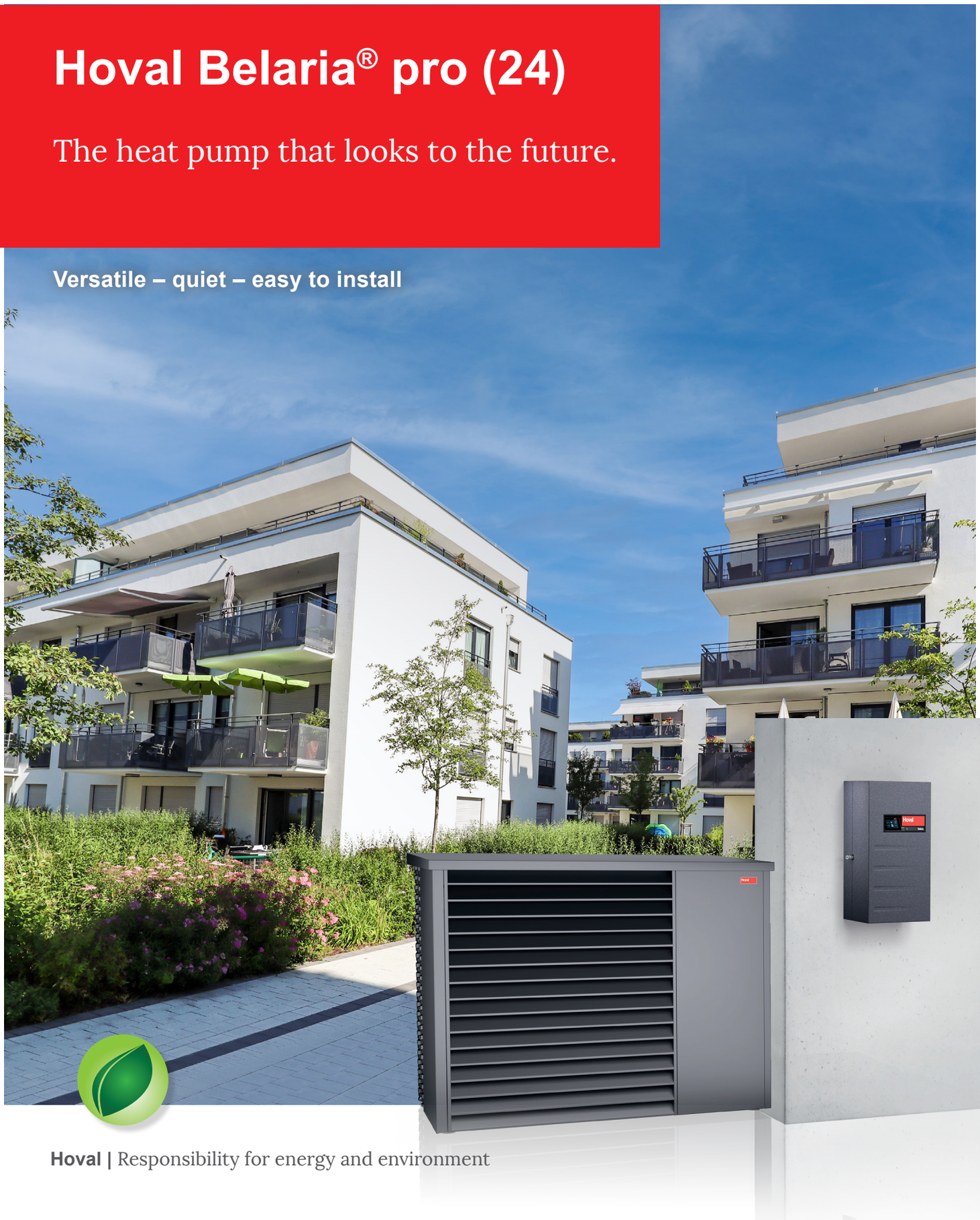
Hoval

FACTBOOK

Hoval Belaria® pro (24)

The heat pump that looks to the future.



Hoval | Responsibility for energy and environment

The monoblock heat pump from Hoval.

Another step towards the future.

