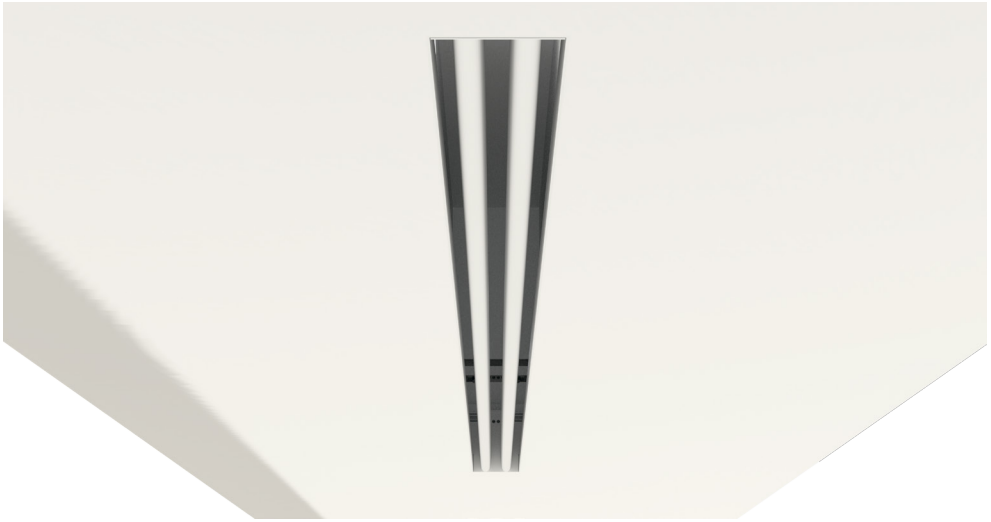


PL.BF INSTALLATION

**Riveted PL.BF on the diffuser**

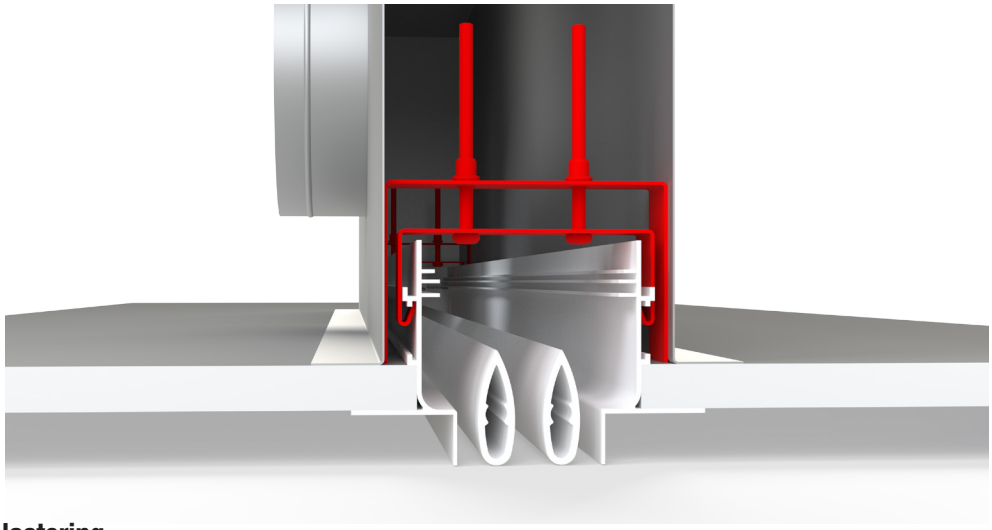
**Before plastering**

**After plastering - Final risult**

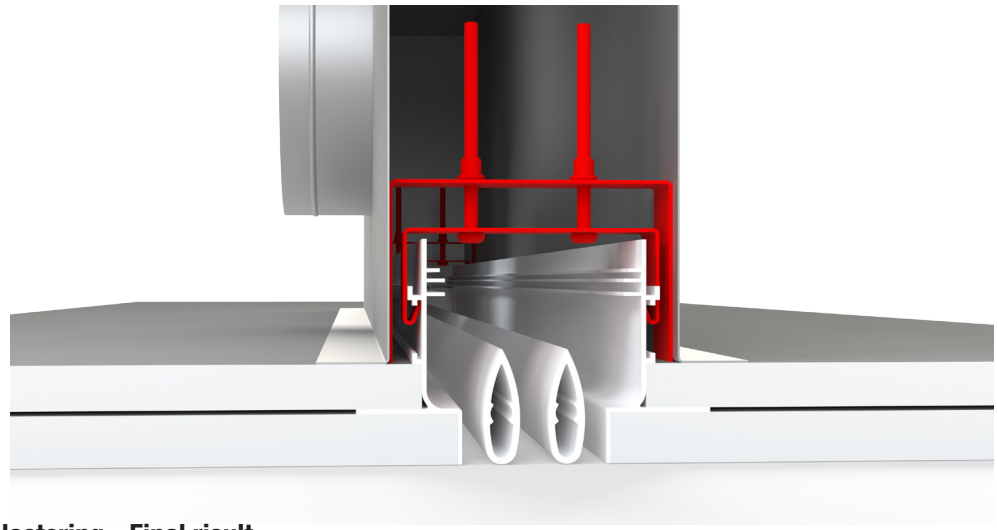


PL.BF.PC INSTALLATION

**Plenum PL.BF.PC on plasterboard**



**Before plastering**



**After plastering - Final risult**

## TECHNICAL DATA

Quick selection table

| type | L | Qmin | | Qmax | | $L_{WA}$min | $L_{WA}$max | Δpmin | Δpmax |
|---|---|---|---|---|---|---|---|---|---|
| | mm | l/s | $m^3/h$ | l/s | m3/h | dB(A) | dB(A) | Pa | Pa |
| BF.DRY.1 | 1.000 | 11,7 | 42 | 50 | 180 | <20 | 45 | 5 | 78 |
| BF.DRY.30 | 1.000 | 31 | 110 | 111 | 400 | <20 | 46 | <5 | 25 |
| BF.DRY.40 | 1.000 | 36 | 130 | 125 | 450 | <20 | 46 | <5 | 25 |
