

CLIMAVER

neto

acoustic and cleaning

ISOVER

The Insulation Solutions

*Silence and cleaning guarantee.
The new reference in
air conditioning ducts*

Acoustic in installations



When designing an air conditioning installation the risk, in normal conditions of utilisation, must be limited of annoyances or diseases produced by noise and vibrations of thermal installations (RITE revision, July 2006).

The air conditioning ducts play a fundamental role in the air conditioning installation because of its ability to attenuate the originating noise produced by the machine. Therefore, they improve the acoustic quality of the inner atmosphere, and it's highly recommendable using absorbents like glass wool to obtain significant attenuations.

- *Maximum acoustic absorption.*
- *Cleaning.*
- *Without perforations that originate deposits.*

Cleaning



Isover has developed air conditioning ducts specially conceived for its cleaning. The continuous inner coatings resist without any problem the aggressive test of cleaning.

Obtaining a high quality of inner atmosphere is an important objective in the design of the air installation.

Description of CLIMAVER neto

Selfsupporting ducts for air distribution, made out of glass wool panels, specially applied where cleaning restrictions and acoustic performance are required.



CLIMAVER neto

CLIMAVER neto is a high density glasswool board, faced on one side with reinforced aluminum and kraft and with a new black glass textile on the other side.

- The outer facing of reinforced aluminum provides an excellent vapour barrier and airtightness. It has a smooth finishing and high resistance against cracks and hits.
- The inside facing assures a high acoustic absorption and constitutes a smooth surface, with high resistance to against cracks and therefore cleanable by brushing (make coin test to verify).

✓ Exclusive inner facing: NETO.

The highest acoustic benefits, with a high resistance facing, cleanable by the most aggressive methods (for example brushing).

✓ Ruled external facing.

External facing patterned with guide lines: reference for the construction of duct fitting of the duct network using the Straight Duct Method, MTR (*).

This method assembly provides important advantages: precision, resistance and quality, optimal inner finishing, and minimum wasted.

(*) MTR are the Spanish initials for Sgraight Duct Method: Método del Tramo Recto.

Duct board dimensions



Thickness (mm)	Length (m)	Width (m)
25	3	1,19

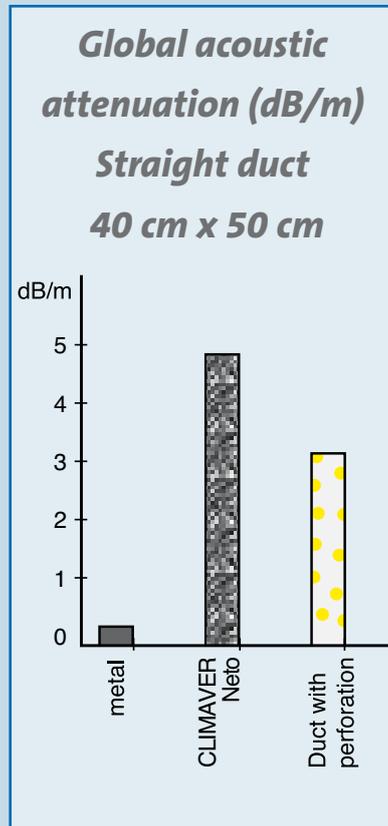
Acoustical absorption

The neto facing combines de maximun acoustical absorption and high resistance inner facing.

The acoustical absorption coefficient α is the relation between the acoustical energy absorbed and the incident.

Acoustical absorption coefficients of CLIMAVER NETO(*):					
Frecuencia (Hz)	125	250	500	1.000	2.000
Acoustical absorption α	0,25	0,60	0,65	0,95	1,00

The acoustical absorption of **CLIMAVER neto** is the maximun in an air conditioning duct board $\alpha_{\omega}=0,75$



Straight duct noise reduction (dB/m). 40cm x 50 cm						
Duct board	Frequency (Hz)					Global attenuation (dB/m)
	125	250	500	1.000	2.000	
Metal without isolation	0,07	0,07	0,19	0,19	0,1	0,10
Climaver Plus R	1,26	1,26	1,26	4,99	3,97	1,86
CLIMAVER NETO	1,67	4,99	5,52	8,86	9,45	4,55

CLIMAVER neto provides the maximun attenuation.

Straight duct noise reduction (dB/m) CLIMAVER NETO.						
Section (mm)	Frequency (Hz)					Global attenuation (dB/m)
	125	250	500	1.000	2.000	
200x200	3,71	11,09	12,26	19,70	21,00	8,45
300x400	2,17	6,47	7,15	11,49	12,25	5,63
400x500	1,67	4,99	5,52	8,86	9,45	4,55
400x700	1,46	4,36	4,81	7,74	8,25	4,05
500x1000	1,11	3,33	3,68	5,91	6,30	3,19

The duct network design must be made with air speed near 6 m/s so that the excellent acoustical performance would not be damaged by high air speeds.

