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# URSA AIR

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 InCare

HVAC ductwork systems



All URSA AIR  
mineral wool  
panels and blankets  
now include InCare  
Technology

New



# Summary

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URSA TERRA  
Mineral wool



URSA PUREONE  
White mineral  
blowing wool



URSA AIR  
Mineral wool  
panels and  
blankets



URSA SECO  
Airtightness  
and condensation  
control system



URSA XPS  
Extruded  
polystyrene



URSA INDUSTRY  
Extruded  
polystyrene

## More than 60 years providing specialised insulation solutions



At URSA, for more than 60 years, we have been offering insulation solutions that provide quality, safety, sustainability, health and comfort to the buildings we live in. Both in the design and manufacture of all our product ranges, we strive to achieve the best thermal and acoustic comfort in buildings, the use of resources, energy efficiency, the fight against climate change and compliance with the 2030 agenda.

# Life Cycle Analysis and the Circular Economy

URSA's products help to reduce a building's energy demand, mainly related to heating and cooling, allowing users to reduce their energy consumption. In terms of sustainability, these products not only contribute to the end user's well-being, but also help the environment by reducing CO<sub>2</sub> emissions, as well as the country's economy by reducing its dependence on fossil fuels.

## Mineral wool

Silica sand and 35%-85% recycled glass. Saves 243 times the energy of production, transport and installation.

## XPS

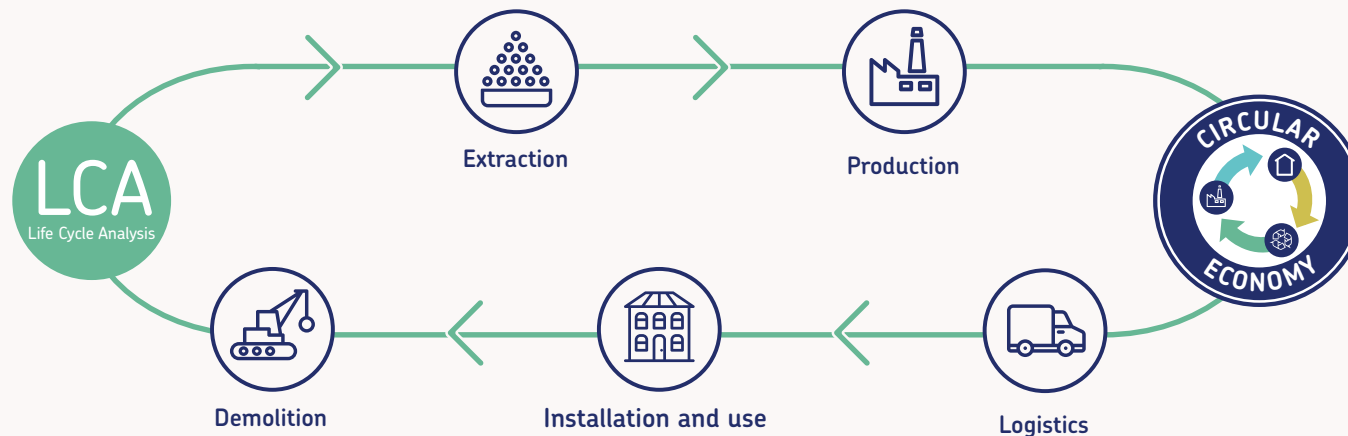
Composed of up to 100% recycled and 100% recyclable material.

## Reduced consumption

Manufacture through carefully studied processes, seeking to consume as little energy as possible and minimise production waste in order to increase the recycling rate year after year.

## Eco-design

Lighter and more sustainable packaging, with less use of ink. We provide all environmental information, seals and labels.



## Reduces time and complexity of disposal

URSA's insulating materials are 100% recyclable and their waste is included in the EWL code (European Waste List) 170604, considered non-hazardous.

## Saves time and costs

Our materials do not require maintenance for decades and are very easy to handle and install, reducing the time needed for installation.

## 80% energy savings in transport

Mineral wool can be compressed more than 6 times.

## Energy savings in transport and storage

XPS supports are fully recyclable and the high compressibility of wool makes it possible to reduce resources for transport and storage.

Our commitment is to provide well-being for people while caring for the planet



€7 savings for €1 of insulation

## Amortisation of investment in 3-7 years

The energy cost increases and, thanks to good insulation, greater economic savings can be achieved.



# Company and product certificates: properties, health and environment

There are many ways to measure a building's environmental sustainability: certifications, seals, quality standards, regulations, etc. All these labels provide different types of information about the sustainability of a building: the quality of the materials it is built with and its energy performance.

At URSA, we believe that improvements should be measurable. Therefore, our products are tested and certified with numerous quality seals and we were pioneers in bringing environmental information to the end user with the publication of their Environmental Product Declarations (EPD).



Studies carried out by authorised research institutes confirm that the new URSA AIR panels with InCare technology show a microbial reduction capacity of more than 99.99% on the inner walls of the product.



## Quality and environmental management certification

URSA products are manufactured to be compatible with various management systems, with the following certificates:

- Quality Management System of the factory UNE EN ISO 9001:2015.
- Environmental Management System of the factory UNE EN ISO 14001:2015.
- Certification of our energy management system according to the ISO 50001:2018 standard



## CE marking

This is a **manufacturer's declaration** based on common rules for the whole of the European Union. Supported in Directive 93/68/EEC. These common rules are set out in two types of documents. The objective is to set conditions for placing on the market or making available on the market such products, by introducing harmonised rules on how to express the performance of products in relation to their essential characteristics and on the use of the CE marking on such products. Declaration of Benefits (DoB) available on the website.



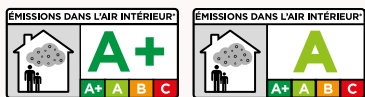
## Safe mineral wool that is EUCEB certified

EUCEB Certificate: provides a guarantee of conformity to note Q of the European Directive 97/69/C, consequently NOT CLASSIFIED as carcinogenic according to the criteria of the Directive nor those of the International Agency for Research on Cancer (IARC).



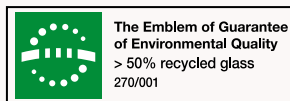
## Voluntary Product Quality Mark

All URSA products have an AENOR CERTIFICATE, so their performance is guaranteed by an independent body that provides total security to the user.



## Indoor air quality certification

All URSA products are VOC-free and are certified as such by the "Émissions dans l'air intérieur" (VOC emissions in indoor air) seal with the highest score: A+. Indoor AIR Comfort Gold certification for its range of blown mineral wool products, awarded by the Eurofins global network of laboratories, which guarantees that the product meets the requirements for low VOC (volatile organic compound) emissions.



## Minimum recycled content certification

### Type I Eco-Label

The General Directorate of Environmental Quality of the Department of Environment and Housing of the Generalitat de Catalunya has granted us the "Distintiu de Garantia de Qualitat Ambiental" (Environmental Quality Guarantee), which specifies that:

- In mineral wool, at least 50% of the product is recycled and externally sourced (post-consumer).



THE INTERNATIONAL EPD® SYSTEM

## Environmental Product Declaration (EPD)

EPDs are covered by the ISO 14025 standard and are based on a Life-Cycle Analysis (LCA) of the products. The information is organised into the different stages of a building's life cycle, in which different impacts are evaluated (global warming, ozone depletion, etc.). There is additional information on the use of resources and the categories of the waste and outflows.



DAP

Available on our website

Recyclable products

We reduce the use of natural raw materials



## Environmental certification of buildings

URSA products contribute to improving the rating obtained by buildings with energy efficiency, sustainability and health certifications such as LEED, BREEAM, VERDE or WELL.



plataforma materiales



See product documentation for the main certifications.

# Prescription services



Do you need help or training?  
[soportetecnico.ursa.es@etexgroup.com](mailto:soportetecnico.ursa.es@etexgroup.com)

Our technical department is on hand to help you with any queries, to define the optimum and most effective solution for each project and provide you with all the documentation on products, our certifications and the conformity of our products for compliance with environmental seals and certifications for buildings.