The best results come from working together.
The buzz of a bee is something we hear less and less frequently nowadays, and the decline of these creatures is forcing scientists to come up with alternative ways of pollinating plants. In the future, little electronic versions could be added to a swarm of bees, where they could help their natural counterparts with their work. It is only an idea as yet.

But generally speaking, technology and nature are set to complement one another to a much greater extent over the coming years.
With its new Belaria® pro air/water heat pump, Hoval is taking another pioneering step in the right direction to protect the environment. Although this should not be surprising, since it is fully in line with Hoval's guiding principle: responsibility for energy and environment.

Hoval

Contents

The 2023 heat pump family

Welcome Hoval Belaria® pro (24).

BasicLine

Basic regulation (standalone)

CombiVal WPE / WPER / WPEF

Belaria® fit (8 - 26)

Daikin Altherma 3 H HT W (14, 18)

Three lines for quick selection.

The strategy of the three lines supports the quick preliminary selection of the right heat pump from the heat pump family according to the customer's needs. BasicLine and PremiumLine for single-family and two-family house areas of application. Compared to the BasicLine, the PremiumLine is characterised by higher efficiency and the TopTronic® E system control. ProfiLine products are suitable for medium and large buildings with higher output requirements. These different applications of the lines are reflected not only in the power range but also in the equipment, especially in the functionality of the control system.

PremiumLine

Built-in TopTronic® E system controller (online possible)

Belaria® pro comfort (8 - 15)

Belaria® pro compact (8, 13/100/300)

Belaria® pro (24)

UltraSource® B comfort C (8 - 17)
UltraSource® B compact C (8, 11/200)

Belaria® twin I / IR (20 - 30)

Belaria® comfort ICM (8, 13)

UltraSource® T comfort (8 - 17)

UltraSource® T compact (8, 13/200)

Thermalia® comfort (8 - 17)
Thermalia® comfort H (7, 10)

Thermalia® twin (20 - 42)
Thermalia® twin H (13 - 22)

ProfiLine

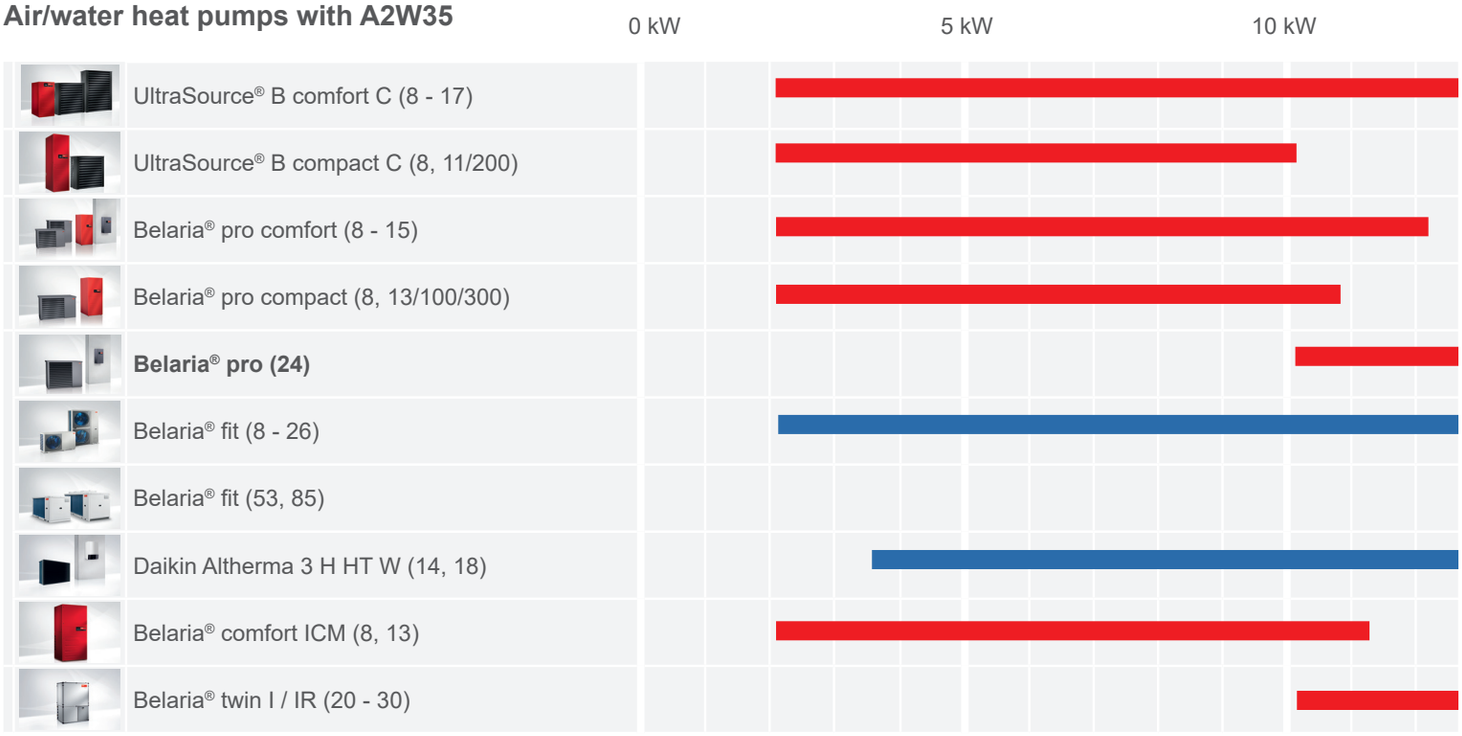
TopTronic® E system controller (control system)

