isover
SAINT-GOBAIN

CLIMAVER®

Frequently Asked Questions

SAINT-GOBAIN

CONTENT

What is **CLIMAVER®?**

What does CLIMAVER® mean?

CLIMAVER® is ISOVER's self-supporting duct system. In addition, it is a trademark registered by ISOVER, Saint-Gobain. CLIMAVER® also has many patents related to duct system design to secure performance.

What are the dimensions of each CLIMAVER® board?

The standard board dimension available is: 1,190[mm] W x 3,000[mm] L, which is 3.57[m2] Boards that are used to fit containers are 1,190 x 2,900 [mm].

What is the thickness of the CLIMAVER® board? Can I get different thicknesses?

The boards are available in standard thicknesses 25 mm or 40 mm.

Is CLIMAVER® mechanically strong?

CLIMAVER® is tested as per UL 181 and EN standards for its mechanical strength. CLIMAVER® boards are flexible and not brittle since they are made from rigid and resilient glass wool.

What is the thickness of the facing?

CLIMAVER® is a complete patented system. Its facing has multiple layers. Facings are durable. For more details, contact ISOVER's technical teams.

Is CLIMAVER® available with stone wool?

CLIMAVER® is only available in glass wool.

Can CLIMAVER® be used for renovation/retrofitting/maintenance work?

CLIMAVER® is best suited for renovation or maintenance since it can be easily adapted to new designs and onsite changes.

Which types of buildings has CLIMAVER® been designed for?

CLIMAVER® is suitable for all types of buildings and projects. CLIMAVER® is used in all types of buildings around the world. Ask your local team for a list of reference projects.

CLIMAVER®
is an air-duct

What is the max operating air pressure for the CLIMAVER® duct? Positive and negative?

CLIMAVER® boards are tested at 2.5 times the operating pressure of 3800 Pa, meaning they are tested with 2,000 Pa. The values are applicable per NAIMA.

Can CLIMAVER® have air leakages?

CLIMAVER® has almost no air leakages. It has been certified to the highest airtightness class "D" or even "D+" with a leakage coefficent of 0.0005, which means 60% less of air leakages than best airtightness class following EN 1507 and EN 12237 (class D).

What is the Airtightness class of CLIMAVER®?

The entire CLIMAVER® range has a "Class D", the best airtightness class defined in the European standards EN 1507 and EN 12237.

The boards must be installed per the manufacturer's instructions to ensure these results.

Table 1: Definition of the airtightness classes - EN1507

Air tightness class	Air leakage UNIT ($1.s^{-1}.m^{-2}$)
A	$0.027.p_{test}^{0.65}$
B	$0.009.p_{test}^{0.65}$
C	$0.003.p_{test}^{0.65}$
D	$0.001.p_{test}^{0.65}$

Will the joints break due to pressure? Will joints last?

CLIMAVER® sealing joints, including shiplap, are tested as per EN 13403 and UL 181 for pressure up to 2,000 Pa, which is 2.5 times the recommended operating pressure of 800 Pa. The system has a best-in-class airtightness "Class D". When joints are installed and secured according to the ISOVER Installation Manual, they will last for the building's lifespan.

What is the friction loss with CLIMAVER®?

For the standard air speed of 6 m/s, the friction loss is around 1 Pa/m, which is comparable to metal duct systems. The standard ASHRAE friction loss chart can be used for CLIMAVER®.

What is the maximum operating air speed/velocity for which CLIMAVER® can be used?

CLIMAVER® has been tested for maximum air speeds of 18 m/s.

Can CLIMAVER® systems be inspected for air leakage with smoke and light?

Yes, commonly used smoke tests or light tests for air leakage inspections can be used for CLIMAVER® duct systems.

What is the proper way to install CLIMAVER® boards?

The CLIMAVER® solution has guide arrows to indicate the direction of the air to optimize the installation and facilitate subsequent maintenance and interventions by identifying the air direction. When CLIMAVER® is installed in the correct direction, our patented shiplap will secure the airtightness.

What is shiplap and why is it important?

Shiplap is a patented design duct-to-duct connection to secure the system's airtightness as well as possible, while maintaining the airflow's continuity. With shiplap, it is easy to join two ducts without having to use additional accessories. CLIMAVER® boards come with factory-made shiplap (male/female).

OPERATIONAL conditions

Can CLIMAVER® be used in places and buildings with high humidity?

Yes, CLIMAVER® is designed for standard indoor design & application. However, CLIMAVER® should not be used in very high indoor relative humidity (RH > 75%) such as in kitchens, or in building like swimming pools with a high chlorine content and humidity.

Can CLIMAVER® be used in hot, dusty, humid regions like in the Middle East or Southeast Asia?

Yes, CLIMAVER® boards are designed to be used in high-temperature regions like the Middle East or Southeast Asia. We have many reference projects around the world; please ask for a list of reference projects from your local sales teams.

Will CLIMAVER® have condensation on the joints or duct?

No. CLIMAVER® boards are built with aluminium on the outside, which is not permeable to water vapour and the insulation is thick enough to resist against surface condensation under normal ambient conditions. Shiplap is a patented design offering superior airtightness, so there are no thermal bridges.

