Description

Supply grille with horizontal bars pitch 12,5 mm. Available both in anodised (LPB 10) and white (LPBW 10) version, it is installed in the wall or under window. The bars pack is fixed to the frame through clips, therefore it is easily removable. Fixing is done through lateral pressure springs.

Construction

Anodised aluminium (LPB 10), painted natural aluminium (LPBW 10).

Finish

Anodised aluminium (LPB 10), gloss white RAL 9010, powder-coated polyesther type (LPBW 10).

Other versions

LPB 15 : asymmetric bars, jet deflection 15°
LPB 20 : with back vertical blades row.
LPB 00 : only bars pack (without frame).
LPB☐☐SP : with door L = 130 mm
LVB ☐☐ : fixing through visible frontal screws.

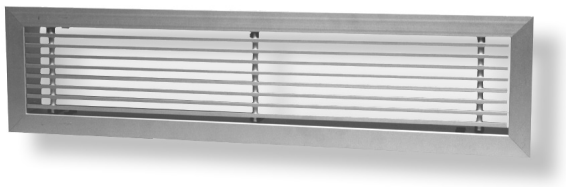
Accessories

CB1: Regulation damper.
PLSR:standard plenum with oval inlet*.
PLSSR: as PLSR, with damper on inlet.
PLIR: isolated plenum** with oval inlet*.
PLISR: as PLIR, with damper on inlet.
PL-PE: plenum with circular inlet.
PLI-PE: isolated plenum** with circular inlet.
CTP : Counterframe for LPB.
CT : Counterframe for LVB.
** rear - ** polyurethane internal insulation depth 6 mm, cl.1*

BxH (mm)	q_v* (m³/h)
200x75	50-100
300x75	50-150
400x75	100-200
500x75	100-250
600x75	100-300
800x75	250-500
1000x75	300-600
200x100	50-150
300x100	100-200
400x100	150-300
500x100	150-350
600x100	250-500
800x100	300-650
1000x100	400-800
300x125	100-250
400x125	200-400
500x125	250-550

BxH (mm)	q_v* (m³/h)
600x125	300-650
800x125	400-900
1000x125	600-1200
400x150	250-500
500x150	300-650
600x150	400-800
800x150	500-1000
1000x150	600-1300
400x200	300-700
500x200	400-900
600x200	500-1000
800x200	600-1200
1000x200	800-1600
500x300	600-1300
600x300	700-1400
800x300	900-1800
1000x300	1000-2200

*** NR ≤ 35, ΔP ≤ 25 Pa**

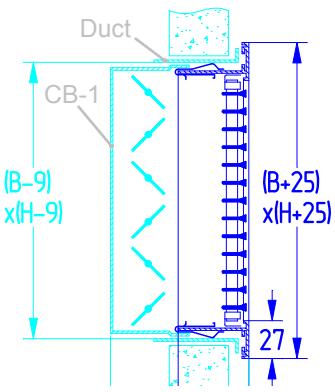


Dimensions

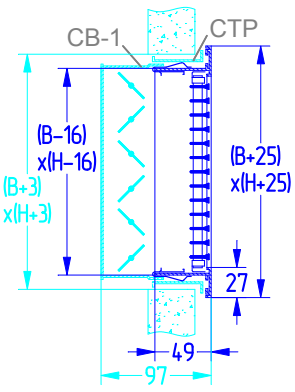
B (mm): 200 - 1000
H (mm): 75 - 300 (multipli di 25)

Specifications

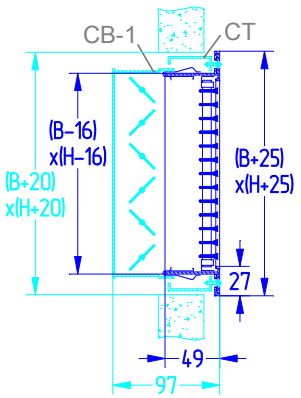
Supply grille with removable horizontal bars pitch 12,5 mm. Anodised aluminium (LPB 10) or white RAL 9010 (LPBW 10) painted natural aluminium construction. Fixing through pressure springs.

