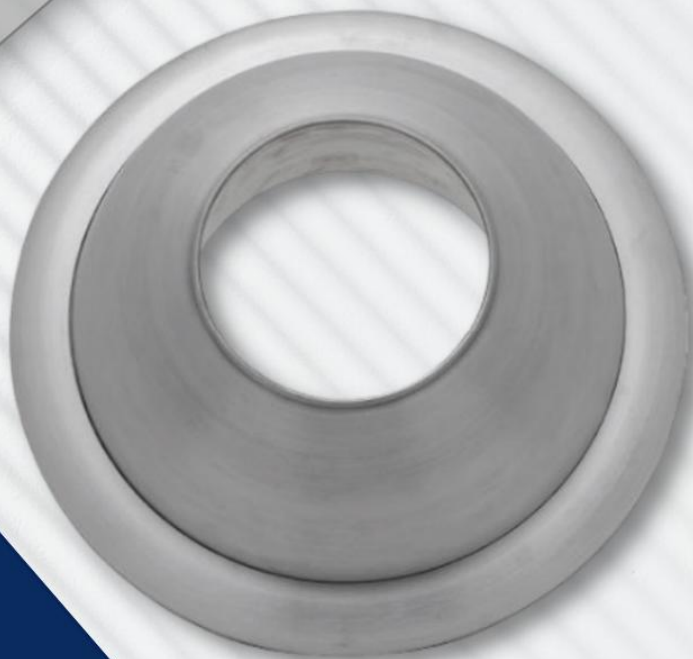




# Serie **TBR-ALU**



## TOBERAS ROTULARES DE ALUMINIO



(+34) 91 3235805  
(+34) 91 3235703



[www.difair.es](http://www.difair.es)



[info@difair.es](mailto:info@difair.es)



Avd. del Cno de lo Cortao, 28A, Nave 1  
28703 San Sebastián de los Reyes, Madrid.

# ALUMINUM LABEL NOZZLES

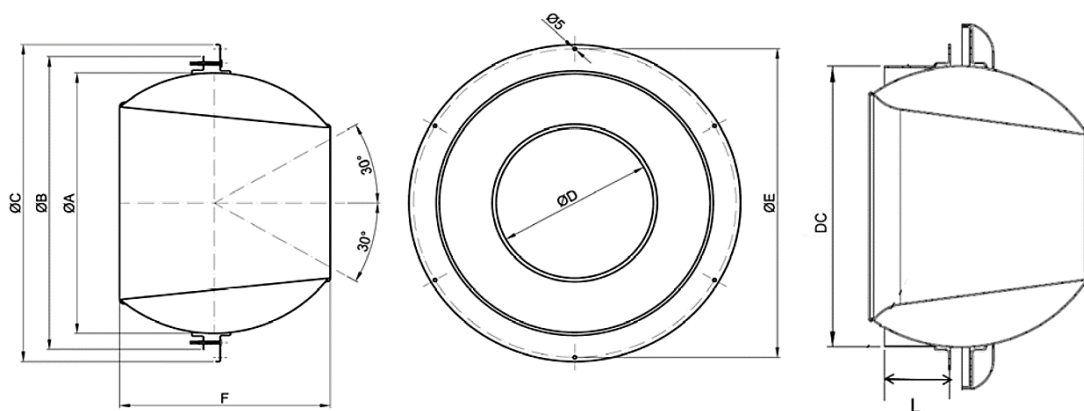
## SERIE TBR-ALU



### DESCRIPTION

High-induction, long-range nozzle with an adjustable directional spray for operation at heights ranging from 2.80 to 30 meters. Manufactured from aluminum sheet and galvanized steel plates; the **TBR-ALU** model has an aluminum finish, and the **TBR-ALU-B** model has a white epoxy paint finish (**RAL 9010**), with the plates finished in white epoxy paint (**RAL 9010**).

### DIMENSIONS



ØA: external diameter of the diffuser.  
 ØB: diameter of the inner flanges.  
 ØC: diameter of the outer flanges.  
 ØD: diameter of the diffuser.

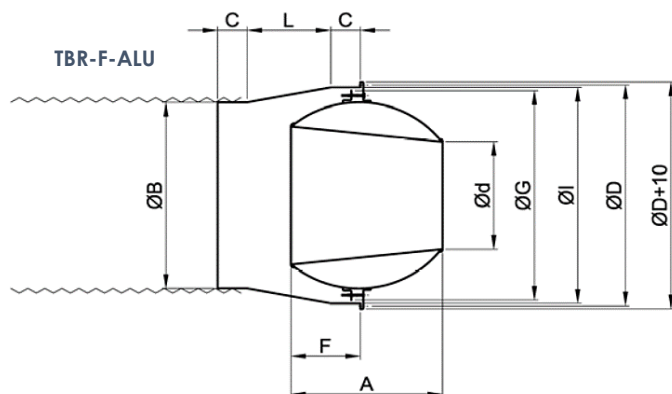
ØE: diameter of the circle for the screw holes.  
 F: thickness of the diffuser.  
 DC: diameter of the flexible duct.  
 L: connector length.