Will CLIMAVER® absorb moisture/water?

CLIMAVER® boards are built with aluminium on the outside, which is not permeable to water vapour and the insulation is thick enough to resist against surface condensation under normal ambient conditions. The moving air stream will keep the interior dry.

ISOVER informs you that the Mineral Wool that it manufactures is chemically inert, rust-proof and odourless.
If the mineral wools, like the CLIMAVER® solution, become moist, they will dry and recover all their thermal and acoustic insulation properties as long as they maintain their thickness. Therefore, if the product gets wet, it should dry naturally air-dry, after which you will need to check the condition and thickness of the insulating material. If the material is not compressed and has not lost its thickness, the product is totally valid.

In addition, the tightness of the system should be checked if it was installed while wet (condition of the tape, leaks, etc.). If the product has been compressed, deformed, or the outer coating is peeled or damaged, it is not suitable as an insulating material.

Is it possible to install CLIMAVER® in locker rooms and bathrooms?

The CLIMAVER® range is suitable for use in the air-conditioning and ventilation of this type of installation as long as the relative humidity inside the ductwork does not exceed 75% at any time.

When does condensation happen? How can CLIMAVER® reduce it?

Condensation occurs if an air mass with a given temperature and relative humidity (RH) tends to cool down and the «dew point temperature» (tr) is reached, at which RH is 100%.

This fact is important when the interior temperature of the equipment or installations is lower than the environmental one: the outdoor air near the surfaces drops in temperature, increasing the RH, with the indicated risk of condensation.

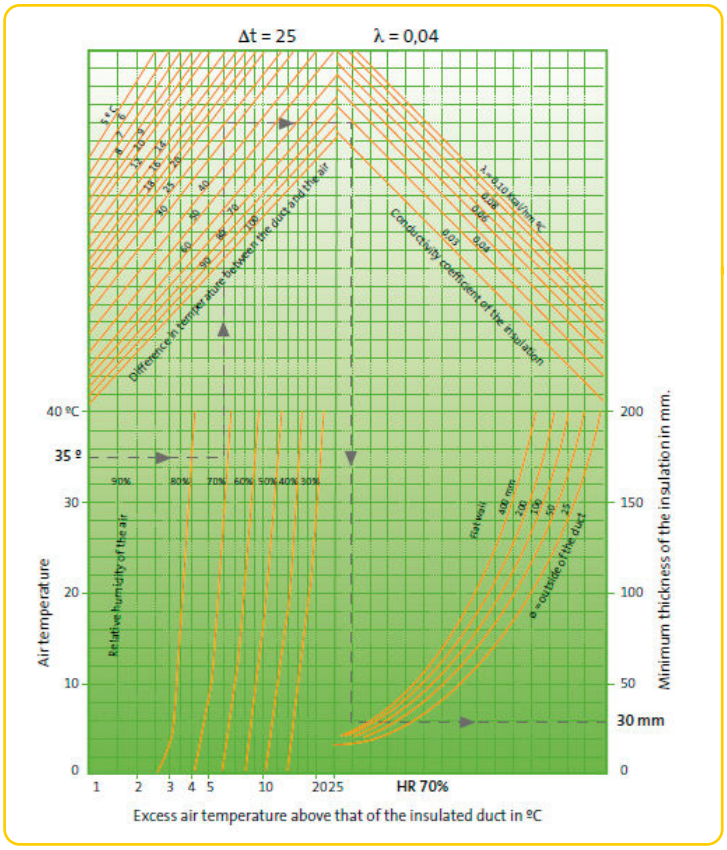
In general, if the duct element is made of sheet metal or another material that conducts heat well, the risk of condensation is high, even with low temperature differences in outdoor and indoor environments and in high-RH environments.

The use of pre-insulated ducts with built-in thermal insulation such as the CLIMAVER® range eliminates the risk of condensation, even with notable differences in temperatures.

However, in any case, it is essential to study the level of thermal insulation required in the equipment and facilities, taking into account the most unfavourable conditions that may arise.

The calculation of the surface temperatures that can give rise to condensation is laborious, making the application of the simplified graphical method more comfortable than the VDI 2055 standard according to the following graph, which can be used to calculate the thickness of the insulation required in each case in order to avoid condensations.
The use of glass wool insulation requires the use of a vapour barrier that prevents interstitial condensation inside the insulation mass.

Application example with insulated metal duct and CLIMAVER®.
A galvanized sheet metal duct is considered, with a dimension of 400x400 mm.
The ambient air is at 35º C with 70% RH.
The air circulating through the duct is at 10º C.
The psychometric diagram indicates that the dew temperature would be of the order of 28.5º C, which supposes the appearance of condensation in the metallic duct that will have a surface temperature close to 10ºC.