Belaria® fit (53, 85)

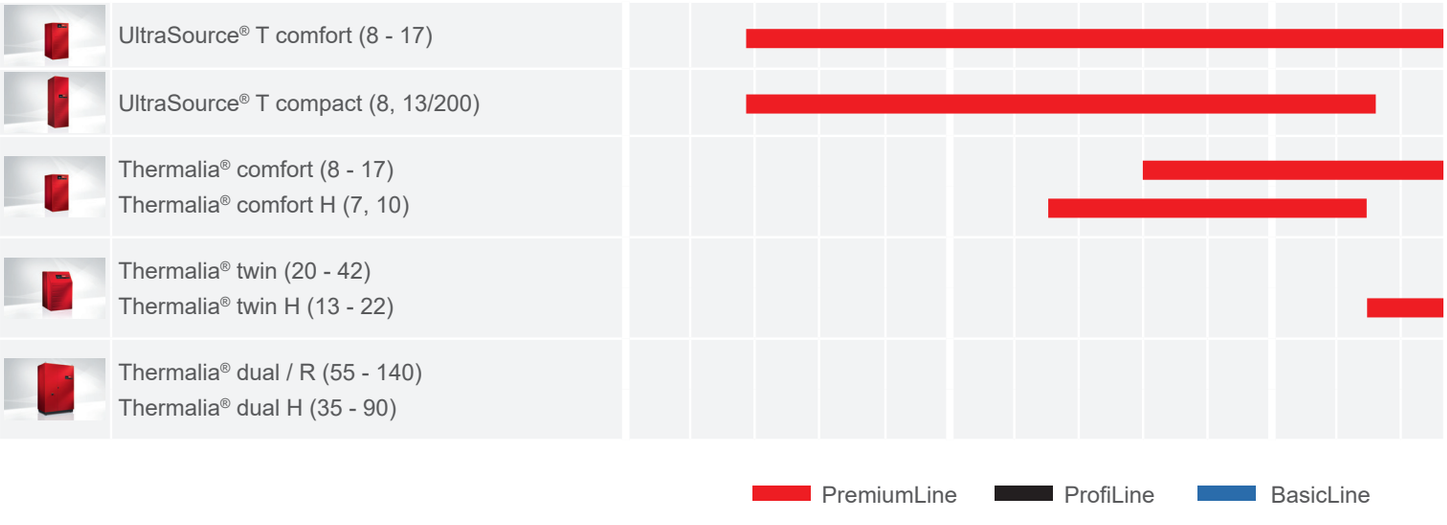
Thermalia® dual (55 - 140)
Thermalia® dual H (35 - 90)
Thermalia® dual R (55 - 140)