| Model | Ø A<br>(mm) | Ø B<br>(mm) | Ø C<br>(mm) | Ø D<br>(mm) | Ø E<br>(mm) | N°<br>hole | F<br>(mm) | DC<br>(mm) | L<br>(mm) | Ak<br>(m²) |
|-------|-------------|-------------|-------------|-------------|-------------|------------|-----------|------------|-----------|------------|
| 40    | 80          | 109         | 135         | 40          | 119         | 3          | 56        | -----      | -----     | 0,0013     |
| 50    | 102         | 132         | 166         | 50          | 148         | 3          | 78        | -----      | -----     | 0,0020     |
| 80    | 160         | 203         | 254         | 80          | 220         | 3          | 131       | 160        | 45        | 0,0050     |
| 110   | 200         | 246         | 285         | 110         | 266         | 3          | 144       | 200        | 45        | 0,0095     |
| 150   | 300         | 350         | 387         | 150         | 368         | 6          | 233       | 300        | 45        | 0,0177     |
| 200   | 400         | 448         | 485         | 200         | 472         | 6          | 308       | 400        | 45        | 0,0314     |
| 230   | 400         | 448         | 485         | 230         | 472         | 6          | 308       | 400        | 45        | 0,0415     |
| 230S* | 400         | 448         | 485         | 230         | 472         | 6          | 308       | 400        | 45        | 0,0415     |

\*TBR-ALU 230S: without an inner cone.

## ALUMINUM LABEL NOZZLES SERIE TBR-ALU

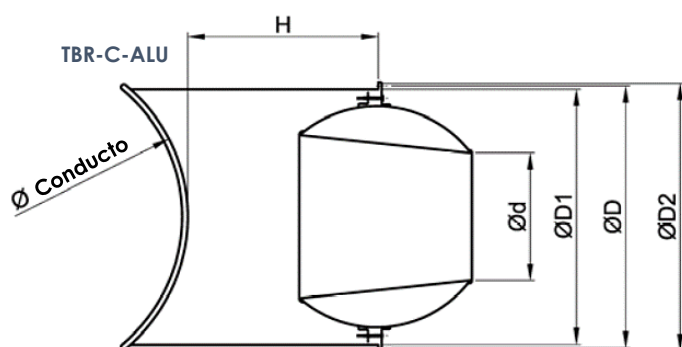
### PLENUM FOR FLEXIBLE DUCT CONNECTION



Ød: diffuser diameter.  
 ØG: diameter of the internal flanges.  
 ØI: internal diameter of the plenum.  
 ØD: diameter of the circle for the screw holes.  
 ØD + 10: external diameter.

| Model         | Ø D [mm] | Ø d [mm] | A [mm] | F [mm] | B [mm] | Ø G [mm] | I [mm] | L [mm] | C [mm] | Installation Hole [mm] |
|---------------|----------|----------|--------|--------|--------|----------|--------|--------|--------|------------------------|
| TBR-F-ALU 40  | 119      | 40       | 56     | 22     | 78     | 109      | 113    | 40     | 40     | 113                    |
| TBR-F-ALU 50  | 148      | 50       | 78     | 30     | 98     | 132      | 138    | 40     | 60     | 136                    |
| TBR-F-ALU 80  | 220      | 80       | 131    | 57     | 158    | 203      | 210    | 100    | 60     | 207                    |
| TBR-F-ALU 110 | 266      | 110      | 144    | 60     | 195    | 246      | 251    | 100    | 60     | 250                    |
| TBR-F-ALU 150 | 368      | 150      | 233    | 103    | 298    | 350      | 358    | 170    | 60     | 354                    |
| TBR-F-ALU 200 | 472      | 200      | 308    | 141    | 398    | 448      | 462    | 170    | 60     | 452                    |
| TBR-F-ALU 230 | 472      | 230      | 308    | 141    | 398    | 448      | 462    | 170    | 60     | 452                    |

### PLENUM FOR FLEXIBLE CIRCULAR DUCT CONNECTION



Ød: diffuser diameter.  
 ØD1: internal diameter of the plenum.  
 ØD: diameter of the circle for the screw holes.  
 ØD2: external diameter.

| Model TBR-ALU | N° Holes | Ø Hole [mm] | Ø D [mm] | Ø d [mm] | Ø D1 [mm] | Ø D2 [mm] | H [mm] | Ø Duct min-max [mm] |
|---------------|----------|-------------|----------|----------|-----------|-----------|--------|---------------------|
| TBR-C-ALU 40  | 3        | 4,2         | 119      | 40       | 113       | 129       | 150    | 160-450             |
| TBR-C-ALU 50  | 3        | 4,2         | 148      | 50       | 138       | 158       | 150    | 200-500             |
| TBR-C-ALU 80  | 3        | 5           | 220      | 80       | 210       | 230       | 200    | 315-630             |
| TBR-C-ALU 110 | 3        | 5           | 266      | 110      | 251       | 282       | 300    | 315-800             |
| TBR-C-ALU 150 | 6        | 5           | 368      | 150      | 358       | 378       | 300    | 500-800             |
| TBR-C-ALU 200 | 6        | 5           | 472      | 200      | 462       | 480       | 350    | 500-1000            |
| TBR-C-ALU 230 | 6        | 5           | 472      | 230      | 462       | 480       | 350    | 500-1000            |