- Advice on **refurbishment projects** and grant applications.
- **Thermal insulation calculations:** thermal transmittance, verification of interstitial condensation, catalogue of thermal bridges.
- **Duct network calculations.**
- **Acoustic insulation** of building elements simulations.
- Technical support to meet the requirements of **LEED, BREEAM, GREEN and WELL requirements.**
- **On-site technical assistance.**
- **BIM objects.**



BIM consultation





## Free tools for Air Conditioning Calculation

We provide you with professional applications and tools that facilitate the sizing and completion of each project.

Use them to make your thermal or acoustic insulation calculations or to optimise your air-conditioning project with **URSA AIR** ducts.



Cooling load calculation



Network sizing



Sound attenuation  
of duct systems



Calculation of sound  
attenuation of duct systems



Ductwork and energy loss  
measurement



### URSA AIR OPEN BIM

Modelling of air conditioning ducts.  
Application integrated into the  
Open BIM workflow via the IFC  
standard.



## Platform for Professional Development Duct construction course

Training is a priority activity for URSA. This company prioritises training and professionalisation of the sector, and works intensively and continuously to compile an extensive calendar of conferences, courses and other training activities.

URSA Ibérica has launched URSA Professional Development, an online space where professionals can improve their training quickly and easily. The space, which opened with a superb array of courses for Air Installers, has specific training on Sustainability, Air Conditioning, Energy Saving and Noise Protection. All of them are taught by highly qualified professionals. What's more, as everything's online, the professional will be able to set his or her own learning pace, making it easier to complete the course.



[ursa.es/calculos](https://ursa.es/calculos)



[ursaformacion.es](https://ursaformacion.es)



We offer you our full programme of courses, on-line and on-site, on duct construction.

If you are interested in the training courses, you can check availability on our website or by sending an email to our technical service: [soportetecnico.ursa.es@etexgroup.com](mailto:soportetecnico.ursa.es@etexgroup.com)



# InCare technology

URSA AIR  InCare

## Discover the evolution of air-conditioning systems

URSA goes a step further in the manufacturing technology of its materials to make buildings habitable and healthy, while also sustainable and environmentally friendly.

# Evolve, protect, breathe



## Innovation at the service of indoor air quality to protect people's health

The increase in the amount of time spent indoors makes it imperative to improve indoor air quality while maintaining comfort. URSA's innovative copper ion technology applied to the various building materials reduces the risk of microbial transmission by providing extra protection against viruses and bacteria.



Microbial  
inactivation

Reduces the risk of allergies  
and infectious diseases.



Durability

The inhibitory efficacy of copper  
lasts for its entire service life.



Safe  
materials

Respectful of health and  
the environment.



# How does InCare technology work?

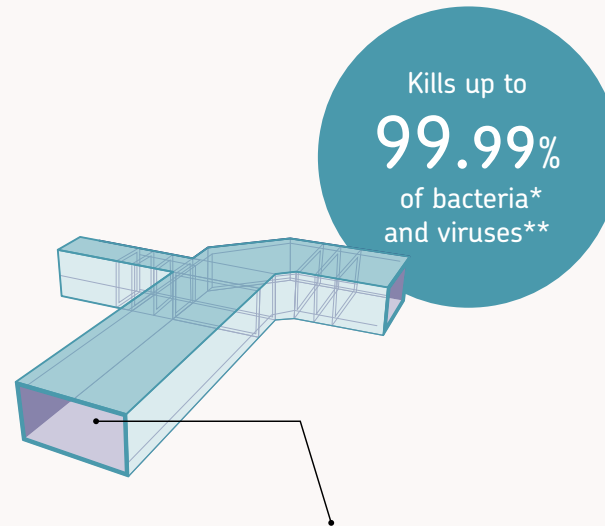
The new InCare technology, based on copper ions, inhibits the ability of micro-organisms such as bacteria, viruses and fungi to reproduce on the interior walls of the duct, improving the health standards of air conditioning systems and contributing to better air quality.

## Proven effectiveness

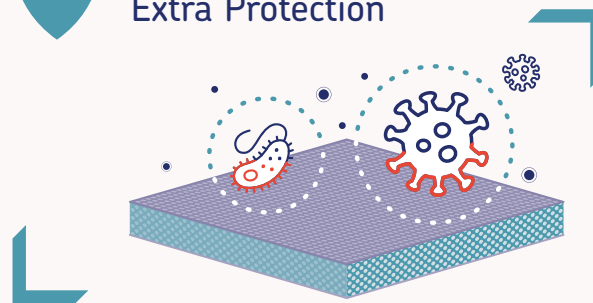
All URSA AIR panels with InCare technology comply with the UNE-EN 13403:2003 standard and guarantee no microbial growth. Now, the new URSA AIR panels with InCare technology eliminate up to 99.99% of bacteria and viruses that might be deposited on the internal surface of the product.

\* According to studies carried out by approved research institutes (ISO 20743:2013). \*\*Applicable to human Coronavirus.

By offering faster biocidal speed, we achieve greater care for the quality of the air circulating inside.

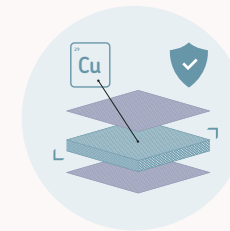


InCare  
Extra Protection



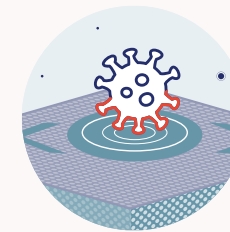
Discover  
InCare Technology

[incare.ursa.es](http://incare.ursa.es)



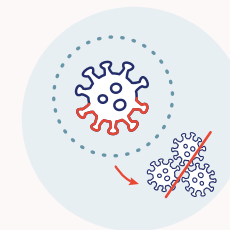
### 1. Extra protection

We apply InCare technology based on copper ions to mineral wool.



### 2. Activation

Microorganisms present in the air come into contact with the mineral wool, activating the inhibiting action of the copper.



### 3. Microbial inactivation

Kills up to 99.99% of bacteria\* and viruses\*\*



### 4. Superior air quality

The faster biocidal speed offered by this technology offers greater care for the quality of the air circulating in the product's interior surface.

# Advantages of URSA AIR duct networks

Our **URSA AIR** air conditioning ducting system offers numerous advantages over traditional systems, both in terms of energy savings and performance, as well as ease of handling and installation.



**InCare**  
**Extra Protection**



## Improving air quality

Installing URSA AIR range with InCare technology preserves health and ensures energy efficiency and comfort in all areas.



## High energy savings

The thermally pre-insulated URSA AIR panels provide the system with an optimum level of thermal insulation.



## Acoustic noise reduction

The acoustic absorption through the ducts of the URSA AIR systems ensures the comfort of the installation's users. Traditional systems with materials such as sheet metal or other insulating materials do not provide sound absorption.



## Good fire performance

Outstanding fire resistance.



## Excellent pressure resistance

Tests in accordance with the EN 13403 confirm that URSA AIR ducts withstand, without rupture, an internal air pressure of 2.5 times the maximum recommended positive pressure of 800 Pa.

For ducts with cross-sections greater than 1,000 mm and pressures equal to or greater than 150 Pa, the installation will need to be reinforced.



## Pressure drop

- **URSA AIR system with interior aluminium lining:** pressure drop very similar to metal duct systems.
- **Systems with interior acoustic (rough) linings:** does not increase by more than 11%.

Value of the Darcy friction factor f:

- **URSA AIR Alu-Alu P5858:** 0.017\*. Value equivalent to galvanised steel ducts.
- **URSA AIR Zero P8858:** 0.019\*.

\*Test Report No. 2914197/1 CETIAT.



## Cost savings

- **Cost-effective additional parts:** in a metal system, unforeseen additional parts must be transported from the workshop to the construction site. With URSA AIR ducts, these parts can be built on site, which saves a lot of time and money.
- **Saves installation time:** URSA AIR panels do not require manual machining thanks to their tongue and groove system, improving installation times and guaranteeing pressure resistance and airtightness.
- **Ease of transport:** Direct handling on site allows the panels to be transported flat, rather than shaped and therefore larger. In addition, the number of trucks needed to transport the material to the site is reduced, benefiting the environment.