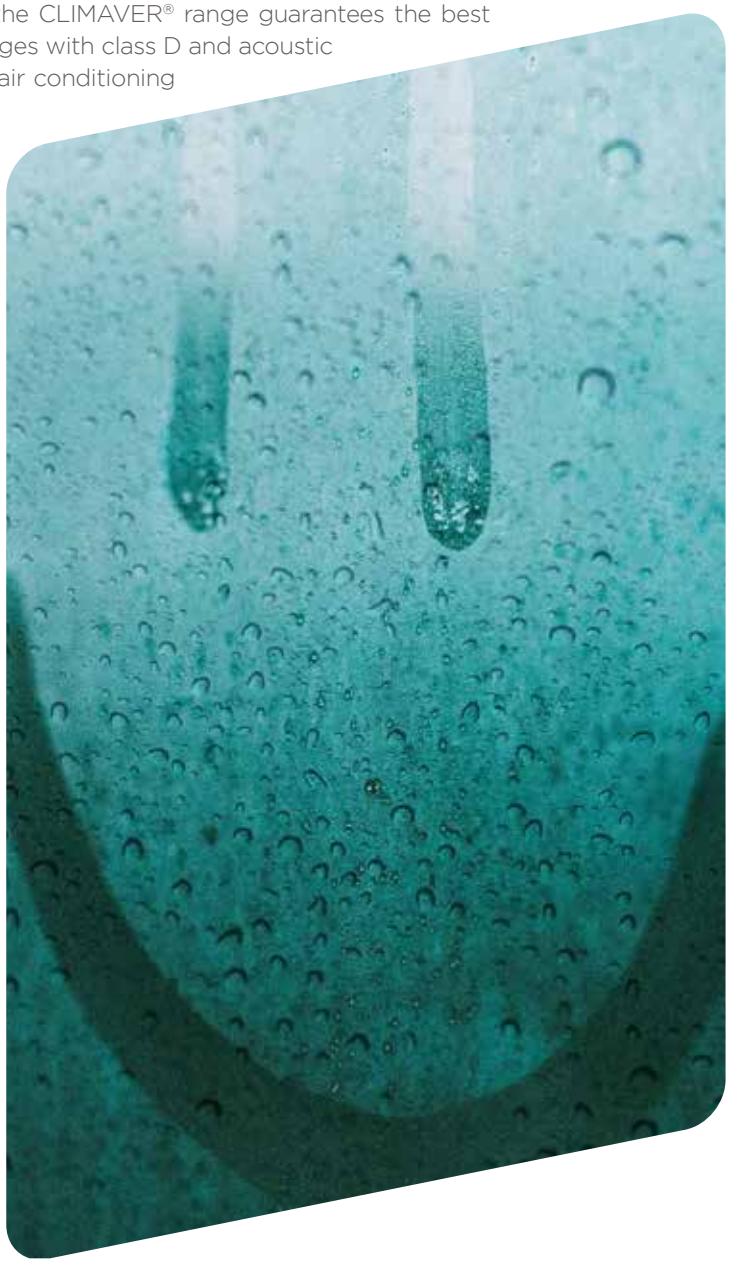
To avoid condensation, thermal insulation is required. We need to know the thickness of the thermal insulation to prevent condensation and use a product with a conductivity of λ (10ºC) = 0.040 W/(m • K) (CLIMCOVER Roll type for metal duct).

Using the following graph from the VDI 2055 standard, we found that at least 30 mm of the material would be necessary to avoid condensation.
With a duct from the CLIMAVER® range, which has more insulating capacity with a conductivity of **λ** = 0.032 W / (m • K), the minimum thickness of the product will be 20 mm. There will be no condensation, since the product is 25 mm thick.

In addition, and as indicated above, the use of a vapour barrier is required to avoid interstitial condensation inside the insulation.
The CLIMAVER® range, as indicated in the technical data sheets, has a resistance to water vapour of 100 m^2 h Pa/mg, which is ensured by the external lining of the duct consisting of an aluminium complex.
A break in the outer coating of a metallic duct thermal insulation can give way to moisture with the associated risks of condensation on the metallic duct itself.

Finally, it should be noted that the CLIMAVER® range guarantees the best sealing capacity against air leakages with class D and acoustic comfort for the end user of the air conditioning installation.

In conclusion, the CLIMAVER® range is the most suitable solution for air conditioning networks inside buildings since, in addition to offering acoustic comfort and the best airtightness, they prevent the formation of condensation in regular building uses.



FIRE behaviour

What is the reaction to fire and combustibility of the CLIMAVER® range?

The CLIMAVER® range is non-combustible, rated by BS 476, UL181 and EN13501-1. It does not emit any smoke or flaming droplets.
Inside the product DoP´S you can find the fire reaction classification based on tests following European standard EN 13501-1:

Product CLIMAVER®	Class	Reaction to fire	Flashover	Smoke and droplets
A1 APTA	A1	No contribution to a fire	No	None
A2 PLUS, A2 NETO, A2 DECO, A2 APTA	A2, s1-d0	No significant contribution to fire growth	No	Insignificant smoke release with no flaming droplets or particles expected
PLUS R, NETO, APTA, STAR	B, s1-d0	No significant contribution to fire growth	No	Insignificant smoke release with no flaming droplets or particles expected
-	C	Limited contribution to flashover	Flashover >10 min	Production of smoke & flaming droplets & particles
-	D	Contribution to flashover	Flashover 2<>10 min	Production of smoke & flaming droplets & particles
-	E	Significant contribution to flashover	Flashover <2 min	Production of smoke & flaming droplets & particles (smoke release is expected
-	F	Not tested or incapable of archieving Class	NPD	NPD

CLIMAVER® is also classified 0 according BS 476 standard.