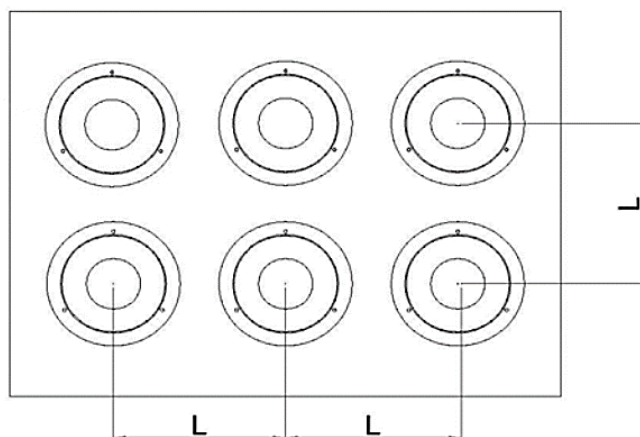
# ALUMINUM LABEL NOZZLES

## SERIE TBR-ALU

### ASSEMBLY

Nozzles installed on the mounting plate

| MODEL              | L min (MM) |
|--------------------|------------|
| <b>TBR-ALU 40</b>  | 170        |
| <b>TBR-ALU 50</b>  | 210        |
| <b>TBR-ALU 80</b>  | 300        |
| <b>TBR-ALU 110</b> | 350        |
| <b>TBR-ALU 150</b> | 430        |
| <b>TBR-ALU 200</b> | 550        |
| <b>TBR-ALU 230</b> | 550        |



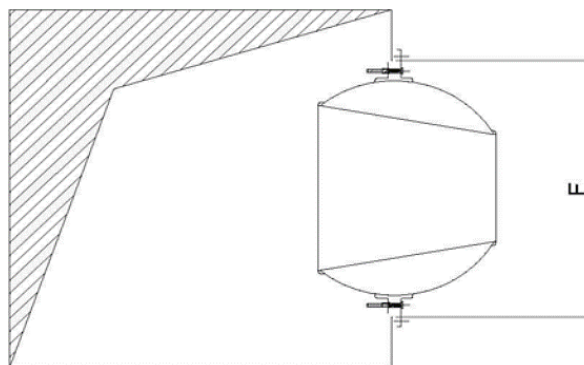
Screw-On Flange Cover / TBR-ALU-T

| MODEL              | Screw-On Flange Cover |
|--------------------|-----------------------|
| <b>TBR-ALU 40</b>  | TBR-ALU-T 40          |
| <b>TBR-ALU 50</b>  | TBR-ALU-T 50          |
| <b>TBR-ALU 80</b>  | TBR-ALU-T 80          |
| <b>TBR-ALU 110</b> | TBR-ALU-T 110         |
| <b>TBR-ALU 150</b> | TBR-ALU-T150          |
| <b>TBR-ALU 200</b> | TBR-ALU-T 200         |
| <b>TBR-ALU 230</b> | TBR-ALU-T 230         |

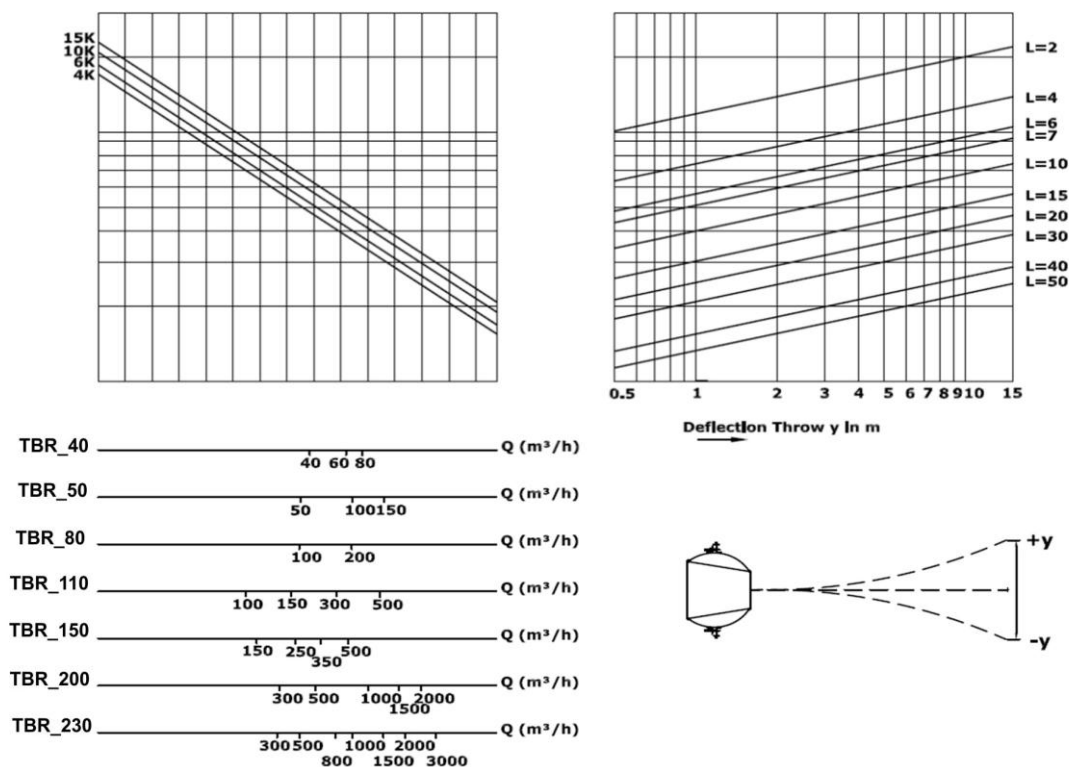


Duct or wall mounting

| MODEL              | F min (MM) |
|--------------------|------------|
| <b>TBR-ALU 40</b>  | 113        |
| <b>TBR-ALU 50</b>  | 136        |
| <b>TBR-ALU 80</b>  | 207        |
| <b>TBR-ALU 110</b> | 250        |
| <b>TBR-ALU 150</b> | 354        |
| <b>TBR-ALU 200</b> | 452        |
| <b>TBR-ALU 230</b> | 452        |