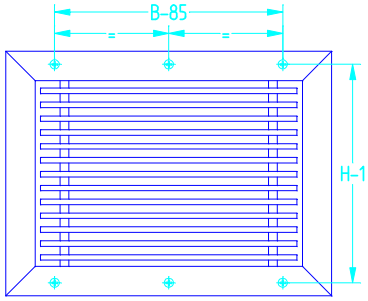


LPB 10



LPB 10





Fixing screw holes on long side
Third hole only if B>600

LVB 10

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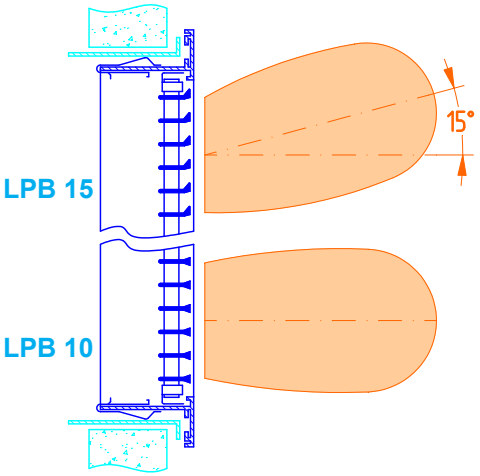
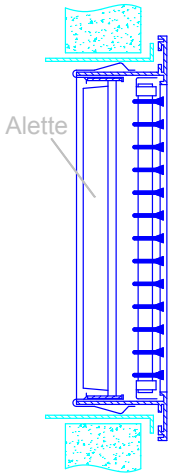
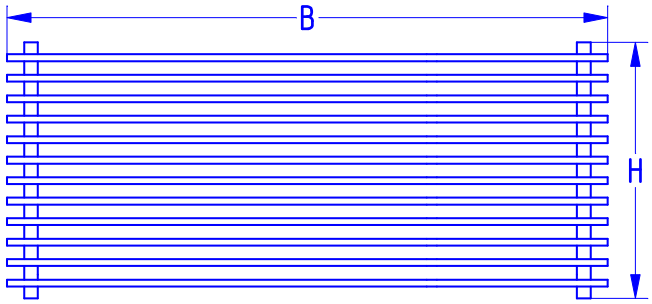
Other versions

Version LPB 15, with 15° deflected launch, is commonly employed in case of under-window installation. Version LPB 20, with vertical blades row positioned behind the bars, is commonly employed when it is necessary to direct the launch horizontally not in axis.

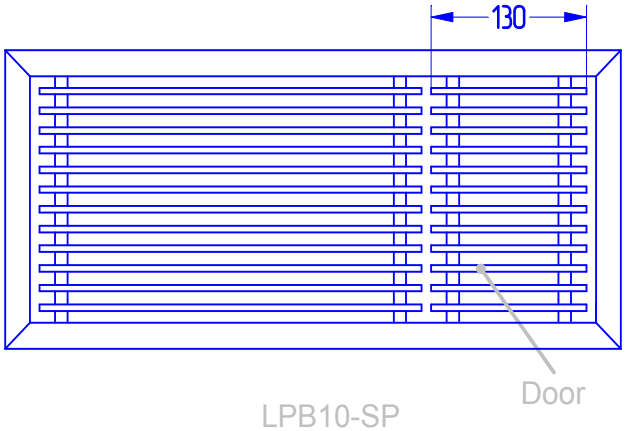




LPB 20

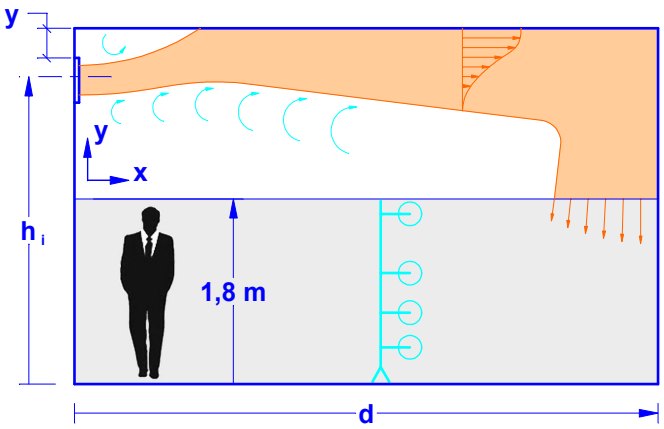


LPB 00



LPB10-SP

LPB 10-SP



Key to symbols

h_i	Installation height
d	Distance between the supply grille and the wall to which the jet flows
y	Distance between the upper edge of the supply grille and the ceiling
q_v	Air-flow per single supply grille
$X_{0,2}$	Free isothermic horizontal throw (isotachìa 0,2 m/s)
Δt	Temperature difference (supplied air - environment air)
ΔP	Pressure drop
L_{WA}	Sound power level weighted “A” (rif. 10^{-12} W)

Notes

Value **d** has been calculated according to $X_{0,2}$ and h_i, to keep the residual velocity in the occupied volume within the limit of 0,20 m/s.