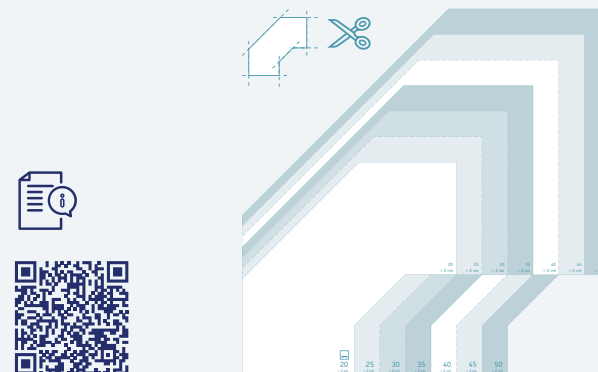
## Ease of cutting and installation

The inner fabric of URSA AIR Zero panels, with excellent mechanical resistance, is also easier for the installer to cut.

- **80% less duct weight:** Compared to traditional galvanised sheet metal.
- **On-site adaptability:** URSA AIR panels can be handled on site, saving the installer time in the assembly and transport of unforeseen additional parts.

**URSA AIR Easycut templates system:**  
saves time and effort

The **URSA AIR Easycut**, cutting templates, incorporated into the new improved panel packaging, make constructing ducts quicker and simpler.



Installer's manual

# Range

## URSA AIR

Mineral wool boards and blankets for thermal and acoustic insulation and/or for the construction of air-conditioning ducts



**URSA AIR**

☐ Alu-Alu panel  
P5858



**URSA AIR**

☐ Zero IN  
M8703 blanket



**URSA AIR**

☐ Alu-Tech2  
panel P8058



**URSA AIR**

☐ Reinforced  
aluminium  
blanket M5102L



**URSA AIR**

☐ Zero panel  
P8858



**URSA AIR**

☐ Aluminium  
blanket pure  
non-combustible  
M3603



**URSA AIR**

☐ Zero A2  
panel



**URSA AIR**

☐ Aluminium  
blanket M2021



**URSA AIR**

Tool cases



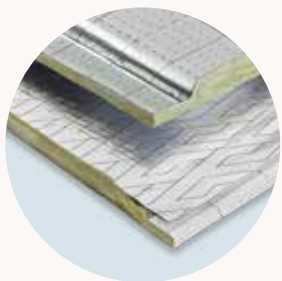
**URSA AIR**

Tools



# URSA AIR

## Alu-Alu P5858 Panel



Mineral wool panel with InCare technology for the construction of air conditioning ducts in accordance with the standard UNE EN 14303.

DoP 34AIR32AK0B22021

### Finish

- **Interior:** kraft-aluminium complex with IN marking system.
- **Exterior:** reinforced kraft-aluminium complex.

Lambda ( $\lambda_{90/90}$ )	10°C	EN 12667 EN 12939	0,032 W/m·K
Lambda ( $\lambda_{90/90}$ )	24°C		0,034 W/m·K
Lambda ( $\lambda_{90/90}$ )	40°C		0,036 W/m·K
Lambda ( $\lambda_{90/90}$ )	60°C		0,038 W/m·K
Reaction to fire (Euroclasses)	EN 13501-1		B-s1,d0
Acoustic absorption without plenum ( $\alpha$ )			0,45
Pressure resistance	EN 13403		800 Pa
Resistance to water vapour diffusion	EN 12086		MV1 - 148,15 m <sup>2</sup> h Pa/mg
Airtightness	RITE		ATC1
Airtightness	EN 1507		D
Nominal density approx.			81 Kg/m <sup>3</sup>
Designation code	MW-EN 14303-T5-MV1		

# InCare



0099/CPR/A43/0294

020/003540

ETE 22/0024

Panel

Code	Format	Thickness mm	Width m	Length m	Avail	U./ PKg	m <sup>2</sup> / PKg	PKg /pallet	m <sup>2</sup> /pallet	TR m <sup>2</sup> ·K/W
2075014	Box	25	1,20	3,00	S	6	21,60	7	151,20	0,78
2133145	XL Bulk pallet	25	1,20	3,00	S	46	165,60	-	165,60	0,78
2135083	XS Bulk pallet	25	1,20	2,40	S	46	132,48	-	132,48	0,78

Avail availability **S**: stock **C**: please enquire **PKg**: package **TR**: thermal resistance (indicated at 10°C)

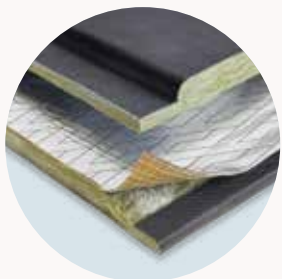
**Box** Box with 6 panels 3x1,2 m. **XL** Pallets with 46 bulk panels of 3x1,2 m. **XS** Pallets with 46 bulk panels of 2,4x1,2 m.

Acoustic performance								
Frequency (Hz)			125	250	500	1000	2000	4000
Sound absorption coefficient ( $\alpha$ )			0,20	0,15	0,45	0,60	0,50	0,35
Sound attenuation in a straight section (dB/m)	Section	200x200	2,21	1,47	6,87	10,27	7,96	4,83
		300x400	1,29	0,86	4,01	5,99	4,64	2,82
		400x500	0,99	0,66	3,09	4,62	3,58	2,17
		400x700	0,87	0,58	2,70	4,04	3,13	1,90
		500x1000	0,66	0,44	2,06	3,08	2,39	1,45

Calculations made with sound absorption with 37-cm plenum.

# URSA AIR

## Zero P8858 Panel



Mineral wool panel with InCare technology for the construction of air conditioning ducts in accordance with the standard UNE EN 14303.

DoP 34AIR32GT0B22021

### Finish

- **Interior:** Zero acoustic fabric, which offers high mechanical resistance.
- **Exterior:** reinforced kraft-aluminium complex.

Lambda ( $\lambda_{90/90}$ )	10°C	EN 12667 EN 12939	0,032 W/m·K
Lambda ( $\lambda_{90/90}$ )	24°C		0,034 W/m·K
Lambda ( $\lambda_{90/90}$ )	40°C		0,036 W/m·K
Lambda ( $\lambda_{90/90}$ )	60°C		0,038 W/m·K
Reaction to fire (Euroclasses)	EN 13501-1	B-s1,d0	
Acoustic absorption without plenum ( $\alpha$ )		0,55	
Acoustic absorption plenum 37 cm ( $\alpha$ )		0,80	
Pressure resistance	EN 13403	800 Pa	
Resistance to water vapour diffusion	EN 12086	MV1 - 148,15 m <sup>2</sup> h Pa/mg	
Airtightness	RITE	ATC1	
Airtightness	EN 1507	D	
Nominal density approx.		81 Kg/m <sup>3</sup>	
Designation code	MW-EN 14303-T5-MV1		

# InCare



0099/CPR/A43/0295

020/003541

ETE 22/0024

CTA 307/11/REV

Panel

Code	Format	Thickness mm	Width m	Length m	Avail	U./ PKg	m <sup>2</sup> / PKg	PKg /pallet	m <sup>2</sup> /pallet	Rt m <sup>2</sup> ·K/W
2132341	Box	25	1,20	3,00	S	6	21,60	7	151,20	0,78
2134231	XL Bulk pallet	25	1,20	3,00	S	46	165,60	-	165,60	0,78
2135165	XS Bulk pallet	25	1,20	2,40	S	46	132,48	-	132,48	0,78

Avail availability **S**: stock **C**: please enquire **PKg**: package **TR**: thermal resistance (indicated at 10°C)

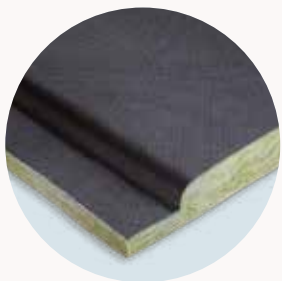
**Box** Box with 6 panels 3x1,2 m. **XL** Pallets with 46 bulk panels of 3x1,2 m. **XS** Pallets with 46 bulk panels of 2,4x1,2 m.

Acoustic performance							
Frequency (Hz)			125	250	500	1000	2000
Sound absorption coefficient ( $\alpha$ )			0,35	0,60	0,70	0,95	1,00
Sound attenuation in a straight section (dB/m)	Section	200x200	4,83	10,27	12,75	19,54	21,00
		300x400	2,82	5,99	7,43	11,40	12,25
		400x500	2,17	4,62	5,74	8,80	9,45
		400x700	1,90	4,04	5,01	7,68	8,25
		500x1000	1,45	3,08	3,82	5,86	6,30

Calculations made with sound absorption with 37-cm plenum.