| BF.DRY.50 | 1.000 | 56 | 200 | 194 | 700 | <20 | 49 | <5 | 30 |
| BF.DRY.70 | 1.000 | 92 | 330 | 264 | 950 | <20 | 48 | <5 | 30 |

Note: the indicated pressure drops also take into account the plenum box

Q air flow rate per diffuser per linear metre

$L_{WA}$ A-weighted sound power level, correction in compliance with UNI EN ISO 3741

Δp static pressure drop

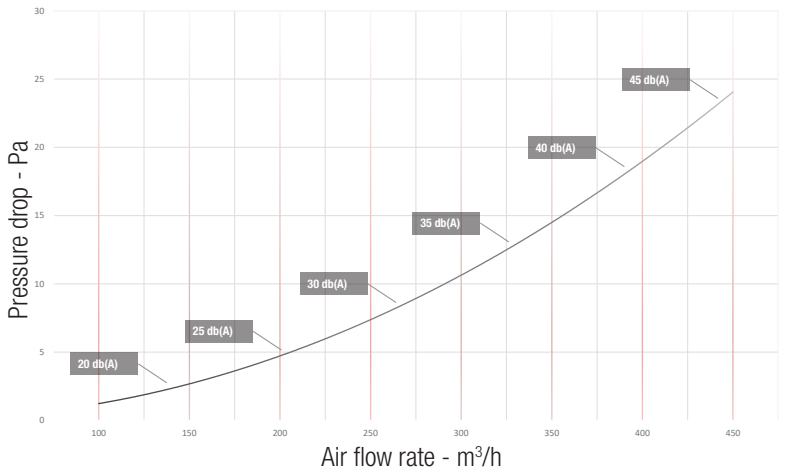
Free area of passage

$A_{eff}$ in $m^2$ per L = 1000mm

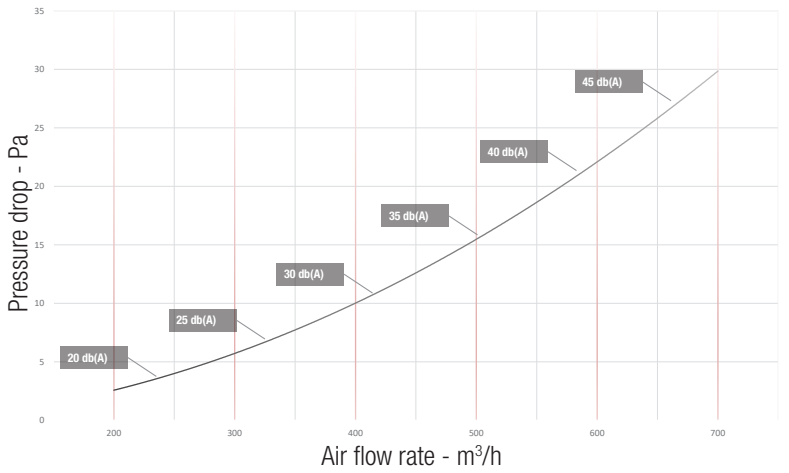
| type | Throw from ceiling | | |
|---|---|---|---|
| | horizontal | oblique | vertical |
| BF.DRY.1 | 0,007 | - | 0,007 |
| BF.DRY.30 | 0,023 | - | 0,023 |
| BF.DRY.40 | 0,024 | - | 0,024 |
| BF.DRY.50 | 0,032 | - | 0,032 |
| BF.DRY.70 | 0,052 | - | 0,052 |

THE THROW IS ONLY HORIZONTAL FROM THE WALL OR VERTICAL FROM THE CEILING.

