



Insulation for a better tomorrow

URSA AIR

Building high performance
ACMV pre-insulated ducts







URSA is a leading insulation manufacturer

Thermal and acoustic insulation for comfortable and energy efficient buildings

URSA manufactures and markets thermal and acoustic insulation to address sustainability and energy efficiency in buildings.

The company has been part of the Xella Group since August 2017, a Group that manufactures and markets materials for the construction of energy-efficient façades under different brand names and business units.

URSA enjoys world wide commercial presence thanks to its 13 production plants, strategically located across the European continent. Today, the company is one

of the largest mineral wool and extruded polystyrene (XPS) manufacturers in Europe; two insulating materials that complement each other to insulate buildings thermally and acoustically.

URSA's products help to reduce a building's energy demand, mainly for heating and cooling, allowing users to reduce their energy consumption. They also address sustainability, not only by contributing to final user comfort, but also by helping the environment by reducing CO₂ emissions, and national economies by reducing fossil fuel dependency.

URSA AIR is a high density mineral wool board specially conceived for construction of high performance ACMV ducts.



URSA AIR mineral wool products are our solution when it comes to insulating and/or constructing air conditioning ducts. They offer excellent thermal insulation, have great acoustic properties and an optimum reaction to fire.

URSA AIR panels are high density mineral wool boards specially conceived for construction of high performance ACMV ducts. Sizes of the boards are 2.900 mm length and 1.200 mm width. Thickness is 25 mm. Average density is 75 kg/m³.

URSA AIR panels are faced externally by a reinforced kraft aluminum foil. URSA AIR Alu-Alu boards are faced internally by a kraft-aluminium smooth foil. URSA AIR Zero boards are faced internally by an acoustic woven black glass fabric. Boards dispose of a male – female shiplap edge system for ensuring tight connections between ducts.



Main benefits

Thermal insulation



URSA AIR boards do have an excellent thermal insulation performance. Thermal conductivity at 10°C is 0,032 W/mK.

Thermal conductivity at other temperatures is:

10°C	24°C	40°C	60°C
0,032 W/mK	0,034 W/mK	0,036 W/mK	0,038 W/mK

These thermal conductivity values have been certified by AENOR, and are submitted a factory control.

Acoustics ACMV equipment Noise Reduction



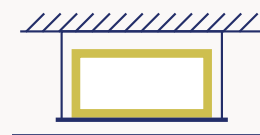
ACMV equipments produce noise that is spread out by duct installation and broadcasted through diffusion devices. In some large installations, use of silencers is mandatory, but those ones imply high additional pressure losses.

URSA AIR Zero inner fabric supplies a Noise Reduction Coefficient of 0,80 in a 37 cm air space mounting. Noise level is reduced when it flows by URSA AIR Zero pre-insulated ducts. Acoustical insertion losses, in dB per straight meter, depend duct section size, sound frequency and acoustical absorption of the inner surface.

Hard mounting over rigid wall sound absorption



37 cm air space behind the board sound absorption



Frequency (Hz)		125	250	500	1000	2000	125	250	500	1000	2000
Noise Reduction Coefficient (α)		0,05	0,20	0,60	0,90	1,00	0,35	0,60	0,70	0,90	0,90
Sound attenuation in a straight duct (dB/m)											
Section	200x200	0,32	2,21	10,27	18,12	21,00	4,83	10,27	12,75	18,12	18,12
	300x400	0,18	1,29	5,99	10,7	12,25	2,82	5,99	7,43	10,57	10,57
	400x500	0,14	0,99	4,62	8,15	9,45	2,17	4,62	5,74	8,15	8,15

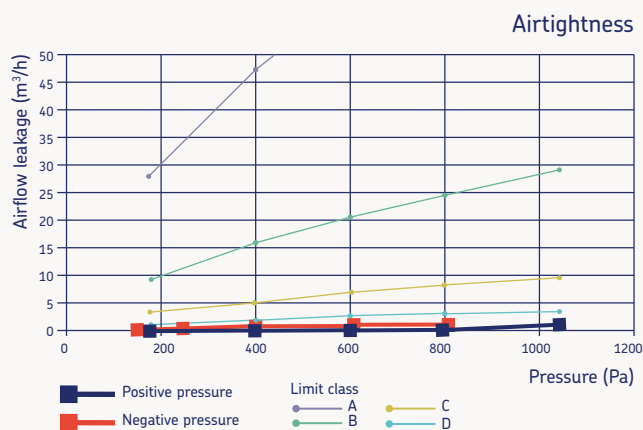


Airtightness

URSA AIR pre-insulated ACMV duct system is completely airtight. This is very important for reducing energy losses.