Selection

1. At the requested air-flow q_v, with the allowed sound power level L_{WA}, from diagram 1 determine (by excess) the supply grille’s effective area A_k.
2. At the requested air-flow q_v, with value A_k resulting at point 1, from diagram 2 determine the free throw $X_{0,2}$.
3. With value $X_{0,2}$ resulting at point 2, from diagram 3 determine the minimum distance **d** between the supply grille and the wall to which the jet flows.
4. At the requested air-flow q_v, with value A_k resulting at point 1, from diagram 4 verify that the pressure drop ΔP is compatible with the plan’s value.
5. With value A_k resulting at point 1, from diagram 5 determine the supply grille’s nominal dimensions **B** e **H.**
6. In case of necessity, apply the required correction factors (last page of the sheet).

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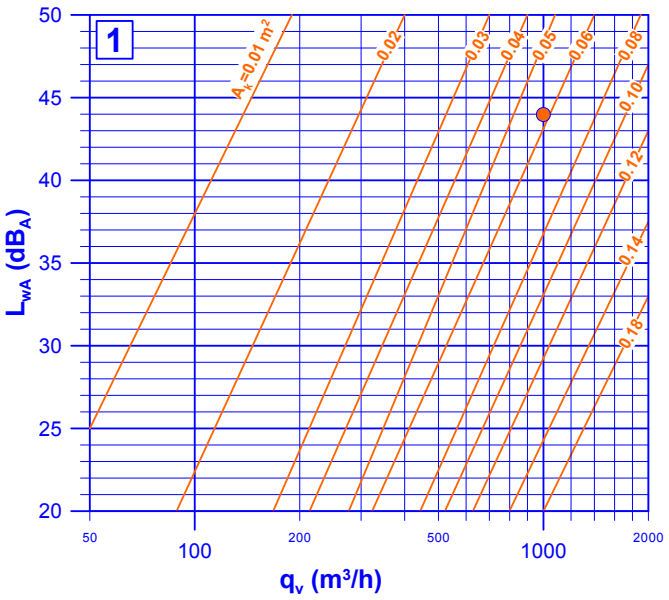
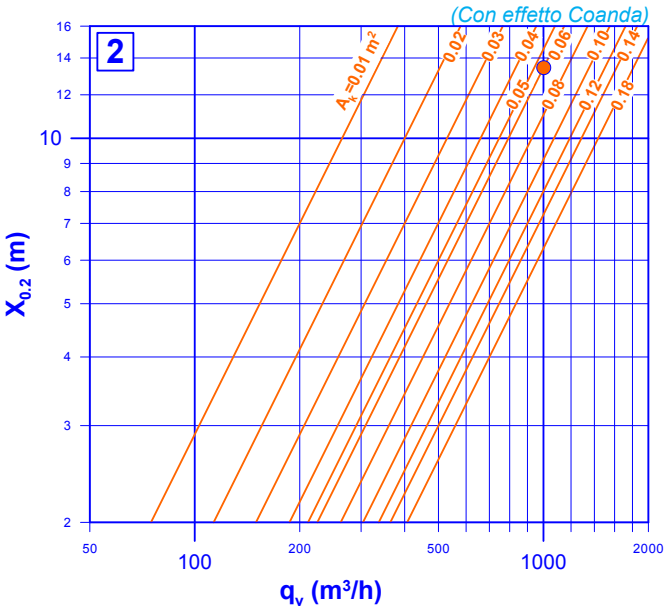
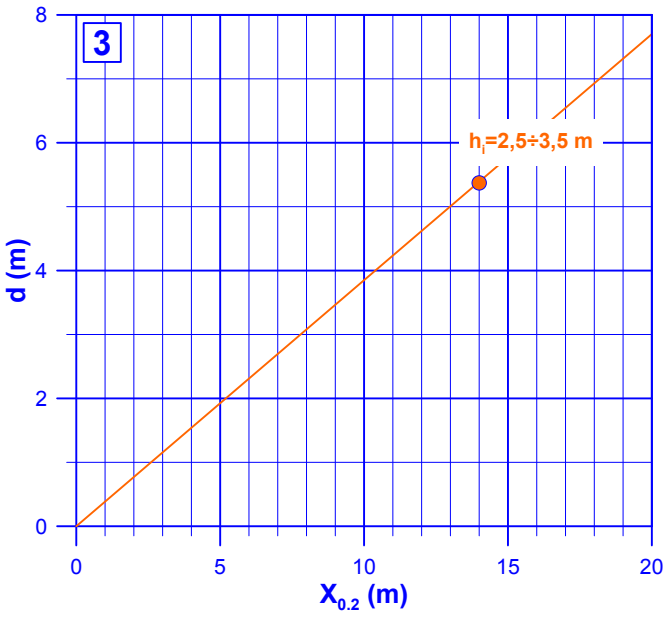
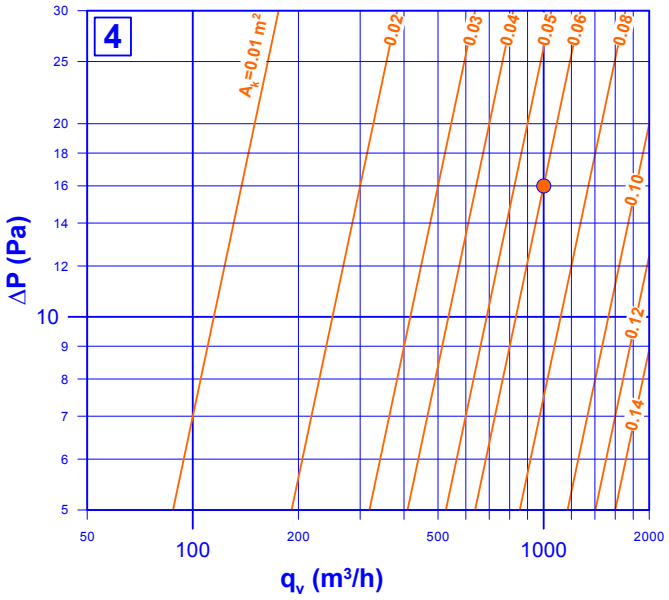
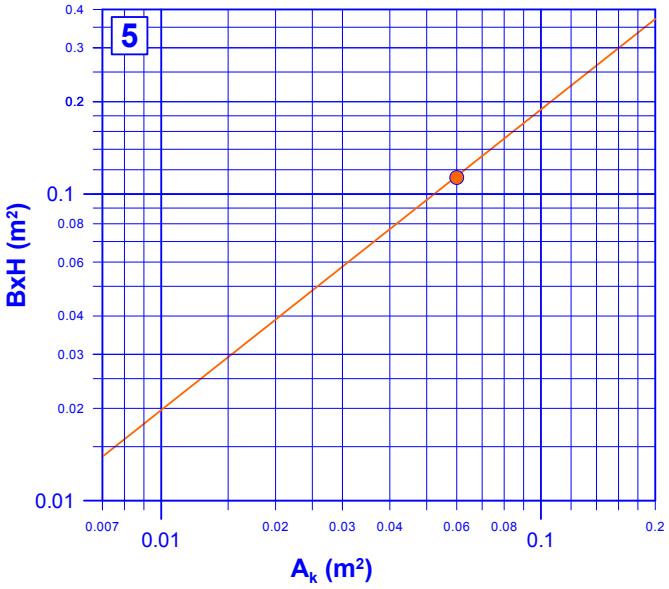
Performances