Thermal insulation

The glasswool provides thermal insulation and reduces energy losses.

Thermal conductivity	$\lambda_{90,90} \leq 0,032 \text{ W/m} \cdot \text{K}$
Thermal resistance	$R \geq 0,75 \text{ m}^2 \cdot \text{K/W}$
(Referred to 10 °C)	

Vapour permeance

Approximate value: $77/\text{m}^2 \cdot \text{day mm Hg}$ (corresponding to the facing).

Fire reaction

CLIMAVER NETO: **Euroclase B - s1, d0**.

Mechanical stiffness

Climaver neto boards have R5 rigidity, according to EN 13403 (European Standard for non-metallic ducts). This rigidity is the maximum level of the ones established by this standard.

Climaver neto ductboards can stand static pressure under 800 Pa with no evidence of fissures or swellings (test according to EN 13403).

The straight duct method



An air distribution ductwork is formed by straight ducts in which neither the speed nor the direction of air passing through the ducts vary; systems with duct fitting are formed by sections in which air changes speed and/or direction. The fabrication of ductworks using the Straight Duct Method is based on the union of pieces or duct fittings obtained from straight ducts.

Climaver duct boards have an exclusive external ruled facing that makes it easier to cut straight ducts in order to obtain duct fittings and eliminate the risks or error in alignment/markings.

Saint-Gobain Cristalería, S.A., provides a manual for the construction of ductworks through the Straight Duct Method.

Pressure drops

The ASHRAE Frictions Graph for cylindrical metal ducts, with a correlation or equivalent diameter (rectangular ducts), is used for pressure drop calculation in Climaver NETO ducts.



Duct cleaning

The **high resistance of the inner facing allows brushing cleaning.**

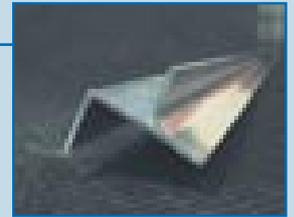
Climaver neto are “cleanable”, after surpassing tests made by pressure air methods “skeeper” and “brushing” without presenting crack or breakage of the inner facing.

Watching openings in the duct network must be made separated 10 meters each maximum to facilitate its cleaning. The profiles PERFIVER H have been developed to be sure that the to the ducts are perfectly sealed. The cover must be sealed with CLIMAVER tape.



Climaver Metal System

CLIMAVER METAL systems has been designed for those applications where cleaning is a strong requirement. To ensure that cleanings network can often be made, internal edges are sealed and protected with the profile PERFIVER L.



CLIMAVER metal

CLIMAVER neto ductboards can be used for the assembly of the CLIMAVER METAL SYSTEM. This system combines CLIMAVER ductboards with the profiles PERFIVER L, to be placed in the longitudinal edges of the duct.



CLIMAVER METAL provides:

- Hermetic assembly system.
- Resistance.
- Cleaning.
- Quality Assembly



Certificates

CE mark.
Fulfills EN-13403 fo non-metallic ducts.