### SELECTION TABLE



$\Delta K$  : diferencia de temperatura entre el aire inyectado **Delta K** y la temperatura ambiente

The diagram shows the width of the air stream based on the range.

From the nozzle line corresponding to the selected model, draw a vertical line that passes through the point indicating the desired flow rate. At the intersection of this line and the line indicating the temperature difference ( $\Delta K$ ), draw a second horizontal line.

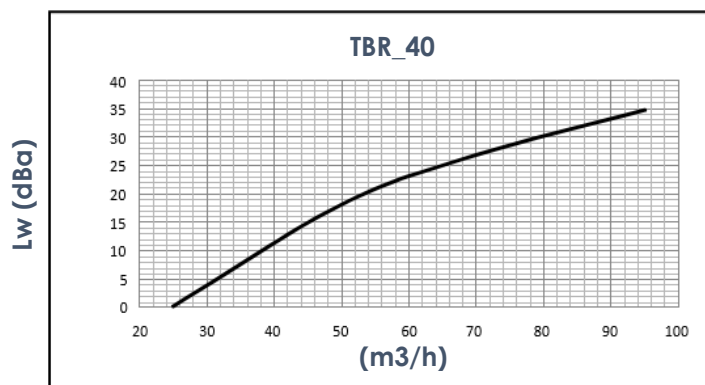
At the intersection of this line and the slanted line marking the range, we will draw a third vertical line to the X-axis, where we will find the air vent opening.

On the diagram's scale, it is possible to determine the width of a throw-in under the required conditions.

# ALUMINUM LABEL NOZZLES

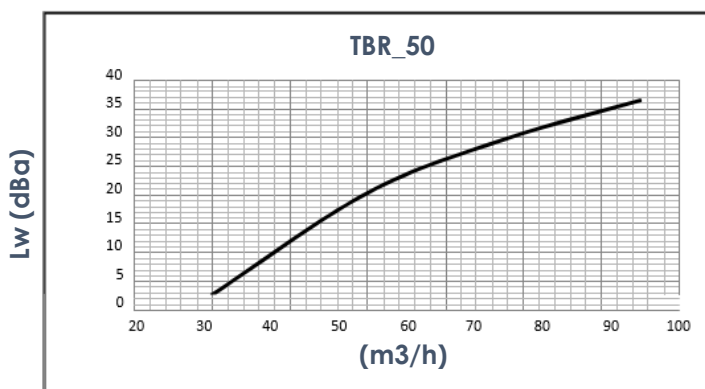
## SERIE TBR-ALU

### SOUND POWER



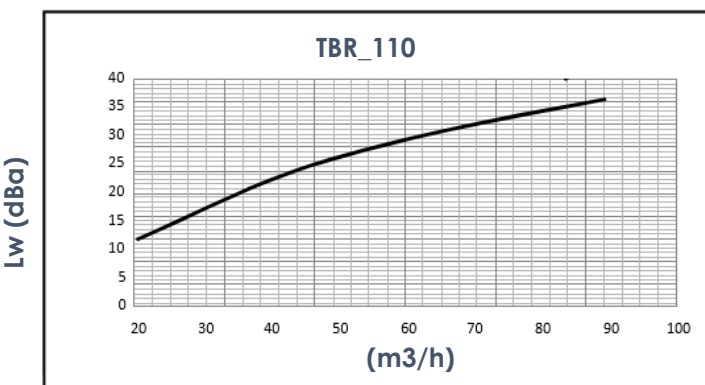
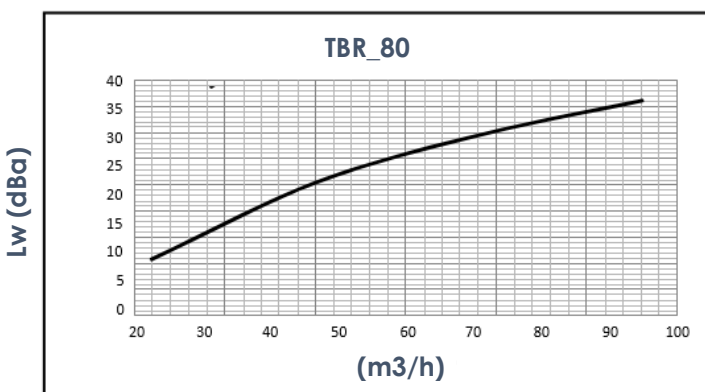
Data measured in a reverberation chamber in accordance with international standards:

**ISO 3741 1999:** Acoustics: Determination of Sound Power Levels of Noise Sources Using Sound Pressure—Precision Methods for Reverberation Chambers.