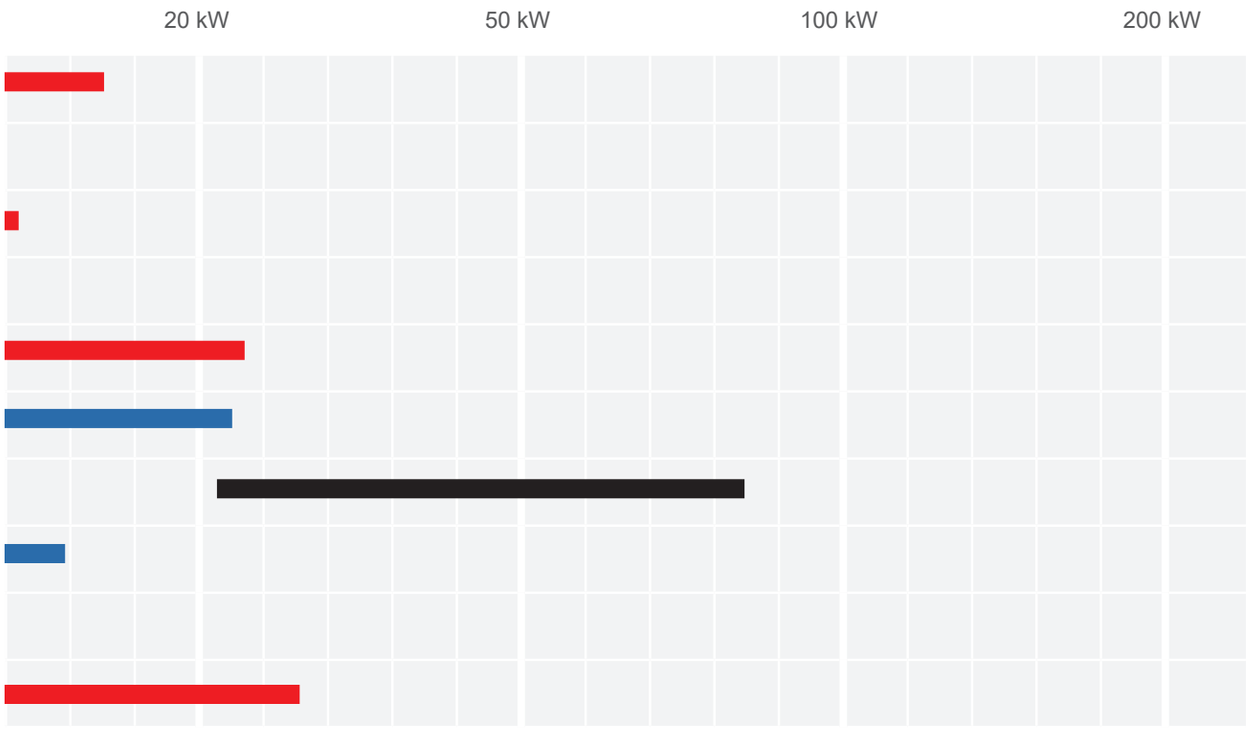
Hoval heat pumps
This is what they can do.