According to UL 181 and BS 476, CLIMAVER® is non-combustible.
This classification is only valid for the mounting conditions indicated in the CLIMAVER® Installation Manual and when sealed with an aluminium adhesive tape of the commercial brand CLIMAVER®.

Is CLIMAVER® fire rated?

CLIMAVER® is non-combustible, rated by BS 476, UL181 and EN13501-1, but not fire rated.

Can CLIMAVER® be used in kitchen exhaust ducts?

No. CLIMAVER® should not be used for kitchen exhausts. You can contact the ISOVER team to know more about our other solutions for kitchen exhaust applications.

Is it possible to use CLIMAVER® in commercial kitchens?

The CLIMAVER® duct range is suitable for the installation of ventilation and air-conditioning networks in kitchens; however, these rooms must have an extraction network that is totally independent from the air-conditioning system.

The smoke extraction network must have an adequate fire resistance (EIxx or xxh according to regulations) and in no case can these networks be made with CLIMAVER® ducts.

Certified **QUALITY**

What certifications and approvals does CLIMAVER® have?

CLIMAVER® System is UL 181 certified and CE-marked. Visit our website or contact the ISOVER team for more details.

Can CLIMAVER® meet ASHRAE, NAIMA and SMACNA standards?

Yes. CLIMAVER® meets fibre duct design, fabrication & installation standards, including ASHRAE, NAIMA, SMACNA, etc.

SUSTAINABILITY

Is CLIMAVER® an environmentally-friendly product?

Extremely. The energy saved during its lifespan is many more times the energy used for its manufacturing. CLIMAVER® contains around 80% of recycled glass that would otherwise go to landfills. CLIMAVER® has zero GWP and ODP (Ozone Depleting Potential).

Does CLIMAVER® have EDP?

Yes, the entire CLIMAVER® range does.
See EPDs in our website www.isover-technical-insulation.com.

Is CLIMAVER® safe to use?

Yes, CLIMAVER® is very safe to use. CLIMAVER® is made from bio-soluble fibres and is certified by the EUCEB as non-carcinogenic. Visit our website to download the EUCEB certificate.

Will CLIMAVER® have fibre migration?

The CLIMAVER® system is 10,000 times better than international standards for fibre erosion/migration. CLIMAVER® is tested following the stringent EN 13403 and UL 181 standards.

The EUCEB European Certification Board of Mineral Wool Products (www.euceb.org), certifies all the products manufactured by SAINT-GOBAIN ISOVER IBÉRICA, S.L., in Azuqueca de Henares. It is a voluntary initiative for the mineral wool industry. It is an independent certification body that guarantees that products are made of fibres that meet the criteria for carcinogenicity exemption (note Q) of Directive 97/69/EC and Regulation (EC) 1272/2008.

The EUCEB certificate certifies that mineral wools are considered non-hazardous materials from the point of view of health as they meet the physical-chemical conditions of bio-solubility established in Directive 97/69/EC.

Fibre erosion out of CLIMAVER® duct system is practically non-existent, even after 20 cleaning cycles.

Note: All CLIMAVER® variants fulfil requirements of clause 7.2 of EN 13403. Requirement for 0,5 µm is < 60 µg/m3 and for 5 µm is < 4µg/m³

Table4: Emission of particles		
Product variant	Particles bigger than 0.5 µm (µg/m³)	Particles bigger than 5 µm (µg/m³)
CLIMAVER® NETO	0.006	0.003
CLIMAVER® A2 NETO		
CLIMAVER® A2 APTA		
CLIMAVER® A2 DECO		
CLIMAVER® PLUS R	0.022	0.014
CLIMAVER® A2 PLUS	0.011	0.007

→ 3.2.2 EROSION AND PARTICLES EMISSIONS

CLIMAVER® HVAC duct system has been tested according to clause 7.2 of EN 13403.

→ 3.2.3 MICROBIOLOGICAL GROWTH

CLIMAVER® HVAC duct system has been tested according to clause 7.4 of EN 13403.

→ 3.2.4 BULGING AND/OR CAVING

CLIMAVER® HVAC duct system has been tested according to clause 4.4 of EN 13403.

→ 3.2.5 DIMENSIONAL TOLERANCES

CLIMAVER® panel system has been tested for length and width according to EN 822 and for thickness according to EN 823.

→ 3.2.6 RESISTANCE AGAINST PRESSURE

CLIMAVER® HVAC duct system has been tested at 2000 Pa according to clause 7.3 of EN 13403.

No alteration occurs after inoculation of the test fungi and their growth does not extend beyond the inoculation zone, so they meet the requirements of the EN13403 standard.