Airtightness level of URSA AIR pre-insulated duct system is Class D according EN 1507; the best possible level of that standard.

Airtightness level of URSA AIR pre-insulated system is Class C according EN 13403; the best possible level of that standard.



Maximum service temperature

URSA AIR board's thermal conductivity has been tested for 10°, 24°, 40° and 60°C. It is recommended to apply URSA AIR ducts for heating and air conditioning applications, not exceeding minimum 5°C temperature and maximum 60°C temperature.

URSA AIR pre-insulated ducts have not been conceived for exhausting duct systems.

Maximum air velocity

300x300 mm inner section URSA AIR ducts have been tested compliant EN 13403 to resist an air velocity up to 18.6 m/s.

Nevertheless it is highly recommended not to exceed air velocities up to 12 m/s, not just due to duct resistance, but also to reduce noise regeneration.

ACMV duct systems recommended maximum air velocities for acoustical reasons:

- 3 – 5 m/s in dwellings, hotels and hospitals
- 4 – 6 m/s in theaters, cinemas, offices and restaurants
- 5 – 9 m/s in commercial buildings
- 10 – 12 m/s in industrial buildings

The greater the air velocity in ducts is, the higher the level of noise becomes. That's why maximum air velocity must be limited to certain values depending on the type of building and noise sensibility.





Pressure resistance

300x300 mm inner section URSA AIR ducts have been tested compliant EN 13403 to resist up to 2,000 Pa positive pressure. Considering a 2.5 safety factor, URSA AIR ducts of medium and small sections can resist up to 800 Pa.

Nevertheless, for those ducts greater than 400 mm width, depending on pressure level, it is highly recommended to check reinforcement charts supplied by your official URSA AIR panels distributor.

Bacteria and fungal growth resistance

URSA AIR fibrous glass duct products dispose of an antimicrobial treatment, which prevents bacterial colonies from developing from organic particles deposited on the surface. This has been demonstrated by a series of tests performed by AITEX (AATCC100, ASTM E2149, JIS Z2801, ISO 20743, EN 13403). Tests carried out with different bacterial strains: *Staphylococcus aureus* and *Escherichia coli* (E.coli).

Antibacterial effect on the inner surfaces depends on URSA AIR model, because aluminium facing don't let fiber glass antibacterial treatment work.

Indoor air quality certification A

Building's indoor air can have volatile organic compounds, the so-called VOCs, which affect people's health and therefore quality of life. Some of these pollutants come from outside and others are released inside the building itself, since they come from the materials used in its construction, from the furniture or from the fuels used for cooking, heating or cooling.

All URSA AIR products have the Emissions Dans L'Air Intérieur label (Indoor Air Emissions) in its maximum score: A + and A, contributing to the environmental improvement of buildings and the health of the people who inhabit them.