# URSA AIR

## Zero A2 Panel



Mineral wool panel with InCare technology for the construction of air conditioning ducts in accordance with the standard UNE EN 14303. Combines excellent sound absorption with non-combustibility.

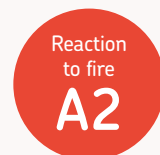
DoP 34AIR32GTA216091

### Finish

- **Interior:** Zero acoustic fabric, which offers high mechanical resistance.
- **Exterior:** non-combustible aluminium fabric complex, which provides an excellent finish so that the duct can be installed in plain view.

Lambda ( $\lambda_{90/90}$ )	10°C	EN 12667 EN 12939	0,032 W/m·K
Lambda ( $\lambda_{90/90}$ )	24°C		0,034 W/m·K
Lambda ( $\lambda_{90/90}$ )	40°C		0,036 W/m·K
Lambda ( $\lambda_{90/90}$ )	60°C		0,038 W/m·K
Reaction to fire (Euroclasses)		EN 13501-1	A2-s1,d0
Acoustic absorption without plenum ( $\alpha$ )	25 mm		0,55
	40 mm		0,80
Acoustic absorption plenum 37 cm ( $\alpha$ )	25 mm		0,80
	40 mm		0,95
Pressure resistance	EN 13403		800 Pa
Resistance to water vapour diffusion	EN 12086		MV1 - 148,15 m <sup>2</sup> h Pa/mg
Airtightness	RITE		ATC1
Airtightness	EN 1507		D
Nominal density approx.	25 mm		81 Kg/m <sup>3</sup>
	40 mm		65 Kg/m <sup>3</sup>
Designation code	MW-EN 14303-T5-MV1		

# InCare



Panel



0099/CPR/A43/0316

020/003539

ETE 22/0024

12/5203-878

Code	Format	Thickness mm	Width m	Length m	Avail	U./ PKg	m <sup>2</sup> / PKg	PKg /pallet	m <sup>2</sup> /pallet	Rt m <sup>2</sup> ·K/W
2137575	Box	25	1,20	3,00	C	6	21,60	7	151,20	0,78
2140119	XL Bulk pallet	40	1,20	3,00	C	29	-	-	107,40	1,25

Avail availability **S**: stock **C**: please enquire **PKg**: package **TR**: thermal resistance (indicated at 10°C)

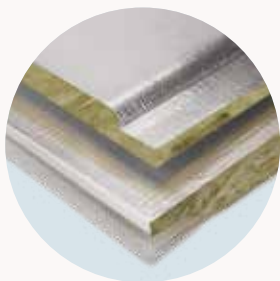
**Box** Box with 6 panels 3x1,2 m. **XL** Pallets with 46 bulk panels of 3x1,2 m. **XS** Pallets with 46 bulk panels of 2,4x1,2 m.

Acoustic performance									
Thickness (mm)			25	40	25	40	25	40	25-40
Frequency (Hz)			125	125	250	250	500	500	1000 2000
Sound absorption coefficient ( $\alpha$ )			0,35	0,45	0,60	0,70	0,70	0,90	0,95 1,00
Sound attenuation in a straight section (dB/m)	Section	200x200	4,83	6,87	10,27	12,75	12,75	18,12	19,54 21,00
		300x400	2,82	4,01	5,99	7,43	7,43	10,57	11,40 12,25
		400x500	2,17	3,09	4,62	5,74	5,74	8,15	8,80 9,45
		400x700	1,90	2,70	4,04	5,01	5,01	7,12	7,68 8,25
		500x1000	1,45	2,06	3,08	3,82	3,82	5,44	5,86 6,30

Calculations made with sound absorption with 37-cm plenum.

# URSA AIR

## Alu-Tech2 P8058 Panel



Mineral wool panel with InCare technology for the construction of air conditioning ducts in accordance with the standard UNE EN 14303. Reaction to fire (Euroclasses) A2, totally non-combustible.

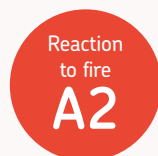
DoP 34AIR32ALA216091

### Finish

- **Interior:** non-combustible reinforced pure aluminium.
- **Exterior:** non-combustible aluminium fabric complex, which provides an excellent finish so that the duct can be installed in plain view.

Lambda (λ90/90)	10°C	EN 12667 EN 12939	0,032 W/m·K
Lambda (λ90/90)	24°C		0,034 W/m·K
Lambda (λ90/90)	40°C		0,036 W/m·K
Lambda (λ90/90)	60°C		0,038 W/m·K
Reaction to fire (Euroclasses)	EN 13501-1	A2-s1,d0	
Acoustic absorption without plenum (α)		0,45	
Pressure resistance	EN 13403	800 Pa	
Resistance to water vapour diffusion	EN 12086	MV1 - 148,15 m²h Pa/mg	
Airtightness	RITE	ATC1	
Airtightness	EN 1507	D	
Nominal density approx.		81 Kg/m³	
Designation code	MW-EN 14303-T5-MV1		

# InCare



Panel

Code	Format	Thickness mm	Width m	Length m	Avail	U./ PKg	m <sup>2</sup> / PKg	PKg /pallet	m <sup>2</sup> /pallet	Rt m <sup>2</sup> ·K/W
2127551	Box	25	1,20	3,00	S	6	21,60	7	151,20	0,78
2141168	Box	25	1,20	2,90	S	6	20,88	7	146,16	0,78

Avail availability **S**: stock **C**: please enquire **PKg**: package **TR**: thermal resistance (indicated at 10°C)

**Box** Box with 6 panels 3x1,2 m. **XL** Pallets with 46 bulk panels of 3x1,2 m. **XS** Pallets with 46 bulk panels of 2,4x1,2 m.

Acoustic performance					
Frequency (Hz)	125	250	500	1000	2000
Sound absorption coefficient ( $\alpha$ )	0,02	0,20	0,40	0,60	0,50



0099/CPR/A43/0315

020/003543

ETE 22/0024



# URSA AIR

## Zero IN M8703 Blanket



Mineral wool blanket with InCare technology for interior thermal and acoustic insulation of metal air conditioning ducts, in accordance with UNE EN 14303. It allows working at circulation air temperatures of up to 120°C.

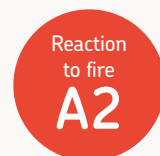
DoP 34AIR32GT22021

### Finish

- Black acoustic absorbent fabric on one side of the material.

Lambda (λ90/90)	10°C	EN 12667 EN 12939	0,032 W/m·K
Lambda (λ90/90)	24°C		0,034 W/m·K
Lambda (λ90/90)	40°C		0,037 W/m·K
Lambda (λ90/90)	60°C		0,041 W/m·K
Reaction to fire (Euroclasses)	EN 13501-1		A2-s1,d0
Acoustic absorption without plenum (α)			0,55
Nominal density approx.			30 Kg/m³
Specific heat approx. (C <sub>p</sub> )			800 J/Kg·K
Designation code	MW-EN 14303-T3		

# InCare



Code	Thickness mm	Width m	Length m	Avail	U./ PKg	m <sup>2</sup> / PKg	PKg /pallet	m <sup>2</sup> /pallet	Rt m <sup>2</sup> ·K/W
2135003	25	1,20	18,00	S	1	21,60	18	388,80	0,78
2135973	40	1,20	11,50	C	1	13,80	18	248,40	1,25

Avail availability **S**: stock **C**: please enquire **PKg**: package **TR**: thermal resistance (indicated at 10°C)

Acoustic performance							
Frequency (Hz)			125	250	500	1000	2000
Sound absorption coefficient ( $\alpha$ )			0,10	0,30	0,55	0,75	0,95
Sound attenuation in a straight section (dB/m)	Section	200x200	0,84	3,89	9,09	14,04	19,54
		300x400	0,49	2,27	5,30	8,19	11,40
		400x500	0,38	1,75	4,09	6,32	8,80
		400x700	0,33	1,53	3,57	5,51	7,68
		500x1000	0,25	1,17	2,73	5,86	5,86

Calculations made with sound absorption with 37-cm plenum.