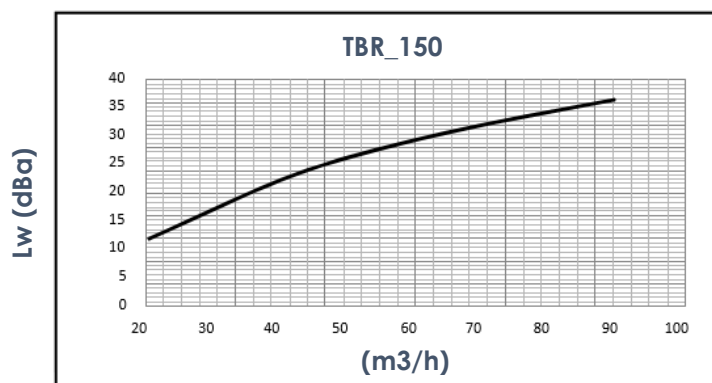
**ISO 5135 1997:** Acoustics: Determination of sound power levels of noise from air handling units; air handling units; dampers and nozzles measured in a reverberation chamber.

The data shown does not take into account the attenuation resulting from the surroundings where the diffuser is installed. This attenuation is typically between 6 and 10 dBa and is determined by the size of the surrounding space, its shape, and the characteristics of the furniture and room fixtures.



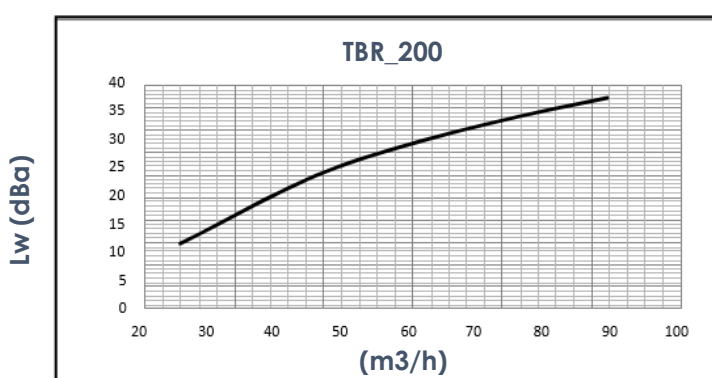
# ALUMINUM LABEL NOZZLES

## SERIE TBR-ALU



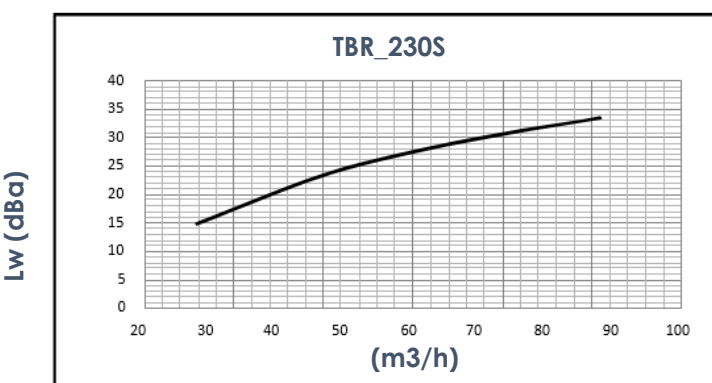
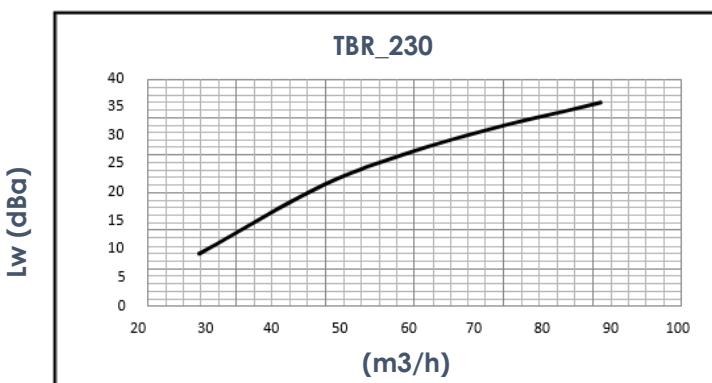
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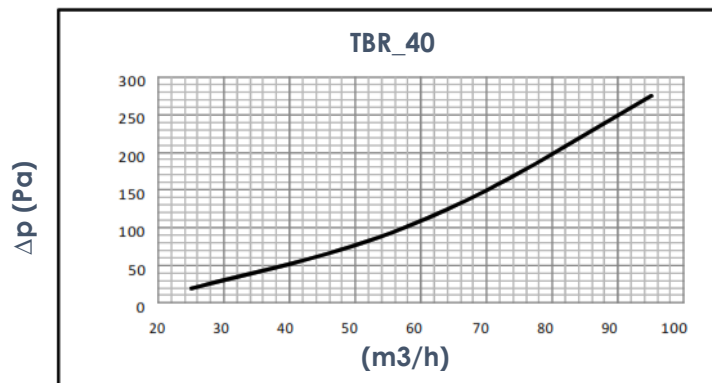
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# ALUMINUM LABEL NOZZLES