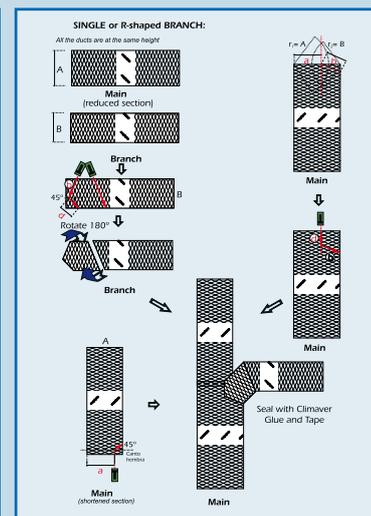
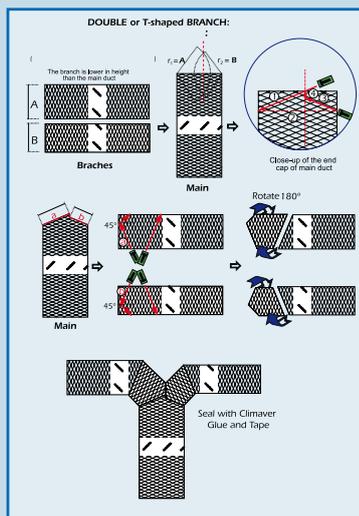
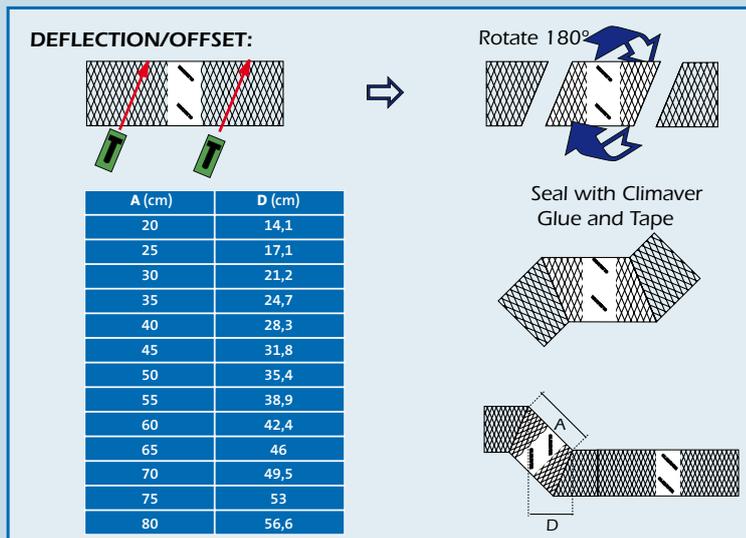
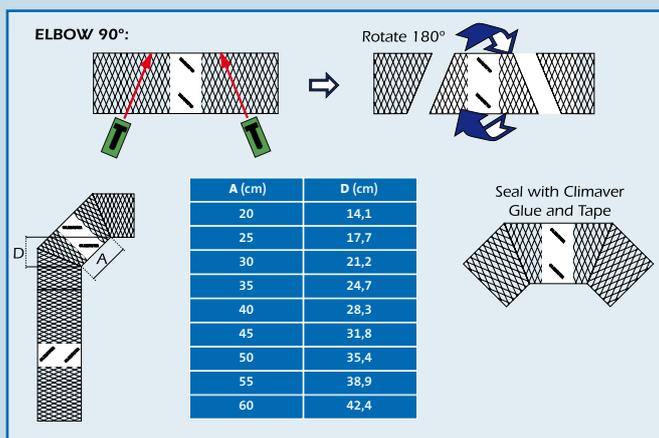
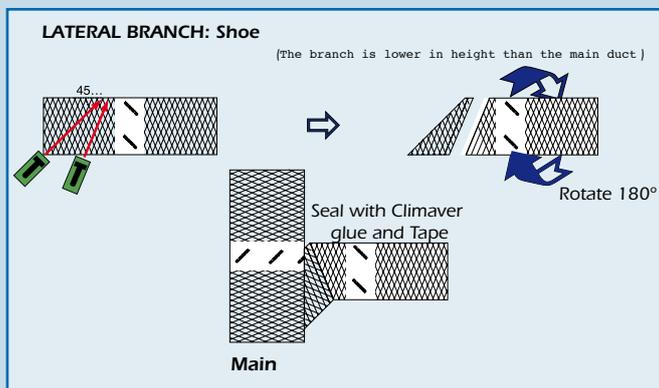
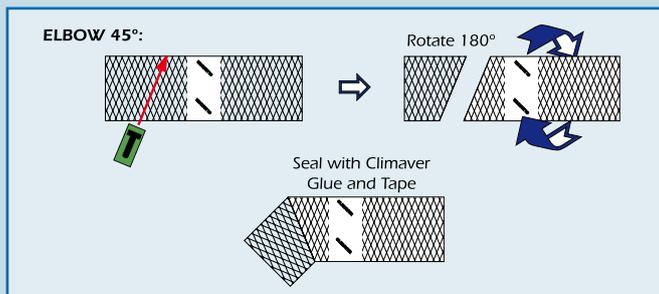


Work conditions

In agreement with EN-13403, CLIMAVER ducts are not recommended in the following cases:

- Air circulation at a temperature > 90°C.
- Transport of solids or corrosive liquids.
- Vertical ducts of heights superior to two plants, whitout proper edge supports, properly covered outer ducts and buried ducts.

Assembly method. MTR (*), STRAIGHT DUCT METHOD



The instructions for ducts assembly according to the Straight Duct Method, MTR, are detailed in the **“Climaver Assembly Handbook”**, free available under request.



CLIMAVER product selection

Product	Thermal Isolations	Acoustical absorption	Fire exigencies	Cleaning	Air Speed	Presentation
SISTEMA CLIMAVER METAL ⁽¹⁾	-	-	-	***	***	System
CLIMAVER PLUS R	**	*	**	**	***	Product
CLIMAVER A2	**	*	***	**	***	Product
CLIMAVER NETO	**	***	**	**	**	Product
CLIMAVER A2 NETO	**	***	***	**	**	Product

(1) It can be assembled with any Climaver ductboard.

*** Excelent
** Best performance
* Good performance

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