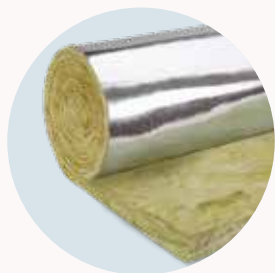


0099/CPR/A43/0338 020/003462 11/4298-3054



# URSA AIR

## M2021 Aluminium Blanket



Mineral wool blanket with InCare technology for the insulation of metal air conditioning ducts on the outside, in accordance with the UNE EN 14303 standard. It allows working at circulation air temperatures of up to 120°C.

DoP 34AIR40AK13071

### Finish

- **Exterior:** kraft-aluminium complex.

Lambda (λ90/90)	10°C	EN 12667 EN 12939	0,040 W/m·K
Lambda (λ90/90)	24°C		0,042 W/m·K
Lambda (λ90/90)	40°C		0,048 W/m·K
Lambda (λ90/90)	60°C		0,054 W/m·K
Reaction to fire (Euroclasses)		EN 13501-1	B-s1,d0
Resistance to water vapour diffusion		EN 12086	MV1 - 148,15 m²h Pa/mg
Nominal density approx.			12 Kg/m³
Specific heat approx. (Cp)			800 J/Kg·K
Designation code		MW-EN 14303-T1-MV1	

 InCare



0099/CPR/A43/0341 020/003463



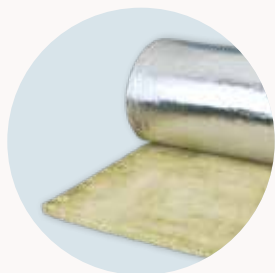
Roll

Code	Thickness mm	Width m	Length m	Avail	U./PKg	m²/PKg	PKg /pallet	m²/pallet	Rt m²·K/W
2141026	50	1,20	16,50	s	1	19,80	18	356,40	1,25
2075066	100	1,20	7,50	C	1	9,00	18	162,00	2,50

Avail availability **S**: stock **C**: please enquire **PKg**: package **TR**: thermal resistance (indicated at 10°C)

# URSA AIR

## M3603 Non-combustible pure aluminium blanket



Mineral wool blanket with InCare technology for the insulation of metal air conditioning ducts on the outside, in accordance with the UNE EN 14303 standard. It allows working at circulation air temperatures of up to 120°C.

DoP 34AIR34AL16091

### Finish

- **Exterior:** reinforced pure aluminium complex with non-combustible glass mesh.

Lambda (λ90/90)	10°C	EN 12667 EN 12939	0,034 W/m·K
Lambda (λ90/90)	24°C		0,036 W/m·K
Lambda (λ90/90)	40°C		0,040 W/m·K
Lambda (λ90/90)	60°C		0,045 W/m·K
Reaction to fire (Euroclasses)	EN 13501-1		A1
Resistance to water vapour diffusion	EN 12086		MV1 - 148,15 m²h Pa/mg
Nominal density approx.			30 Kg/m³
Specific heat approx. (Cp)			800 J/Kg·K
Designation code	MW-EN 14303-T3-MV1		

# InCare



Roll

Code	Thickness mm	Width m	Length m	Avail	U./PKg	m²/PKg	PKg/pallet	m²/pallet	Rt m²·K/W
2075091	25	1,20	16,00	C	1	19,20	18	345,60	0,73
2137367	30	1,20	16,00	C	1	19,20	18	345,60	0,88
2142678	45	1,20	11,50	C	1	13,80	18	248,40	1,32
2143339	50	1,20	10,20	C	1	12,24	18	220,32	1,47

Avail availability **S**: stock **C**: please enquire **PKg**: package **TR**: thermal resistance (indicated at 10°C)



0099/CPR/A43/0339 020/003546



# URSA AIR

## M5102L Reinforced aluminium blanket



Mineral wool blanket with InCare technology for the thermal insulation of metal air conditioning ducts on the outside, in accordance with the standard UNE EN 14303. It allows working at circulation air temperatures of up to 120°C.

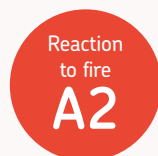
DoP 34AIR34AK16091

### Finish

- **Exterior:** reinforced kraft-aluminium complex with tongue and groove.

Lambda (λ90/90)	10°C	EN 12667 EN 12939	0,034 W/m·K
Lambda (λ90/90)	24°C		0,036 W/m·K
Lambda (λ90/90)	40°C		0,040 W/m·K
Lambda (λ90/90)	60°C		0,045 W/m·K
Reaction to fire (Euroclasses)	EN 13501-1		A2-s1,d0
Resistance to water vapour diffusion	EN 12086		MV1 - 148,15 m²h Pa/mg
Nominal density approx.			22 Kg/m³
Specific heat approx. (Cp)			800 J/Kg·K
Designation code	MW-EN 14303-T3-MV1		

# InCare



Roll

Code	Thickness mm	Width m	Length m	Avail	U./ PKg	m²/ PKg	PKg /pallet	m²/pallet	Rt m²·K/W
2133462	30	1,15	18,00	S	1	20,70	18	372,60	0,88
2142679	45	1,15	11,50	C	1	13,23	18	238,05	1,32
2142812	50	1,15	11,50	S	1	13,23	18	238,05	1,47

Avail availability **S**: stock **C**: please enquire **PKg**: package **TR**: thermal resistance (indicated at 10°C)



0099/CPR/A43/0340 020/003544





# URSA AIR

## Tools

They allow ducts to be cut and constructed from **URSA AIR** panels, providing great advantages to the installer:


- A smoother cut with minimum effort.
- Precise and tear-free cutting of the different panels.
- Homogeneous cuts without dragging the mineral wool.



The new red tool includes two types of interchangeable blade, which can be adapted to the needs of the project. Make faster cuts or attain greater precision for your projects.



Installer's manual

	Tool case cutting for panels 25mm	7043025	Case with 3 cutting tools (red, blue and black) for 25 mm thick URSA AIR panels.
	Replacement blade kit	7042084	Set of spare blades for 25 mm thick URSA AIR panels. .
	Tool case for 40 mm panels	7042083	Case kit with 2 tools (red and blue) for the construction of 40 mm ducts.
	URSA AIR Aluminium bracket	7042898	URSA AIR folding bracket. It has a 90° position for making straight ducts; a 67.5° position for making figures from straight ducts; and other positions such as 45°.
	URSA AIR Knife	7041357	Precise cutting with minimum effort. Sales unit: box of 12 knives.
	URSA AIR Flexometer	7042895	Measurement and layout in the construction of ducts. Sales unit: box of 25 flexometers.
	URSA AIR Spatula	7041359	Ensures the sealing of the aluminium tape. Sales unit: box of 100 spatulas.
	URSA AIR Aluminium tape	7042965	Aluminium foil tape with acrylic adhesive of nominal thickness 30 µm, 50 yds long and 75 mm wide.

# Summary of required characteristics for panels and ducts



## Thermal insulation and energy efficiency

### Thermal insulation

Thermal insulation of air conditioning ducts is essential to maintain the temperature of the transported air, to avoid pathologies such as condensation and to reduce the energy losses of the system.

Ducts made from URSA AIR panels are thermally preinsulated ducts.

The parameter that defines the insulation level of a product is thermal conductivity ( $\lambda$ ).

Characteristics	Standard	Value
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

The value of the declared thermal conductivity ( $\lambda_{90/90}$ ), does not express the exceptional value of a single test, but rather that 90% of the panels improve this conductivity, with a confidence level of 90%.

Unlike other insulation products —such as plastic foams, where the gas inside the cell structure diffuses, and its conductivity value increases by 30–40%— the open structure of mineral wool contains air, and the value of its thermal conductivity remains constant over time. The thermal conductivity of URSA AIR panels, according to the declared required standard, can be consulted at different temperatures, to be considered depending on the temperature of the air they transport.



# Pressure drops due to friction

## What is the regulatory requirement?

The table shows the minimum thicknesses required for a material with a reference thermal conductivity at 10°C of 0.040 W/(m·K).