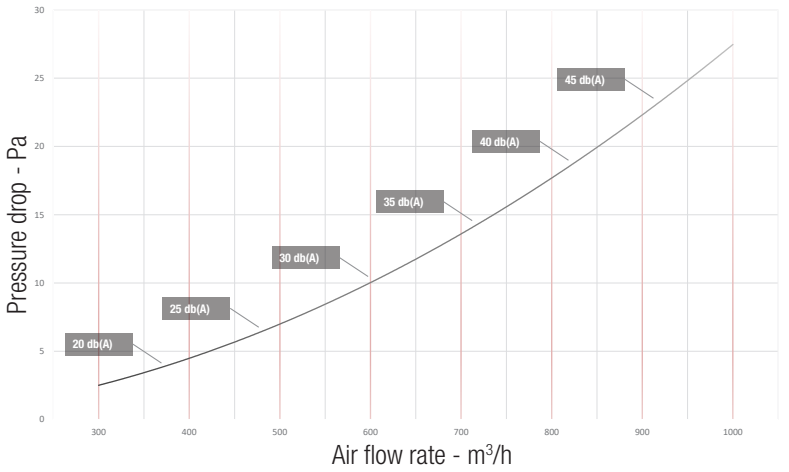
AEREAULIC DATA - Pressure drop - Sound power level
BF.DRY.30 - BF.DRY.40




BF.DRY.50



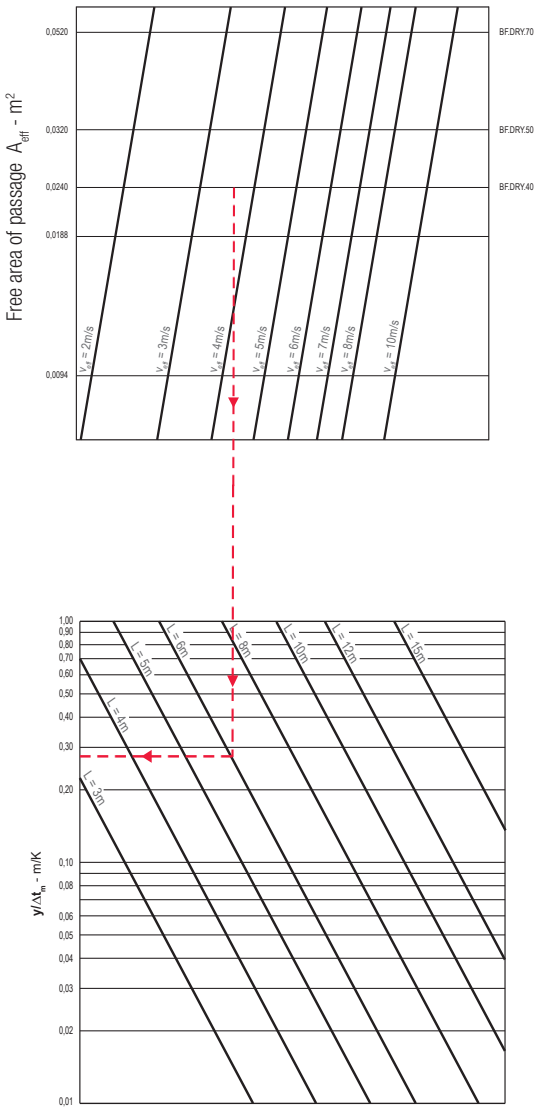

BF.DRY.70



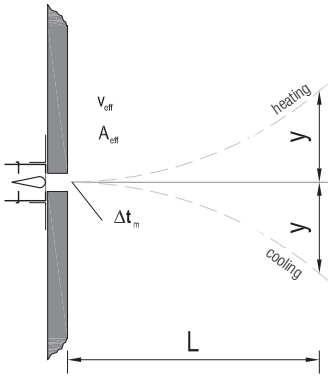

Static pressure drops related to diffusers complete with plenum in standard execution

## DATI AERAULICI - Throw from wall - Throw deviation

Throw deviation related to Δt




Type of throw




Example of selection

**Data:**

BF.DRY.40 diffuser; air flow= 654 $m^3/h$;
lenght = 2150 mm; Δt = - 8 K
Find the throw deviation at the distance = 6m

**Solution:**

- Air flow (linear meter) =654/2,15 = **304,19 $m^3/h$**
- $v_{eff} = Q/A_{eff}$ =
  = 304,19/(0,024 x 3600) = **3,52 m/s**
- y/Dtm = 0,285
  y = 0,285 x 8 = **2,12 m**