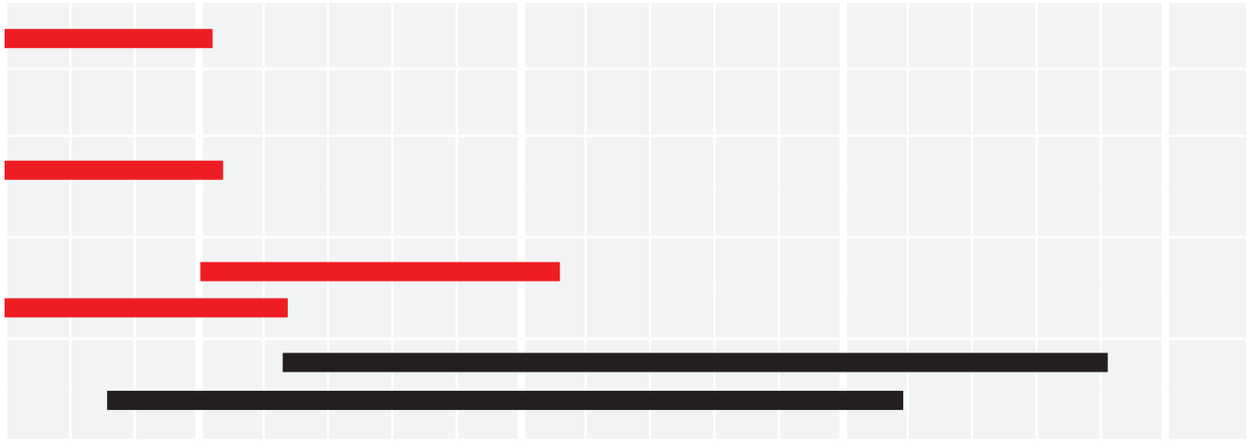
Air/water heat pumps with A2W35

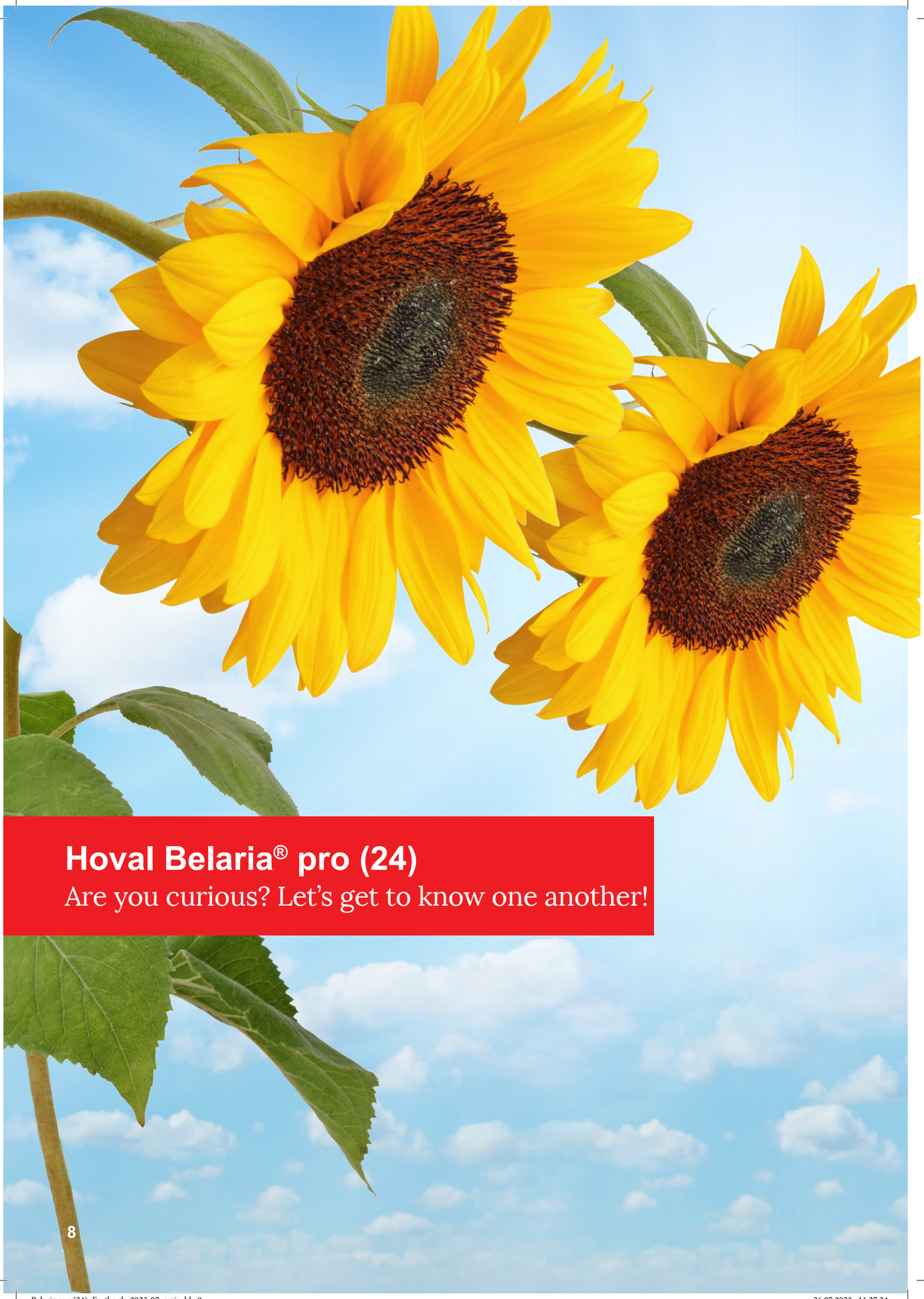


Brine/water heat pumps with B0W35 / W10W35









Hoval Belaria® pro (24)