Type of air	Interiors (mm)	Exteriors (mm)
Hot	20	30
Cold	30	50

If the insulation used has a different thermal conductivity than that assumed, the following formula can be applied to determine the minimum thickness:

$$d = d_{\text{ref}} \left( \frac{\lambda}{\lambda_{\text{ref}}} \right)$$

Bearing in mind that the conductivity at 10°C of URSA AIR panels is 0.032 W/(m·K), we can see that with its 25 mm it complies with the RITE requirement.

URSA does not recommend the installation of these panels outdoors.

They occur at those points or sections where the flow undergoes velocity disturbances due to changes in direction or variation of their absolute values.

For practical purposes, these dynamic losses, although they occur across the entire length of a duct, are considered to be localised in the areas affecting the change in velocity mentioned above, which facilitates their calculation.

This calculation is valid, provided that friction losses are deemed to affect sufficiently long straight sections (lengths greater than six equivalent diameters). If the straight section between two connections involving local pressure drops is less than this amount, the current configurations do not allow this type of calculation.

The coefficient for local pressure drops, C, is a dimensionless value corresponding to the ratio of the pressure drop referring to the total pressure, with regard to the dynamic pressure in the section under consideration:

$$C = \frac{\Delta P_t}{P_v}$$

*C* loss coefficient (dimensionless)  
 $\Delta P_t$  total pressure loss in the section under consideration (Pa)  
 $P_v$  dynamic pressure in the section under consideration (Pa)

The C coefficients obtained in calculations performed on ducts in the URSA AIR range are equivalent to the values for galvanised sheet metal, and can be obtained from the values reflected in the "Fundamentals Manual" of ASHRAE.

When the air flow changes direction in a duct, the geometrical considerations must be complemented by another coefficient which affects the characteristics of the circulating air by corrections due to the Reynolds number (Re).

$$Re = \frac{\rho \cdot D \cdot v}{\mu}$$

*Re* Reynolds number (dimensionless)  
 $\rho$  air density (kg/m³)  
*D* equivalent duct diameter (m)  
*v* air speed (m/s)  
 $\mu$  air viscosity (mPa/s)

Under normal conditions, applicable to air conditioning:

$$Re = 6,63 \times 10^4 \cdot D \cdot v$$

In other cases, the loss ratio is represented by:

$$C = C' \cdot K_{Re}$$

*C'* geometric loss coefficient (dimensionless)  
 $K_{Re}$  flow loss coefficient (dimensionless)



# Acoustics

URSA AIR Zero and URSA AIR Zero A2 mineral wool panels offer excellent sound absorption, thanks to the inner lining made of Zero acoustic fabric

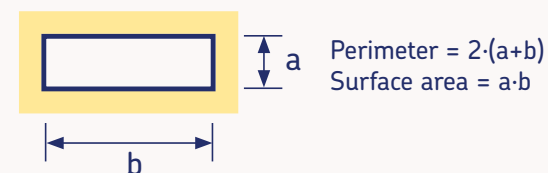
Air conditioning installations produce variable noise levels, which depend on the design and power of the equipment, as well as constructing a noise transmission pathway through the ductwork.

In Spain it is established that: "the thermal installations of buildings must comply with the requirements of document DB HR "Protection against noise" of the Technical Building Code"

The attached table defines the maximum values of airborne noise emission sound levels recommended for indoor environments produced by the installations:

- **Sound absorption:** relevant technical property of the inner surface of the panel, which indicates the reduction of noise propagation inside the ducts. It is defined as the ratio between the acoustic energy absorbed by the surface of a product and the total acoustic energy incident on said surface.
- **The overall  $\alpha$  value of 0.80** measured with a plenum box of 37 cm implies that they are type B absorbers according to UNE EN ISO 11654.

From the sound absorption, the insertion loss per metre of duct [dB/m] can be calculated according to the duct cross-section.



$$\Delta L[\text{dB}] = 1.05 \cdot \alpha^{1.4} \cdot \frac{\text{Perimeter [m]}}{\text{Surface area [m]}}$$

Some values of acoustic attenuation in URSA AIR Zero ducts can be seen in the following table:

Type of premises		Maximum sound level values for indoor environments (dB(A))	
		Day: 8 a.m. to 10 p.m.	Night: 10 p.m. to 8 a.m.
Administrative and offices		45	--
Commercial		55	--
Cultural and religious		40	--
Education		45	--
Hospital (day 8 a.m. to 9 p.m.)		40	30
Leisure		50	--
Residential		40	30
Housing	Living quarters except kitchens	35	30
	Corridors, toilets, and kitchens	40	35
	Common access areas	50	40
Common spaces: lobbies, hallways		50	--
Service spaces: toilets, kitchens, laundry rooms		55	--

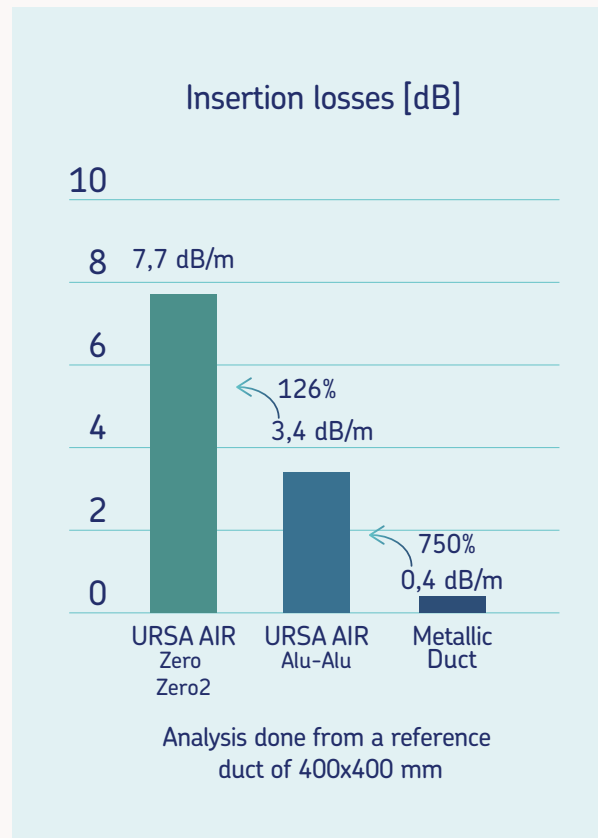
Acoustic performance of URSA AIR Zero P8858						
Frequency (Hz)		125	250	500	1000	2000
Sound absorption coefficient( $\alpha$ )		0,35	0,60	0,70	0,95	1,00
Sound attenuation in a straight section (dB/m)						
Section	200x200	4,83	10,27	12,75	19,54	21,00
	300x400	2,82	5,99	7,43	11,40	12,25
	400x500	2,17	4,62	5,74	8,80	9,45
	400x700	1,90	4,04	5,01	7,68	8,25
	500x1000	1,45	3,08	3,82	5,86	6,30

Test carried out with 37cm plenum.





Comparative graph of the sound attenuation level in duct networks made with different products.



### What is the regulatory requirement?

The DB HR Document on noise protection of the Technical Building Code, in its section on installations, states the following:

### Air conditioning

- Ducts must be routed separately between protected enclosures and habitable enclosures.
- In exposed ducts, coverings with adequate airborne sound insulation shall be used.
- Grilles and terminal diffusers shall be used whose power level generated by the passage of conditioned air meets the condition:

$$L_w \leq L_{eqA,T} + 10 \cdot \lg V - 10 \cdot \lg T - 14 \text{ (dB)}$$

$L_w$ : grille sound power level (dB).  $L_{eqA,T}$ : A-weighted, standardised equivalent continuous sound level value, as set out in Table D1, Annex D, depending on the use of the building, type of enclosure and time period (dBA).  
T: reverberation time of the enclosure which can be calculated according to the above expression. V: volume of the enclosure (m<sup>3</sup>)

- They must be lined with an absorbent material and specific silencers must be used in such a way that the attenuation of the noise generated by the driving machinery or by the air flow is greater than 40 dBA at the arrivals of the injection grilles and diffusers in the protected enclosures.

- The transmission of vibrations from the ducts to the building components must be prevented by means of anti-vibration systems.

### Ventilation

- Vertical ventilation ducts and ducting running through habitable and protected enclosures within a unit of use must be insulated.
- Where they are attached to vertical separating components between different units of use or facades, they shall be clad in such a way that the sound insulation of the separating component is not reduced and the continuity of the constructive solution is ensured.