No erosion or emission of particles

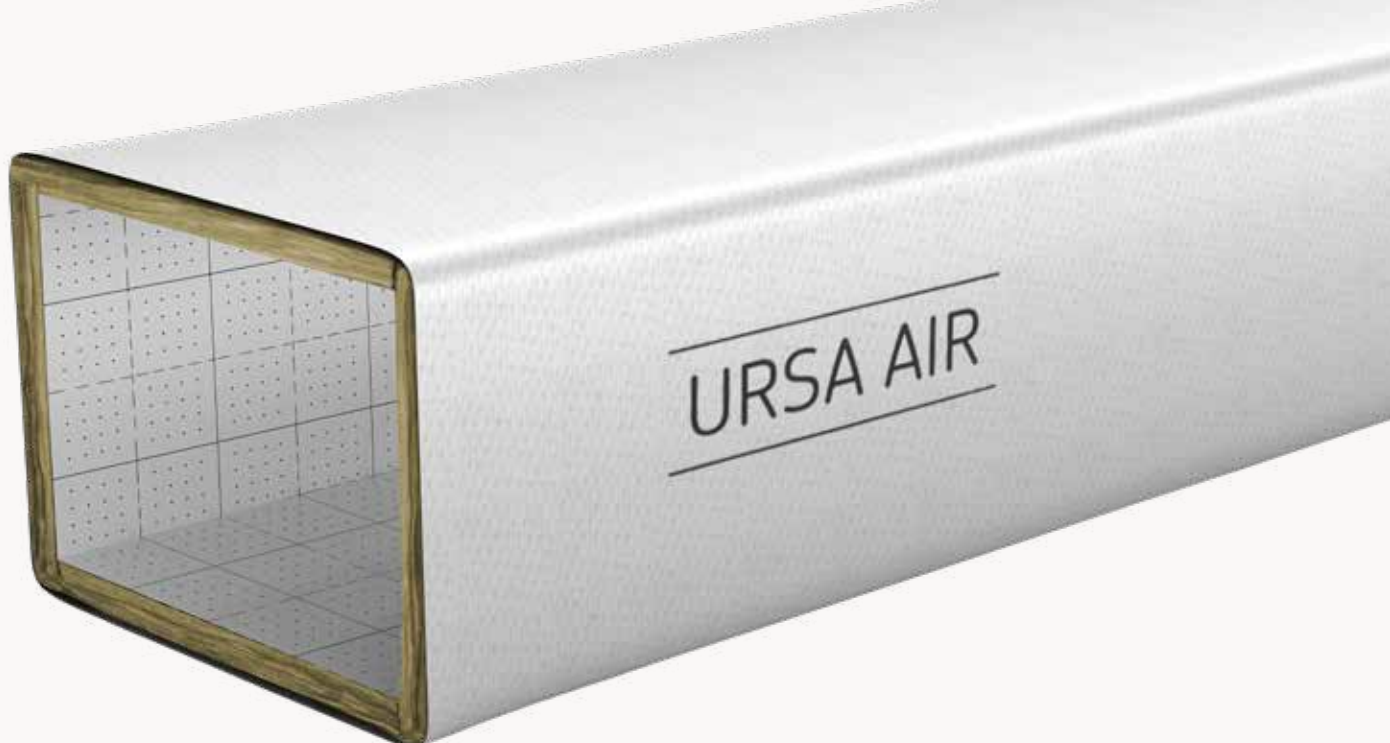
URSA AIR ducts erosion and emission of particles due to a flow of air with a maximum velocity of 18.6 m/s has been tested according EN 13403, achieving values of particles emission under 0.1% of maximum levels imposed by the same standard.

The emission of particles greater than 0,5 µm, with an air flow velocity of 18,6 m/s (2 – 3 times common velocity of the air in ACMV ducts), is 0,103 µg per m³ of air. Maximum mandatory limit set by the standard EN 13.403 is 60,00 µg per m³ of air. Particle emission is 582 times lower than the mandatory maximum level.

The emission of particles greater than 5,0 µm, with an air flow velocity of 18,6 m/s (2 – 3 times usual velocity of the air in ACMV ducts), is 0,077 µg per m³ of air. Maximum mandatory limit set by the standard EN 13403 is 4,00 µg per m³ of air. Particle emission is 52 times lower than maximum mandatory level.

URSA AIR pre-insulated duct system emission of particles is practically zero and negligible compared with maximum mandatory levels set by EN 13403.

URSA AIR mineral wool disposes of the EUCEB Certificate granting that in any case fibers are totally bio soluble and they do not attempt against the health of people.



Resistance to cleaning methods

URSA AIR Zero glass fabric and Alu-Alu kraft-aluminium internal foils resist the brushing of the cleaning and maintenance devices.

External steam barrier

External reinforced kraft aluminum facing has a steam resistance greater than 140 m²h·Pa/mg for avoiding absolutely any internal condensation.

Friction pressure losses

Friction load losses are similar to galvanized steel metal ducts ones.