Are you curious? Let’s get to know one another!

Hoval Belaria® pro (24)

Heat from the air – almost silently.

Air is an inexhaustible energy source. It is free and available everywhere in unlimited quantities. An air/water heat pump heats highly efficiently and reliably using this ambient air using auxiliary energy (electricity). And by making use of green energy or solar power – perhaps even from your own photovoltaic system – you will be able to generate heat even more sustainably.

Added value for your benefit:

- Versatile in use
- Quiet and economical
- Easy to install due to monoblock design.
- Integrated cooling function
- Power adjustment (modulation)

Belaria® pro (24)

A pioneering air/water heat pump in a monoblock design that not only heats and provides domestic hot water, but also cools in the summer. It extracts heat from the ambient air and is available as a wall-mounted indoor unit with built-in TopTronic® E control.

Suitable for multiple dwelling units – new building and refurbishment.

A+++

CleverCool inside

EnergyManager PV smart

Natural refrigerant

Versatile in use

Installed outdoors, there will always be a perfect place for the Belaria® pro. Since it runs with a natural refrigerant, it meets the legislation of tomorrow – today. The Belaria® pro saves space inside the home. The indoor unit with built-in TopTronic® E control is mounted on the wall. With the integrated CleverCool function, the heat pump even cools the rooms in summer. Due to its flow temperature of up to 70 °C, the Belaria® pro is ideal for renovation projects. The existing radiators can thus continue to be used.

The Belaria® pro (24) with its wall-mounted indoor unit is ideal for integration into a heating system. With the HovalConnect package of extras, the heat pump can be connected to the internet and controlled via a smartphone or computer.

Quiet and economical

Practically no noise is generated inside the home, as all of the steps required for the Belaria® pro to produce heat are carried out in the outdoor unit. The large fan installed in the outdoor unit conveys more air, i.e. more energy, almost silently. The infinitely variable adjustment of output to demand, known as modulation, also ensures quiet operation. This function, combined with high-quality components and the TopTronic® E controller, is responsible for the product achieving high levels of efficiency throughout the year. The controller is connected to the internet, so is able to optimise heating and cooling according to the weather forecast.

The EnergyManager PV smart also helps you save money. By using this standard, free feature together with HovalConnect, you will use more power generated by your own photovoltaic system and therefore consume less from the public grid.

Easy to install due to monoblock design

Both the indoor and outdoor units of the Belaria® pro come ready for connection. The two are connected by a line containing the domestic hot water that has been heated up. Compact dimensions make transport easy. The standardised TopTronic® E controller means virtually any combination of Hoval products can be turned into systems in no time.

Hoval Belaria® pro (24)

Precise comfort on request.

Selection options available for domestic water storage tank

Belaria® pro (24)

A+++

CleverCool inside

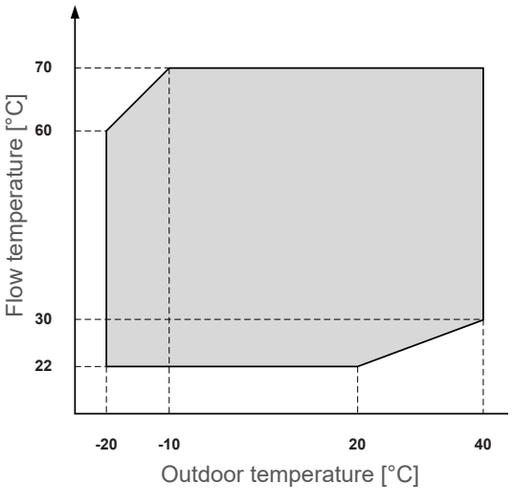
EnergyManager PV smart

Flexible storage tank selection.