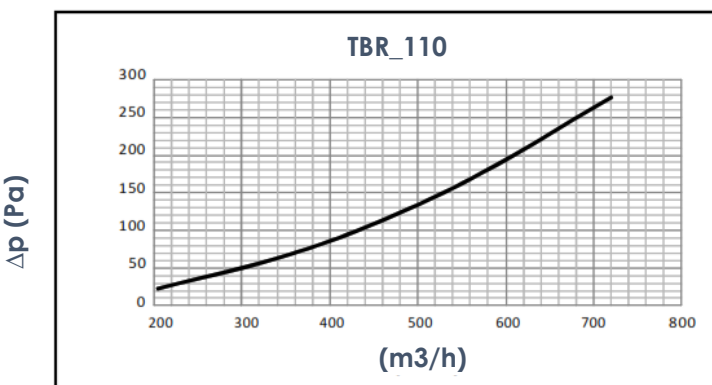
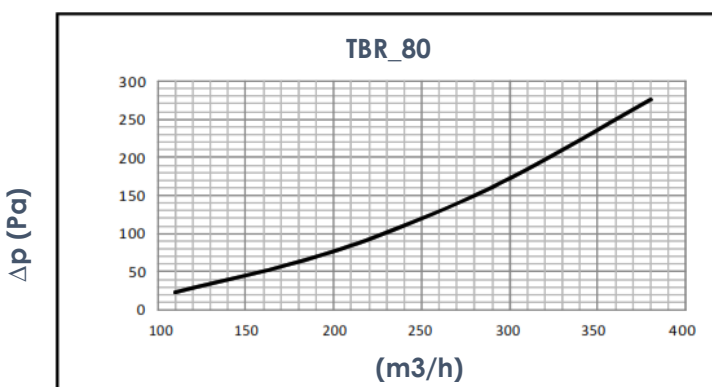
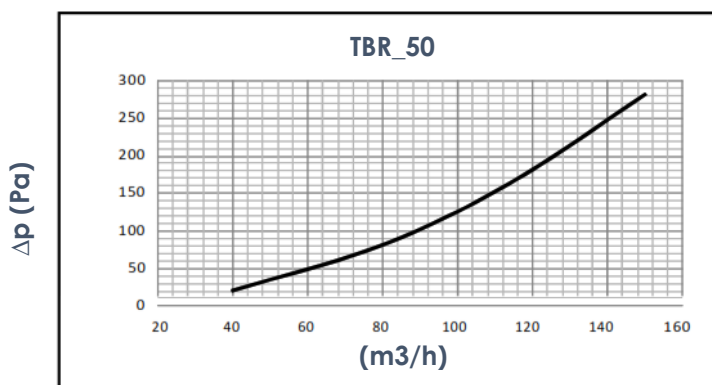
## SERIE TBR-ALU

### PRESSURE DROP



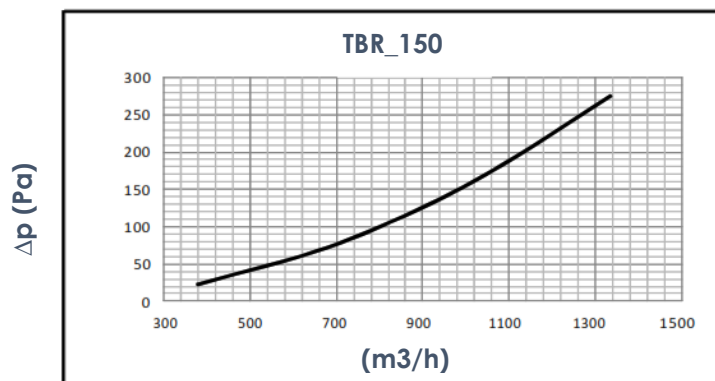
Data obtained from mathematical modeling in a CFD (Computational Fluid Dynamics) chamber in accordance with the international standard:

**ISO 5219 1984:** Air Distribution and Diffusion – Laboratory. Aerodynamic Testing and Qualification of Air Terminal Devices.



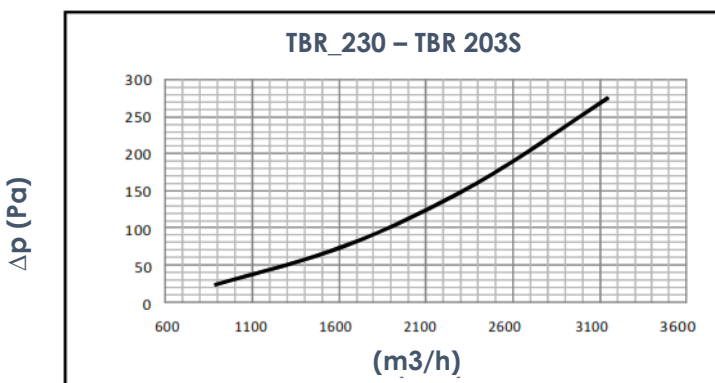
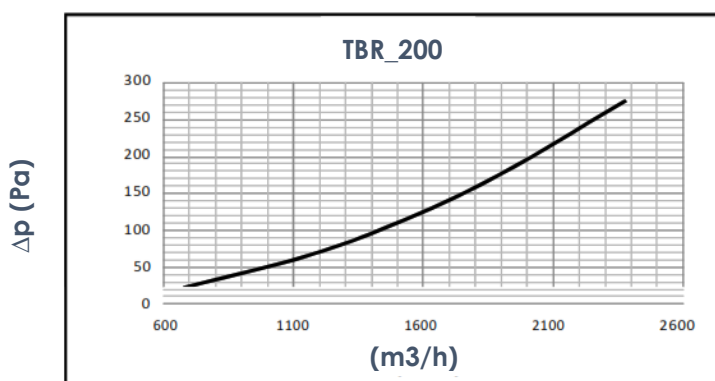
# ALUMINUM LABEL NOZZLES