Next chart indicates URSA AIR Zero friction pressure losses coefficient lower than 0,0195 – 0,016 depending on air velocity.

Environment

The use of URSA AIR duct systems allows environmental impact of the overall system to be reduced, meeting several of the evaluation criteria of this impact according to LEED or BREAM. Some of LEED V4 credits where URSA AIR can contribute are:

- Optimizing energy performance (up to 18 points)
- Building life-cycle impact reduction (up to 5 points)
- Building product disclosure and optimization – sourcing of raw materials (up to 2 points)
- Building product disclosure and optimization – material ingredients (up to 2 points)
- Low – emitting materials (up to 3 points)
- Thermal comfort (1 point)

Air velocity	Pressure losses	Absolute density	Dynamic viscosity	Reynolds number	Friction Coefficient	Linear pressure losses
V	ΔP	ρ	μ	Re	λ	ΔP/L
m/s	Pa	kg/m ³	Pa.s			Pa/m
6,01	9,6	1,172	1,81E-05	1,2E+05	0,0195	1,4
7,97	16,2	1,172	1,81E-05	1,5E+05	0,0186	2,3
9,98	24,3	1,172	1,81E-05	1,9E+05	0,0178	3,5
11,99	33,9	1,172	1,82E-05	2,3E+05	0,0173	4,8
14,03	45,6	1,170	1,82E-05	2,7E+05	0,0170	6,5
16,09	58,3	1,169	1,82E-05	3,1E+05	0,0165	8,3
18,08	72,4	1,167	1,82E-05	3,5E+05	0,0163	10,3
19,24	81,6	1,166	1,82E-05	3,7E+05	0,0162	11,7



Other Advantages

Weight

URSA AIR panels are over 80% lighter than traditional galvanized steel duct systems.

Volume

URSA AIR panels can be handled directly on site, allowing them to be transported as flat panels, avoiding the transport of large, finished ducts.

Fewer trucks are needed to transport the material to the site.

No glue

URSA AIR duct joints are stapled and taped to the exterior complex, making glue unnecessary. By contrast, duct systems made with other similar insulating panels do require the use of glues. Glue can make duct systems less resistant to fire.

Tongue-and-groove system

URSA AIR panels' tongue-and-groove system does not need to be cut by hand (unlike other similar insulating panels), improving installation times and ensuring the best results, both in pressure-resistance and air-tightness.



Better construction times for straight ducts

Straight ducts made from URSA AIR panels can be made from one single panel. To make straight ducts from other similar insulating panels, the four rectangular pieces must be pre-cut from the panel and all joints must be glued and taped.

Fewer joints in straight ducts made with URSA AIR panels strengthen the duct network, guaranteeing high resistance to pressure and a very high level of air-tightness.

Economic advantages of URSA AIR air conditioning duct systems

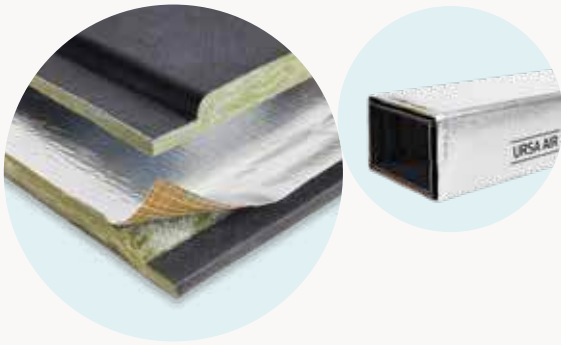
Pre-insulated duct systems built from URSA AIR panels, fitted and finished, are 20% - 25% cheaper than traditional systems made from sheet metal ducts, which must be wrapped out with other insulation products.

Smaller volumes of material transported to the site also result in lower transport costs.

In addition, when using metal duct systems, any discrepancies between the work on site and the mechanical drawings imply the need for additional parts, which must be prepared and transported from the workshop to the site. This involves extra time and money. When using pre-insulated URSA AIR ducts, any additional parts can be built on-site, saving time and money.

URSA AIR

Zero P8858



URSA AIR high density mineral glass wool boards, compliant EN 14.303 standard, faced by one side by a reinforced aluminium Kraft layer, and faced by the other side by an acoustic woven black glass fabric. Long edges dispose of a male – female shiplap system.