Example

You must supply 1000 m³/h into a room where the maximum allowed L_{WA} is 44 dB$_A$ (corresponding to about NR 35). You want to select a supply grille with proper dimensions and you want to determine the minimum distance from the opposite wall.

From first diagram you have : A_k = 0,06 m²

From second diagram at q_v you have: $X_{0,2}$ = 14 m

From third diagram you have : d = 5,5 m

From fourth diagram at q_v you have : ΔP = 16 Pa

From fifth diagram you find out that a supply grille with A_k = 0,06 m² has BxH equal to about 0,12 m² : you can use for example a supply grille 800 x 150 mm.

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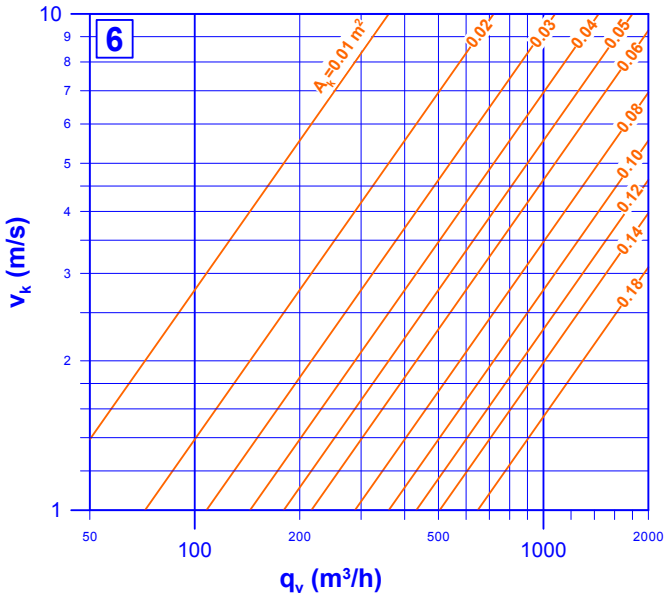
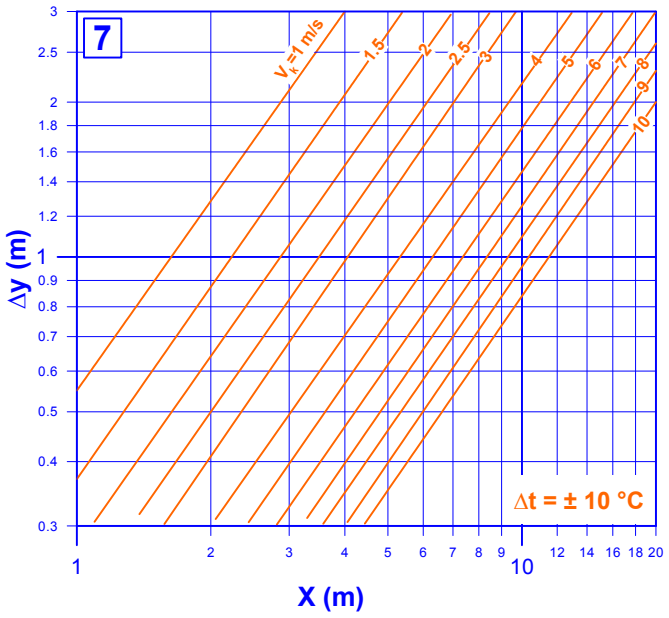
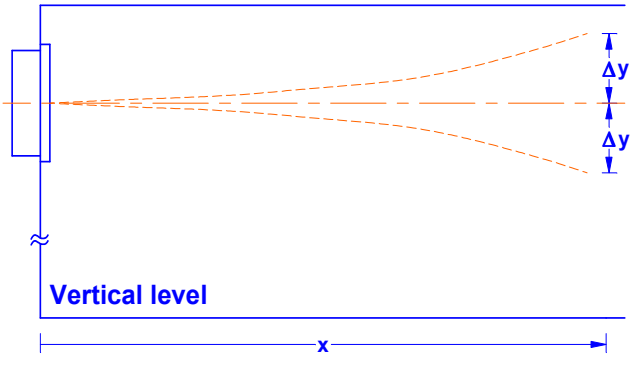
Correction factors

When the temperature difference Δt is different from zero, the different density of the supplied air compared to environment air, creates vertical jet deviations Δy (upstream during heating, downstream during cooling). In order to quantify them, determine first the throw's velocity v_k then the deviation Δy at the involved distance X.





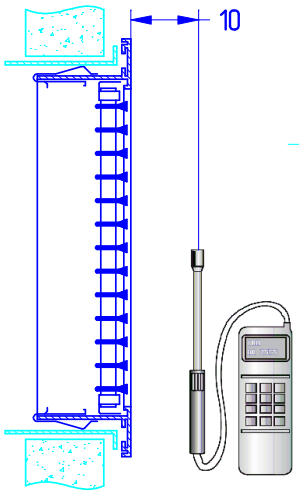


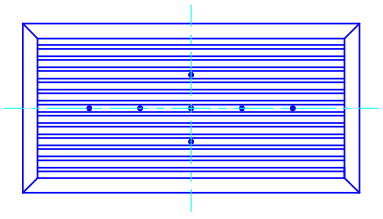
Coanda effect

When the supply grille is installed in proximity to the ceiling, the secondary air's induction can makes the the jet adhere to the ceiling, reducing velocity decrease and increasing the throw. In this sheet we do refer always to the case in which we have the Coanda effect. Actually, when the distance between the upper edge of the supply grille and the ceiling is 2 ≤ 0,3 m, value $X_{0,2}$ resulting from diagrams must not be corrected, when the distance between the upper edge of the supply grille and the ceiling is ≥ 0,7 m, value $X_{0,2}$ resulting from diagrams must be reduced by 30%.

Air-flow calculation

Due to possible symmetry losses caused by plenum and flexible duct, it is necessary to position the velocity probe to measure v_k in at least 7 points (see below). You must use hot-wire anemometers taking care to position the probe as shown in the picture and to orient the "window" against the jet. In each point you must measure the velocity average in a breaktime of at least 1 minute (average in time). In order to obtain the air-flow, calculate the arithmetic average of the so measured values ($\tilde{v}_k$) and multiply it by value A_k resulting from the fifth diagram of the previous page.





$$q_v = \tilde{v}_k \times A_k \times 3600$$

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