Will CLIMAVER® attract rodents/rats?

CLIMAVER® does not attract rodents like some of the other organically-based insulation materials.

Does CLIMAVER® have anti-bacterial coating?

CLIMAVER® is made with glass wool, which does not promote bacterial or fungal growth. CLIMAVER does not need to have additional anti-bacterial coating.
The CLIMAVER® range of products complies with the requirements on microbial proliferation established in Section 7.4 of the EN 13403 standard.

Is the CLIMAVER® glue odourless?

Yes, the CLIMAVER® glue is a nontoxic, odourless and non-flammable product.

Which IAQ certificates does CLIMAVER® have?

Regulation	Result	References
French regulation		Regulation of March and April 2011 (DEVL1101903D and DEVL1104875A)
AgBB/ABG	Pass	Anforderungen an bauliche Anlagen bezüglich des Gesundheitsschutzes (Agbb), Entwurf 31.08.2017
Blue Angel (RA LUZ 132)	Pass	Low-emission Thermal Insulation Material and Suspended Ceilings for use in Buildings, October 2010
BREEAM International	Pass	BREAM Recognised Schemes for VOC Emissions from Buildings, October 2010 and construction (April 2015)
LEED V4 (outside US)	Pass	LEED v4 for Building Design and construction (April 2015)

TRAINING
and support

Is training required to build a CLIMAVER® duct?

Yes, CLIMAVER® is a self-supporting duct system, which is easy to build and training can be organized with an authorized trainer.

Do you provide training for making and inspecting ducts?

ISOVER has a dedicated team that provides training on making and installing duct systems. Please contact our team for their training schedule. We can provide training for onsite inspection.

How long does it take to be trained in CLIMAVER® ductmaking & installation to reach maximum productivity?

ISOVER offers training by trained instructors. Typically, a freshly trained candidate is expected to reach full productivity within 4 weeks of practice.

What kind of technical support does ISOVER offer regarding CLIMAVER®?

CLIMAVER® has many free-to-use online software tools to support designers (including a BIM library). Simple and easy-to-understand guidelines and videos on how to build our systems are available. Visit our website to download the documents and to use the software.

INSTALLATION, tools and accessories

How are CLIMAVER® ducts made and installed?

Making a ductwork begins with cutting the straight lines out of flat panel using a small number of light and easy-to-use tools. Different figures like elbows and t-branches can all be made from straight sections.

There are different methods for making figures in an HVAC installation, all of which have to guarantee the correct operation of the installation according to the design and project criteria, as well as the stability, tightness and projected operating regime.

Isover, as manufacturer of the CLIMAVER® range of self-supporting ducts for air conditioning and ventilation, recommends, in its Installation Manual and in its tutorials, making these figures using the Straight Duct Method (SDM) whenever possible.

With the use of the SDM, you can guarantee the optimization of the execution time and of the material waste generated, which represent an environmental and economic cost. For these reason, we consider that the patented guideline system has a quantitative advantage in the external facing.

The use of other methods in the execution of the figures such as the traditional «4-sides» or any other method used could be considered adequate if it is carried out correctly and the correct operation of the installation as designed is guaranteed.

What kind of tools are required to make CLIMAVER® ducts?

CLIMAVER® is a patented system, which uses CLIMAVER® tools to make. These tools are easy to use, economical and are easy to handle. CLIMAVER® tools do not need any on-site electricity.

Can we buy the accessories/glue/tape/profile from our local market?

CLIMAVER® is a UL 181 and CE-marked system, hence we recommend the use of our approved accessories.

Can I buy the CLIMAVER® cutting tool & spare parts from my local market?

CLIMAVER® tools have evolved over 50 years for higher productivity and easier fabrication. The tools can be purchased from our authorized distributors in your region.

What is the running cost of spare parts?

CLIMAVER® tools are easy to use, economical and are easy to handle. Our tools require no additional electricity and require reliable space. The tools are durable and the blades are typically replaced if their edges are damaged due to use.

What kind of waste is produced when making CLIMAVER® ducts?

Straight Duct method (SDM) is the recommended fabrication method, which produces around 3-10% of waste.

How many CLIMAVER® ducts can be made & installed in a day?

In a typical 8-hour working day, a person can install up to 30 [m2] of CLIMAVER® ducts. However, the productivity will vary according to the system's design and on-site conditions.

Does CLIMAVER® support CNC cutting?

Yes, CLIMAVER® can be cut using CNC machines. For more details, contact your local sales team for recommendations on the equipment to use.

Can CLIMAVER® be connected with a GI duct?

Yes, the CLIMAVER® system is flexible and can accommodate design changes. It is also compatible with other duct systems and other fittings like fire dampers, volume control dampers, grill and diffusor.

Can I use different types of CLIMAVER® ducts in the same ductwork?