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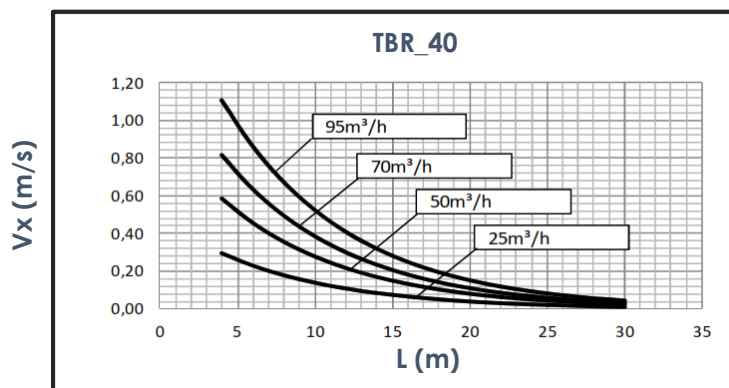
**ISO 5219 1984:** Air Distribution and Diffusion – Laboratory. Aerodynamic Testing and Qualification of Air Terminal Devices.



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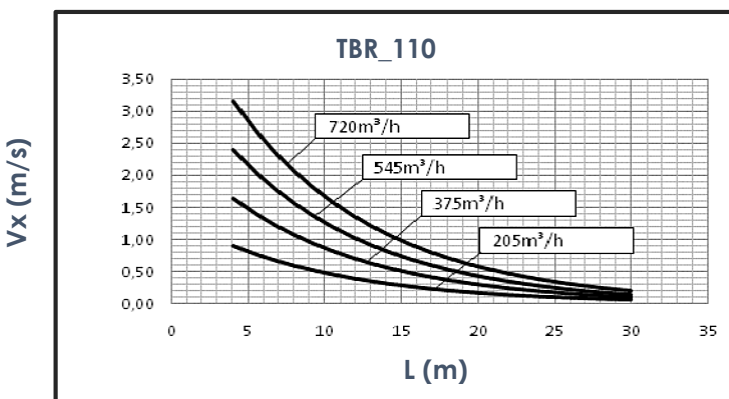
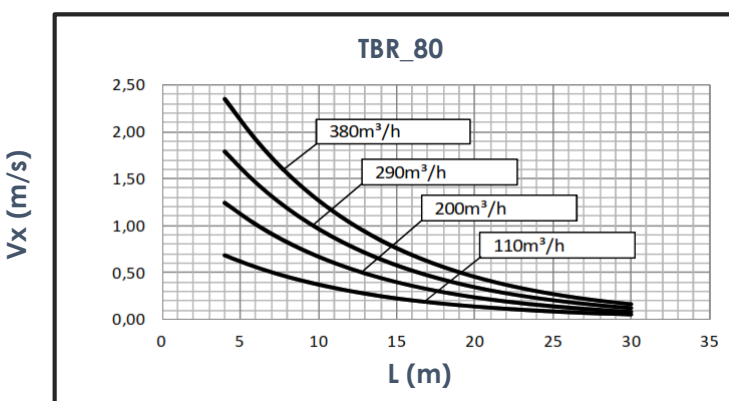
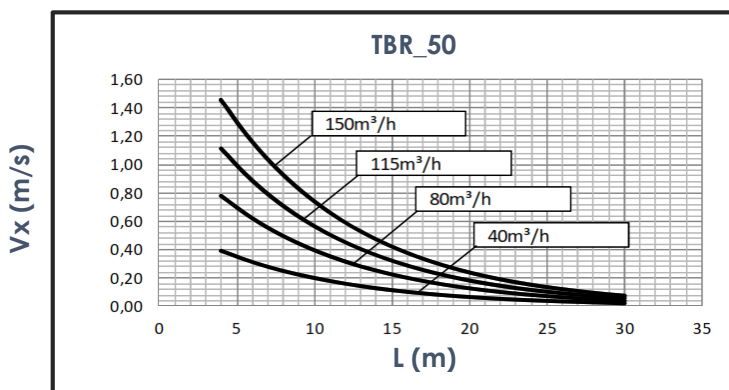
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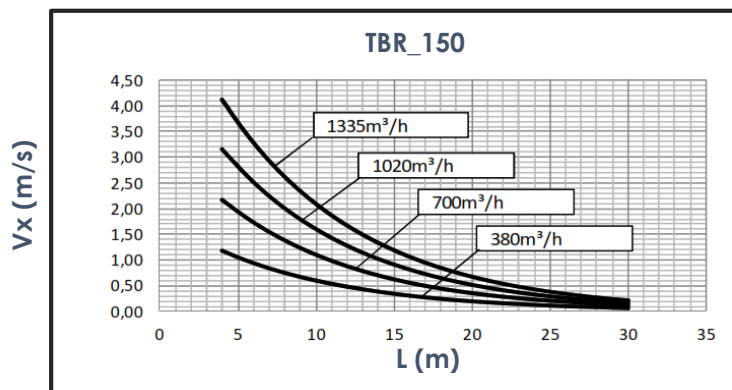
**ISO 5219 1984:** Air Distribution and Diffusion – Laboratory. Aerodynamic Testing and Qualification of Air Terminal Devices.