Due to the complexity of determining the types of noise in different installations and constructive solutions, it is ideal to study noise at the design stage.



# Security and fire

Fire protection of a building's users and passive fire prevention measures are and have always been one of the most important aspects of building design and construction.












The reaction-to-fire performance of construction products makes it possible to assess the behaviour of products in the event of fire.

Euroclasses are a classification and testing system applicable throughout Europe. According to the

Euroclasses, products can range from class F (highly combustible products) to class A (non-combustible products). The mandatory legal classification establishes different classes according to the standard UNE EN 13501-1, with designations A1, A2, B, C, D, E and F.

These classes indicate the contribution to fire, the calorific value and the degree of flammability of the material.

A material classified as A1 shall be one that does not contribute to the fire in any case, even in a fully developed fire. An A2 material shall be a material that cannot contribute significantly to the fire and cannot contribute to the development of the fire. A B material is a combustible material that has not exceeded the required values for the previous classes, and so on.

Expression of the reaction to fire performance (Euroclasses)					
Energy contribution to fire A-B-C-D-E-F		Smoke opacity S1 - S2 - S3		Fire droplets D0 - D1 - D2	
A1	Non-combustible		No test is required		No test is required
A2	 Non-combustible	S1	 No or low level of smoke	D0	 No droplets in 10 minutes
B	 Prolonged attack of small flames and the individual object resists combustion with a limit to flame spread	S2	 Average smoke production	D1	 A few flaming droplets in less than 10 seconds
C	 A short attack of small flames and an individual object resists combustion with a limit to flame spread				
D	 Withstands a short attack of small flames with limited flame spread and an individual object burning	S3	 Very high smoke production	D2	 Flaming droplets falling
E	 A short attack of small flames with limited flame spread	E	No evidence	E	No indication or d2
F	No declared performance				

Classes A2, B, C and D are supplemented by smoke and droplet indications (the three indications are independent of each other). Class E may appear with the indication d2.

## URSA AIR

Excellent fire safety performance, well above regulatory requirements.

Products classified as A2, B, C and D must also add two additional classifications:

- In relation to smoke production: s1 (no or low smoke production), s2 (medium smoke production), s3 (very high smoke production). This classification takes into account their toxicity and opacity.
- With regard to flaming droplets and/or particle production: d0 (no droplets falling), d1 (some droplets falling) and d2 (droplets falling quickly).

URSA AIR panels have a fire classification A2-s1, d0 for non-combustible products and B-s1, d0 for the rest of the range.

The B classification indicates that the energy input due to the combustion of kraft aluminium is minimal, as mineral wool is inherently non-combustible. Class s1 indicates that the product does not produce fumes. Class d0 indicates that the product does not release droplets. Non-combustible panels with A2-s1, d0 reaction to fire are: URSA AIR Tech-2 and URSA AIR Zero A2.

### What is the regulatory requirement?

All materials that are part of an air conditioning installation must have a fire performance class in accordance with DB\_SI included in the Technical Building Code. We highlight in section SI 1, section 4 "Reaction to fire of construction, decorative and furniture components", within this, point 2, in which we can read the data shown in Table 4.1.

The minimum requirement set by the Technical Building Code is B-s3, d0, while URSA AIR ducts are classified as B-s1, d0 (no smoke emission).

For higher fire requirements, URSA AIR presents its A2 range, with Euroclass A2-s1,d0, the best possible for an air conditioning duct.



Table 4.1 Classes of reaction-to-fire performance of building components		
Location of the component	Cladding <sup>(1)</sup>	
	Ceilings and walls <sup>(2) (3)</sup>	Floors <sup>(2)</sup>
Available areas <sup>(4)</sup>	C-s2, d0	E <sub>FL</sub>
Car parks	A2-s1, d0	A2 <sub>FL</sub> -s1
Protected hallways and stairways	B-s1, d0	C <sub>FL</sub> -s1
Car parks and special risk areas <sup>(5)</sup>	B-s1,d0	B <sub>FL</sub> -s1
Hidden spaces that are not airtight: shafts, false ceilings, raised floors, etc.	B-s3, d0	B <sub>FL</sub> -s2 <sup>(6)</sup>

(1) Provided they exceed 5% of the total areas of all walls, all ceilings or all floors of the enclosure concerned. (2) Includes pipes and ducts passing through the areas indicated without fire resistant cladding. In the case of pipes with linear thermal insulation, the reaction to fire class shall be as indicated, but with the addition of the subscript L. (3) Includes those materials which constitute a layer contained within the interior of the roof or wall and which are not protected by a layer that is at least EI 30. (4) Includes unprotected areas where people remain and circulate. Excludes the interior of dwellings. In hospital use, the same conditions apply as for protected hallways and stairways. (5) See Chapter 2 of this section. (6) Refers to the underside of the cavity, e.g., in the plenum of a false ceiling it refers to the material on the top face of the membrane. In spaces with a clear vertical configuration (e.g. shafts) this condition does not apply.

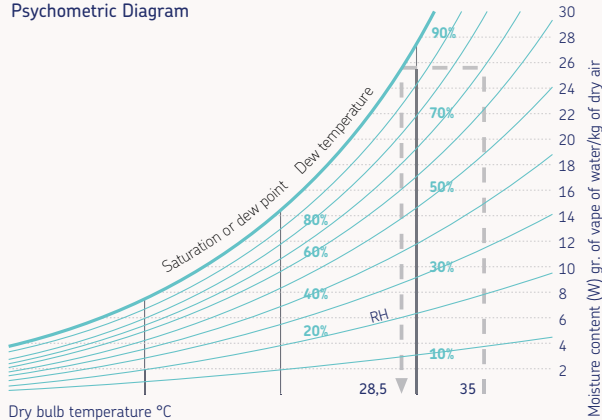


# Condensation and airtightness

## Condensations

When an air mass with a given temperature and relative humidity (RH) cools and reaches the dew point temperature ( $T_d$ ), where the RH is 100%, condensation occurs.

Psychrometric Diagram

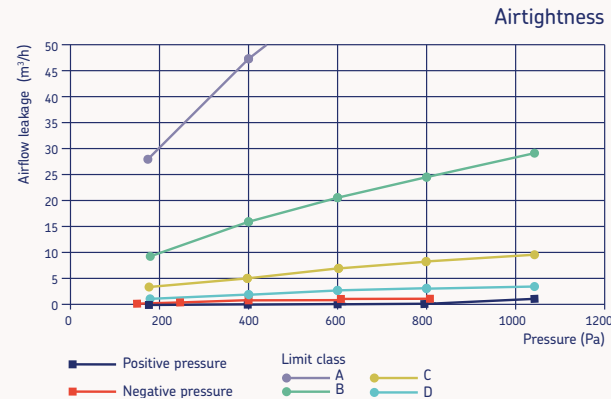


It is essential to study the level of thermal insulation required in equipment and installations, taking into account the most unfavourable conditions, to ensure that condensation will not occur.

The use of mineral wool insulation requires a vapour barrier to prevent interstitial condensation within the insulation mass. Ducts made with URSA AIR panels avoid this risk as they have an external coating that acts as a vapour barrier.

The aluminium cladding on the outside of the panels acts as a vapour barrier to prevent condensation from forming on the mineral wool core. For this reason, pure aluminium tapes are also used for sealing the joints.

The vapour resistance level is MV1, which implies a certified vapour resistance of 148  $\text{m}^2\text{h}\cdot\text{Pa}/\text{mg}$ .



## Airtightness

Energy losses in duct systems are caused by energy leakage due to heat transfer caused by the temperature difference between the air circulating inside the duct and the air in the room (need for thermal insulation) and by airtightness losses in the network.

URSA AIR ducting systems have a level of airtightness in accordance with the UNE EN 13403 standard, tested and certified class D. This level of airtightness exceeds that of metallic ducts.

Airtightness class	Air leakage limit - $f_{max}$
	$(\text{l}\cdot\text{s}^{-1}\cdot\text{m}^{-2})$
A	$0.027 \cdot p_{\text{test}}^{0.65}$
B	$0.009 \cdot p_{\text{test}}^{0.65}$
C	$0.003 \cdot p_{\text{test}}^{0.65}$
D	$0.001 \cdot p_{\text{test}}^{0.65}$

\*The airtightness tests can be consulted in the test reports of the UNE EN13403 Standard.