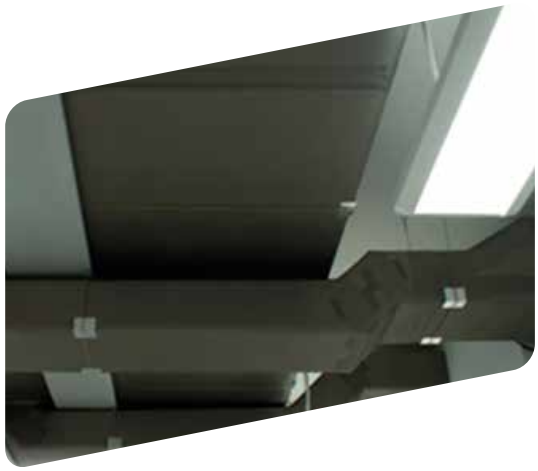
Yes, all CLIMAVER® products can be used together (25 mm can be joint by shiplap; for different thicknesses, you will need to use an "h" profile)

Can we paint the outside surface/facing of the CLIMAVER® duct?

Although CLIMAVER® ducts can technically be painted from the outside, it can present problems of reaction to fire and compliance with regulations; although CLIMAVER® ducts (or insulated metallic ducts with mineral wool) show a reaction to fire B s1 d0, they lose this property when covered by a coat of paint not specified for this fire classification.

ISOVER only guarantees the reaction to fire of its CLIMAVER® range to products installed according to the Installation Manual. Post-product treatments could alter the Euroclass and alter its constancy of performance.

If an aesthetic finish is required for exposed ducts, ISOVER has developed a version with a decorative finish called CLIMAVER® A2 DECO, available in various colours (black, grey, red, green and blue) throughout its range, which also offers a more demanding classification of reaction to fire A2-s1, d0 and technical properties, airtightness (classification D) and acoustic absorption (α = 0.85).



Can we reuse CLIMAVER®? Can CLIMAVER® be dismantled and reassembled in another building?

Yes, the CLIMAVER® system is easy to dismantle and reassemble. However the duct design may vary from building to building depending on many factors, such as the type of cooling system, the type of building, the space available, etc.

How can I join CLIMAVER® ducts?

The standard duct-to-duct connection is done using shiplap, stapler pins and aluminium tape to ensure airtightness. When making a fibre-to-fibre joint (without shiplap) like in the case of an elbow and another angular duct, we recommend the use of the CLIMAVER® glue.

Do I need to close the joints/corners with sealant?

It is not mandatory to apply sealant at the joints/corners inside the ducts. Normally, sealants are used to ensure airtightness and reduce fibre erosion. CLIMAVER® is a tested system, and has best-in-class airtightness.

Can we use another type of aluminium tape for the joints?

CLIMAVER® is a UL 181 and CE-marked system and we recommend CLIMAVER® aluminium tape to seal the joints.

Can shiplap be made on site?

Yes, shiplaps can be made on site. Shiplap ensures that the duct-to-duct joints are airtight. Shiplap can be done on site using shiplap grooving tools. This give the onsite design and fabrication flexibility. CLIMAVER® boards are made with shiplap.

Can CLIMAVER® be connected with fire dampers and other devices?

Yes, the CLIMAVER® system is flexible for design changes and compatible with other systems including, but not limited to, fire dampers, GI ducts, volume control dampers and other HVAC components. Flat or flange-type connections are possible.

Does CLIMVER® need reinforcements?

The CLIMAVER® range can be used to make a network of perfectly rigid self-supporting ducts without the need for the installation of metal profiles. Depending of the working pressure and duct dimensions, the installation of perimeter reinforcements is recommended as indicated in the Installation manual.

The entire CLIMAVER® range is tested and certified to carry out the inspection and cleaning of the installation with the different systems approved for the air conditioning ducts.

ISOVER, as the manufacturer of the entire CLIMAVER® range of solutions, guarantees that its solutions are tested and guaranteed by tests that have been carried out in accredited laboratories in accordance with all current regulations.

These tests of mechanical resistance to pressure are carried out under European standard EN13403, and allow CLIMAVER® ducts to reach static pressures of 800 Pa.

Therefore, according to the actual working pressure of the installation and the dimensions of the duct, our recommendation regarding the perimeter reinforcement system included in our CLIMAVER® installation Manual is as follows:

Side A or B dimension (mm)	Working pressure (Positive/Negative)			
	≤ 200 Pa	201 - 400 Pa	401 - 600 Pa	601 to 800 Pa
≤ 400	-	-	-	-
401-500	-	-	-	1200 mm
501-599	-	-	1200 mm	600 mm
600-750	-	1200 mm	600 mm	600 mm
751-899	1200 mm	1200 mm	600 mm	600 mm
900-1050	1200 mm	1200 mm	600 mm	600 mm
1051-1199	1200 mm	600 mm	600 mm	600 mm
1200-1499	600 mm	600 mm	400 mm	400 mm
≥ 1500	600 mm	600 mm	400 mm	400 mm

For the system to work properly, make sure that the installation has no overpressures and that the pressures designed for the installation are not exceeded.
The reinforcements must be made using profiles, creating perimeter rings that will be attached to the panel by means of mechanical fixings (screw and washer/plate). In the execution, it is recommended to reinforce the ducts before supporting them, because of the ease and speed of execution on site and because we can support the ducts from the reinforcement if it has been carried out correctly.