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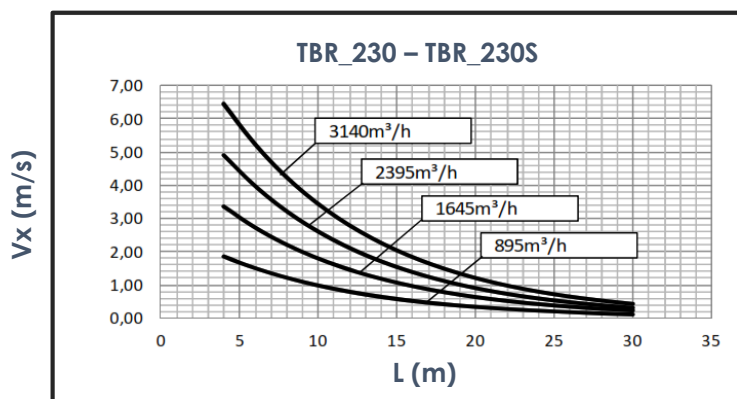
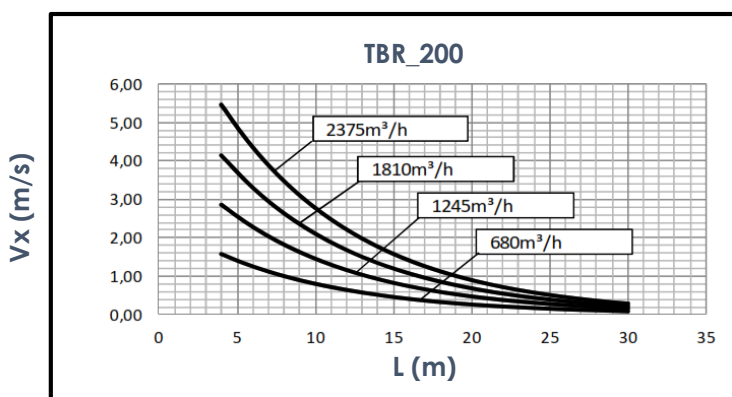
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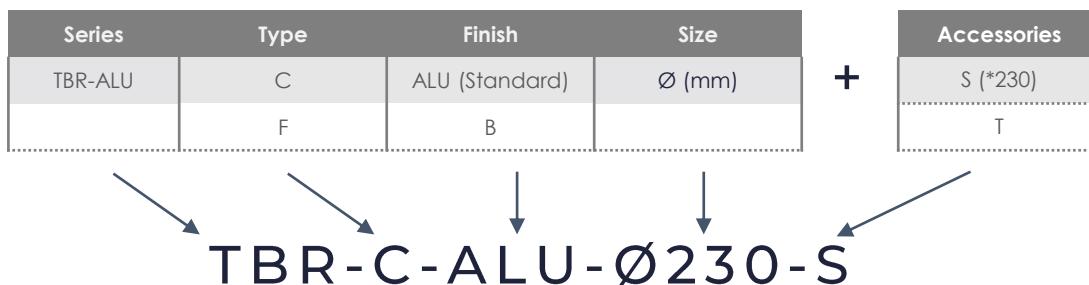
**ISO 5219 1984:** Air Distribution and Diffusion – Laboratory. Aerodynamic Testing and Qualification of Air Terminal Devices.



# ALUMINUM LABEL NOZZLES

## SERIE TBR-ALU

### GRAPHICAL DESCRIPTION



#### SERIES

- TBR-ALU: Aluminum label nozzles.

#### TYPE

- C: Circular connection.

#### FINISH

- Aluminum (standard).

#### SIZE

- Diameter: Ø230 mm.

#### ACCESSORIES

- No inner cone.

#### Order example: TBR-C-ALU Ø230S

- To order a 230 mm diameter aluminum label nozzle without an internal cone, for circular connection, you should request:

| Order                 | Description                     |
|-----------------------|---------------------------------|
| 1 Nozzle TBR-ALU Ø230 | Ø230 mm Aluminum label nozzles. |
| Connection Type "C"   | For circular connection.        |
| Cone Arrangement "S"  | No inner cone.                  |

#### Order example: TBR-ALU-B Ø50 -T

- To order a 50 mm diameter aluminum label nozzle, painted in white, with flanges to cover the screws, you should request:

| Order                | Description                    |
|----------------------|--------------------------------|
| 1 Nozzle TBR-ALU Ø80 | Ø50 mm Aluminum label nozzles. |
| 1 Finish "B"         | White painted finish.          |
| 1 Coverage "T"       | Flange cover for screws.       |



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(+34) 91 3235805  
(+34) 91 3235703



[www.difair.es](http://www.difair.es)



[info@difair.es](mailto:info@difair.es)



Manufacturas Difair-Clima, S.L.  
Avd. del Cno de lo Cortao, 28A, Nave 1  
28703 San Sebastián de los Reyes, Madrid.