URSA AIR panels achieve the highest watertightness level (class ATC1), according to the new RITE.

### What is the regulatory requirement?

Ductwork shall have an airtightness corresponding to class ATC4 or above, as defined by RITE.

Class	Air leakage limit - $f_{max}$
ATC7	Unclassified
ATC6	0.0675
ATC5	0.027
ATC4	0.009
ATC3	0.003
ATC2	0.001
ATC1	0.00033



## Particulate emission due to drag-out

The levels of particle drag-out according to the UNE EN 13403 standard tests are totally negligible, much lower than the results obtained by other products and with orders of magnitude 100 times lower than the limits set by the standard itself.

The particulate emission tests have been carried out for each URSA AIR duct system, recreating a network of ducts through which air is circulated at a speed of 18.6 m/s, much higher than the speed at which air circulates in a normal installation (recommended between 3 m/s and 10 m/s, depending on the installation).

The results obtained in mg of particulate matter per m<sup>3</sup> of air are between 0.012% and 0.1% of the maximum regulatory limit. These values, in addition to providing safety for the user, make it inadvisable to tape the inside of the network, as it does not add value to the net and can cause problems if the tape becomes detached (such as noise due to vibration or obstruction of the air outlet through grilles and diffusers).



## Considerations

Ducts made of mineral wool (MW) according to UNE EN 13162 must not be used in the following applications:

- Transport of solid particles or corrosive gases.
- Ducts installed on the exterior of buildings, without additional protection.
- Buried ducts, without additional protection.
- Extraction of fumes from kitchens, laboratories, etc.
- When the air velocity in the duct is higher than that determined in accordance with the test described in paragraph 7.2.
- When the pressure inside the duct is higher than the pressure determined according to the test described in paragraph 7.3.
- When the minimum air temperature is below -30°C.
- When under extreme temperature conditions, measures have to be taken to prevent condensation on the inside or outside of the duct, e.g. by using a sheet of sufficient thermal resistance and/or by application of a water vapour barrier.
- At relative humidity levels higher than those specified by the manufacturer of the sheet.

For MW ducts, the following restrictions also apply:

- They must not be used for vertical air ducts higher than 10 m without additional support.
- The maximum temperature of the air inside the duct must not exceed 90°C and the temperature outside the duct must not exceed 60°C.



# Preventive maintenance programme

During the period of operation of the installation, not only air renewals but also the use of efficient filters and the required cleaning and maintenance conditions must be ensured.

IT 3.3 of RITE regulates the preventive maintenance programme. The frequency is given in table 3.1 according to the use of the building, the type of equipment and the rated thermal input.

For installations with an output power greater than 70 kW, the maintenance operations are indicated in Table 3.3. on "Preventive Maintenance Operations and their Frequency". This table sets out specific requirements on Air Quality and Indoor Environmental Quality (IEQ), in particular in points 37 and 38 of the table.

- Point 37: Review of the duct network according to the criteria of the standard UNE 100012: t, which describes the hygiene inspection methodology for air conditioning systems such as ducts and ATUs.
- Point 38: Review of environmental quality according to the criteria of the standard UNE 171330: t, which describes a methodology for carrying out indoor environmental quality inspections. This standard applies to indoor environments in all types of enclosures, facilities and buildings, including hospitals.

This modification, which is of a regulatory nature, indicates the obligation to carry out at least one annual review of indoor air quality and indoor environmental quality; the owners of the installations are responsible for compliance with this requirement.

The list of minimum parameters to be considered in air quality and environmental quality reviews is as follows:

- Hygienic assessment of air conditioning systems including microbiological surface sampling.
- Temperature
- Relative humidity
- Carbon dioxide
- Carbon monoxide
- Suspended particulate matter and particle counting
- Suspended bacteria
- Suspended fungi

In addition, it may be necessary to review:

- Thermal comfort
- Noise
- Other polluting gases (CO<sub>2</sub>, NO<sub>2</sub>, etc.)
- Ambient light control

URSA AIR mineral wool panels prevent the proliferation of fungi or bacteria, due to the mineral nature of the products themselves, according to the test UNE-EN ISO 846.

InCare technology is a complementary measure to duct maintenance and cleaning. It does not replace guidelines set by standards or recommendations provided by experts.

## Cleaning methods

As specified in the UNE EN 13403 standard, manufacturers of ducts made of insulating material sheets must recommend cleaning methods compatible with the requirements indicated in section 4.6. of the same standard.

The ductwork must be designed with the need for duct cleaning in mind. The RITE mentions that the network must be cleaned once the installation has been completed, according to the guidelines of the UNE 100012 standard.

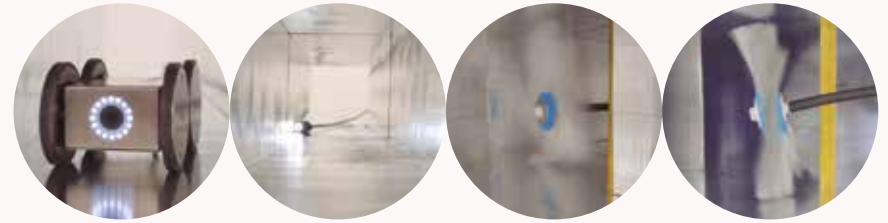
Service openings must be installed in the ducts in order to facilitate cleaning, placing these openings according to UNE-EN 12097:2007 (maximum distance: 10 m). These must be executed in such a way that when the cleaning is completed and the openings are closed, these openings are completely sealed.

The leading companies in ventilation and air conditioning duct cleaning systems, Teinnova and AmbientCare, have successfully tested the application of the recommended cleaning methods in ducts constructed with the URSA AIR Alu-Alu P5858 Panel and URSA AIR Zero P8858 range.



Ducts that  
can be cleaned  
according to  
standard methods

No erosion or wear  
of linings



## 1. Contact suction

**Air discharge inside occupied spaces:** HEPA (High-Efficiency Particulate Adsorber) vacuum cleaning. Avoids releasing extremely fine particles into the atmosphere.

Large access openings are necessary to reach the most inaccessible parts of the network. The spacing of the openings will depend on the type of extraction equipment and the distance from each opening.

Cleaning is carried out slowly and following the course of the air flow, starting with the opening closest to the beginning of the network.

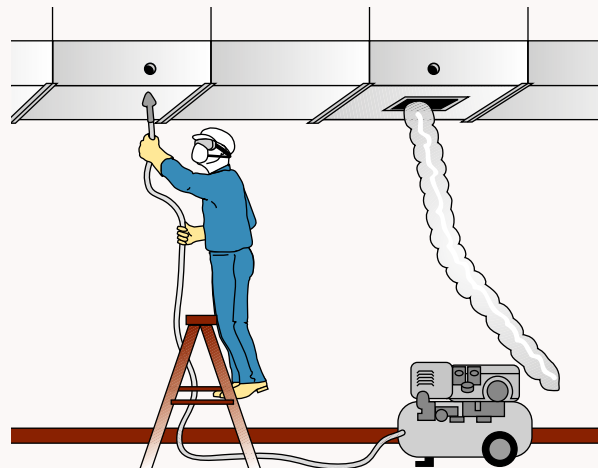


## 2. Pressurised air

A vacuum dust collector is connected to an opening at the end of the duct and compressed air is blown into the duct through a hose with a "jumping" nozzle. The particles, which float in the air when removed, are drawn through the duct and extracted by the vacuum cleaning equipment.

For the method to be effective, the compressed air source must produce between 11 kg/cm<sup>2</sup> and 13.5 kg/cm<sup>2</sup> and have a 70-litre collection tank.

The isolated area of the circuit to be cleaned must have a (minimum) static pressure of 25 mmWC for the proper transport of the released material.



## 3. Pressurised air with brushing

Method similar to the previous one, but in this case, rotating brushes moved electrically or manually are used to dislodge dirt and dust particles adhering to the surface of the duct.

As in the previous case, a dust vacuum device is connected through an opening at the end running through the lower part of the duct so that the dirt particles are drawn in the direction of flow and evacuated by the vacuum.

This method requires fewer openings than the previous method as there are mechanical brushes capable of reaching up to 7 metres in both directions from the opening.



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