In the case of intake, at the corners, the rail will be provided with a connecting bracket to avoid the separation of the perpendicular faces from each other. The top and bottom of the rail will be long enough to cover the thickness of the side rails.

Both intake and return internal fixings will be placed to avoid the separation of the panel with respect to the rail. In the case of extraction ducts the internal fixings (plates or washers) will be separated from each other (max. 400 mm) at sufficient intervals to meet the deflection condition.

What is the distance between supports in a CLIMAVER® system?

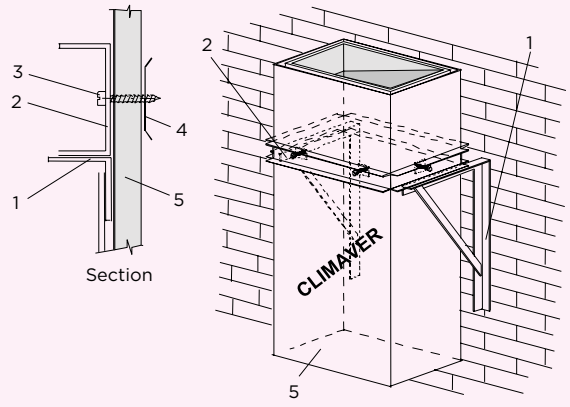
The final installation of the ducts in the ceiling is carried out with the help of supports. Ducts can also be supported by horizontal supports fixed to the wall, putting some element in the support that prevents the lateral displacement of the duct. The distance between supports is given depending on the section of the duct according to the following table.

Inner dimensions (mm)	Maximum distance (m)
< 900	2,4
900 – 1.500	1,8
> 1.500	1,2

- The most common way to support the ducts is by means of a horizontal "U" profile with dimensions of 15/25/15 mm of galvanized sheet metal of 0.8 mm in thickness.
- This U profile will be attached to the ceiling by means of two rods.
- When the duct is reinforced, it is advisable that the support coincides with the reinforcement, as long as the maximum distance from the above table is met.

Vertical supports

The vertical supports will be placed at a maximum distance of 3 m.
When the duct is supported on a vertical wall, the anchor must coincide with the reinforcement. In this case, it will be necessary to install a sheet metal sleeve fixed to the reinforcing element.
The support will be made with an angular profile measuring at least 30 x 30 x 3 mm.



1 - Corbel for L profile
2 - Brace for vertical installation (U profile)
3 - Thread metallic screw
4 - Washer 40 mm
5 - CLIMAVER® duct

The installer, depending on his experience, professionalism and the conditions present in the installation (dimensions, slab spacing, heights, etc.), can propose other solutions that, although not reflected in the Installation Manual, give the ductwork stability, support and resistance so that CLIMAVER® ducts can be installed, thus guaranteeing the protection, resistance and watertight conditions defined in the project.

How can one make a connection with different auxiliary HVAC devices like fire dampers, flexible ducts, AHUs or access hatches?

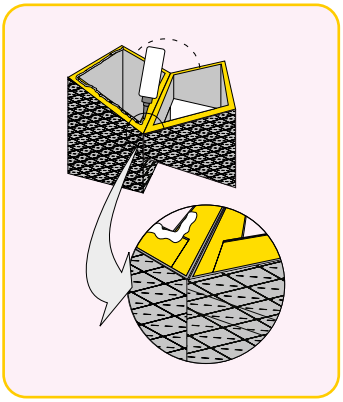
The output of the conditioning or ventilation equipment to the ducts is one of the critical points of the installation due to the speed, the flow and the maximum pressures of the installation that occur at these points.

It must be taken into account that the fan outlet must continue in a straight section of length between 1.5 and 2.5 times the largest dimension of the fan mouth. We will have to pay special attention to the issue of reinforcements depending on the pressure and section of the duct.

If reductions are made after connection, they must have a maximum inclination of 15˚.

If an elbow is to be made, the airflow direction in it must correspond to that of the fan rotation.
A PERFIVER H metal profile must be used to make the connection of the CLIMAVER® duct to the structure of the machine.

The 1.1 mm-thick PERFIVER H profile is specially designed to make inspection or registration doors, “access hatches”, connections to the machine and/or to grilles or diffusers.



Where is CLIMAVER® GLUE (COLA CLIMAVER®) needed?

The CLIMAVER® Glue is specially developed for glass wool and must always be used in the assembly of figures by the SDM. It is used to seal and provide greater resistance to the joints of the duct parts manufactured with this method.

The recommendations for the external sealing of the CLIMAVER® solution are indicated in the CLIMAVER® Installation Manual. The external sealing of ducts is done by applying aluminium tape with the help of the plastic spatula.

What are the working conditions for aluminium tape?

For the application of aluminium tape, the ambient temperature must be above + 5°C to guarantee the correct adhesion of the aluminium tape to the duct surface and thus guarantee the tightness of the solution; low temperatures increase the risk of condensation by reducing the contact of the self-adhesive product.