Suggested applications

Construction of acoustic pre-insulated ACMV ducts.



DoP 34AIR32GT0B16091



0099/CPD/A43/0295 020/003541

Nº 2914197/1

CTA 307/11/REV

Characteristics	Standard	Value
Designation code		MW- EN 14303-T3-MV1
Thermal Conductivity ($\lambda_{90/90}$)	EN 12667 EN 12939	10°C - 0,032 W/mK
		24°C - 0,034 W/mK
		40°C - 0,036 W/mK
		60°C - 0,038 W/mK
Reaction to fire (Euroclases)	EN 13501-1	B s1 d0
Steam Resistance (Z)	EN 12086	MV1 - 148,15 m ² h Pa/mg
Sound absorption α , with 37 cm air space mounting	EN 354	0,80
Sound absorption α , hard mounting over rigid wall	EN 354	0,55

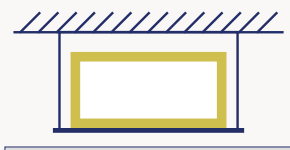
Ducts with sound absorption which reduce the noise propagated from the AC machine.

Code	Format	Thickness	Width	Length	Thermal resistance	Logistic	Boards / box	m ² / box	Boxes / pallet	m ² / pallet
		mm	m	m	m ² ·K/W					
2138647	Box	25	1,20	2,90	0,78 at 10°C	NS	6	20,88	7	146,16



Code 2138647 - pallet size specially developed in order to optimize volume and transport costs in maritime exports.

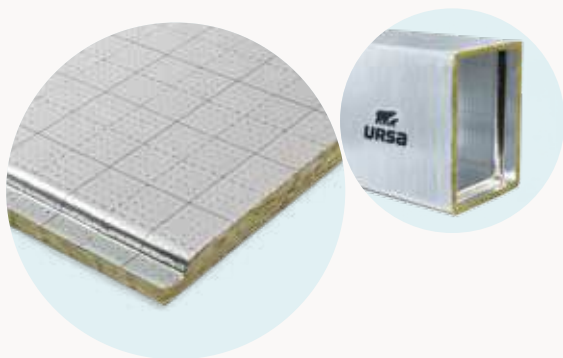
37 cm air space behind the board sound absorption



Frequency (Hz)		125	250	500	1000	2000
Noise Reduction Coefficient (α)		0,35	0,60	0,70	0,90	0,90
Sound attenuation in a straight duct (dB/m)						
Section	200x200	4,83	10,27	12,75	18,12	18,12
	300x400	2,82	5,99	7,43	10,57	10,57
	400x500	2,17	4,62	5,74	8,15	8,15

URSA AIR

Alu-Alu P5858



URSA AIR high density mineral glass wool boards, compliant EN 14.303 standard, faced by one side by a reinforced aluminium Kraft layer, and faced by the other side by a marked Kraft aluminium. Long edges dispose of a male – female shiplap system.

Suggested applications

Construction of pre-insulated ACMV ducts.



DoP 34AIR32AK0B16091



0099/CPD/A43/0294 020/003540

Nº 1515072-1

Characteristics	Standard	Value
Designation code		MW- EN 14303-T5-MV1
Thermal Conductivity ($\lambda_{90/90}$)	EN 12667 EN 12939	10°C - 0,032 W/mK
		24°C - 0,034 W/mK
		40°C - 0,036 W/mK
		60°C - 0,038 W/mK
Reaction to fire (Euroclases)	EN 13501-1	B s1 d0
Steam Resistance (Z)	EN 12086	MV1 - 148,15 m ² h Pa/mg

Code	Format	Thickness	Width	Length	Thermal resistance	Logistic	Boards / box	m ² / box	Boxes / pallet	m ² / pallet
		mm	m	m	m ² ·K/W					
2138646	Box	25	1,20	2,90	0,78 at 10°C	NS	6	20,88	7	146,16



Code 2138646 - pallet size specially developed in order to optimize volume and transport costs in maritime exports.

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Manufacturers of thermal and acoustic insulation products

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