The surface to be taped must be completely dry and free of dirt residues. Pressure will be applied to the tape using the plastic spatula, rubbing it until total adherence of the aluminium tape to the duct is achieved.

How can one make a connection with a flexible duct?

To make the connection between the CLIMAVER® duct network and different elements of the installation, such as plenums, diffusers, grilles, etc., flexible ducts can be used, as long as the maximum distance per section permitted by local regulations is not exceeded.

ISOVER recommends the use of a metallic crown-type fitting that will be fixed in the duct for the connection of the flexible duct with the duct network. The connection of the flexible duct should then be secured using an element that guarantees the durability and tightness of the connection, such as flanges, clamps and adhesive tape.

What kind of safety equipment would one need while working with CLIMAVER®?

All products manufactured by SAINT-GOBAIN ISOVER IBÉRICA, S.L., in Azuqueca de Henares, among which is the entire CLIMAVER® range, are certified by EUCEB. EUCEB, European Certification Board of Mineral Wool Products - www.euceb.org, is a voluntary initiative for the mineral wool industry. It is an independent certification body that guarantees that products are made of fibres that meet the criteria for exemption from carcinogenicity (note Q of Directive 97/69/EC and Regulation (EC) 1272/2008). In addition, they are completely free of asbestos.

During the manufacturing process, including the transportation, handling, shaping and installation of CLIMAVER® ducts, the use of masks or any type of respiratory protection is not required. The PPE to be used during such work is that which has been determined in the Risk Assessment and Safety Plans that have been prepared and approved by the Prevention and Safety Management services for the work to be performed.

Tools

CE-mark for CLIMAVER® tools is not needed since tools are not considered as machines. They are not affected by the declaration of conformity as established in directive 42/2006/EC on MACHINES.

CLIMAVER® tools and supplies comply with safety directive 2001/95/CE, transposed into Spanish law by RD 1801/2003, having a manufacturing certificate and an instruction manual for the use and maintenance of the equipment.

LOGISTICS
and cost

How is CLIMAVER® delivered?
CLIMAVER® is delivered flat in a package on a pallet. Up to 2400 m can be delivered per truck. This represents significant savings in transport and storage.

What is the price per board?
The overall duct system cost of CLIMAVER® is comparable and typically lower than traditional systems. To get the best offer, please contact our sales team or distributors in your region.

Is the CLIMAVER® duct system competetive vs. other duct systems?
CLIMAVER® is a complete HVAC duct system. The total installed cost of CLIMAVER® is lower compared to other traditional systems, yet offers enhanced comfort with minimum running costs.

Is it expensive for residential buildings such as a villa?
CLIMAVER® is more than just insulation boards, it's a complete duct system. The total installed cost and the lifetime cost is much cheaper than traditional systems.

USE
restrictions

CLIMAVER® USE RESTRICTIONS

ISOVER, as a manufacturer of CLIMAVER® self-supporting ducts, bases its installation recommendations on the existing regulations and on tests carried out in certified laboratories. All these assembly recommendations are included in the CLIMAVER® duct installation manual.

According to EN 13403, CLIMAVER® ducts must not be used when the following application limits are exceeded:

- **Maximum static pressure: 800 Pa**
- **Maximum air speed: 18 m/s**
- **Maximum air temperature outside the duct: 60ºC**
- **Maximum air temperature inside the duct: 90ºC**
- **Minimum temperature inside the duct: - 35ºC**

MAKING THE WORLD A BETTER HOME

Saint-Gobain designs, manufactures and distributes solutions for the construction, mobility, healthcare and other industrial application markets. Developed through a continuous innovation process, they provide wellbeing, performance and safety while addressing the challenges of sustainable construction, resource efficiency and the fight against climate change.

This strategy of responsible growth is guided by the Saint-Gobain purpose, “MAKING THE WORLD A BETTER HOME”, which responds to the shared ambition of the women and men in the Group to act every day to make the world a more beautiful and sustainable place to live in.

SAINT-GOBAIN

Aligned with this commitment, Saint-Gobain Technical Insulation has been delivering sustainable insulation solutions to customers since 1937. Across all technical markets - from Marine to Industry, HVAC, automotive and household appliances - and with a worldwide presence deployed locally, we support our customers at every step of the project, from design to installation. This means customising our approach based on specific needs. This means adding value through high levels of comfort, health, safety and performance. This also means helping limit environmental impact of each project, while managing costs.

With expertise in an array of insulation materials, we are constantly pushing the limits of our solutions. These unwavering R&D efforts also enable us to reduce the carbon footprint of each product, whether through high levels of recycled content, recyclability or lower energy consumption.

Drawing on a unique combination of global resources, local deployment and multi-material expertise, Saint-Gobain Technical Insulation strives to always be more efficient and responsible. Together with our customers, we are making this an everyday reality.

Saint-Gobain Technical Insulation

PUSHING THE LIMITS OF SUSTAINABILITY TOGETHER.

SAINT-GOBAIN

Saint-Gobain ISOVER

Tour Saint-Gobain
12 place de l'Iris
92096 La Défense Cedex - France

www.isover-technical-insulation.com