The wall-mounted indoor unit of the Belaria® pro (24) offers complete flexibility for heating, cooling and hot water.
If the Belaria® pro (24) should also prepare domestic water, a suitable calorifier must be installed via an external 3-way switching ball valve.
The capacity and material of the storage tank can be chosen to meet the user's specific needs in terms of comfort and available space. Hoval offers a wide range of possibilities.
An existing storage tank for domestic water can still be used if necessary (note the minimum surface area of the heat exchanger).
Activate the built-in thermal disinfection function and legionella bacteria don't stand a chance.

Area of application for heating and domestic hot water

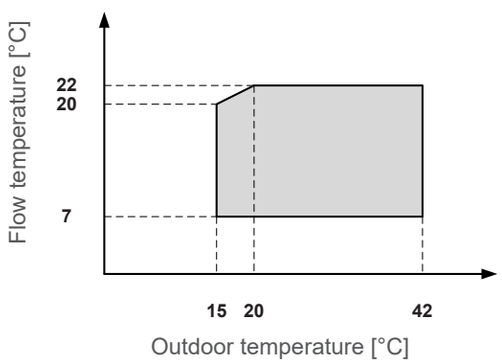
Hoval Belaria® pro comfort (24)



Area of application heating/domestic hot water heat pump

Area of application for cooling

Hoval Belaria® pro comfort (24)



Area of application cooling heat pump

Cooling with the Belaria® pro

During active cooling in summer, the heat pump circuit is reversed. Heat is extracted from the rooms and is released into the environment by the heat pump.

Comparison of details

Refrigerant, noise, efficiency, cooling.

Hoval Belaria® pro
Natural refrigerant.

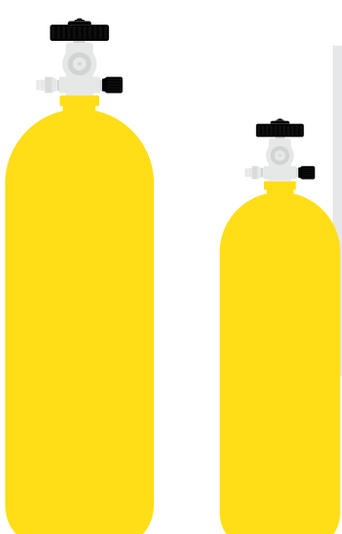
Natural refrigerant propane
Legal changes have prompted Hoval to react at an early stage. After weighing up the technical properties, global warming potential, combustibility and toxicity, Hoval has come to the decision to use propane as its preferred refrigerant for the future. The Belaria® pro is the first Hoval heat pump to use propane (R290) as a refrigerant.

Monobloc construction and installation.
Propane is only allowed to be stored in small quantities indoors. Design safety measures were implemented to respond to the properties of propane. The complete refrigeration circuit – compared to a separate design in the spilt construction – has been relocated to the outdoor unit. The circuit forms a tight unit. In the connecting pipe between the outdoor and indoor units, the heat is transported to the inside of the building by means of water. This makes installation even easier than with a split heat pump.

Natural refrigerant propane (R290)

Natural refrigerant inside
The Belaria® pro is marked with the adjacent logo as a sign for the natural refrigerant. Externally very similar, the Belaria® pro and the UltraSource® differ on the inside:

- **Belaria® pro**: R290 (propane), monoblock design
- UltraSource® B: R410A, split design



Heat pumps: permitted filling quantities for R290 (propane)
Without construction measures, only the following maximum quantities are permitted:

Inside buildings: 150 g
Outside buildings: 5 kg

The outdoor unit of the Belaria® pro (24) with a filling capacity of 4.4 kg is below the specified limit value.

Environment and legal basis.

Greenhouse gases are driving global heating and climate change. When you think about climate change, carbon dioxide (CO_2) and methane (CH_4) are the first things that come to mind. However, there are more than 20 natural and man-made greenhouse gases that contribute towards global heating. The global warming potential (GWP) describes how much a greenhouse gas contributes to global warming compared to the same quantity of CO_2.

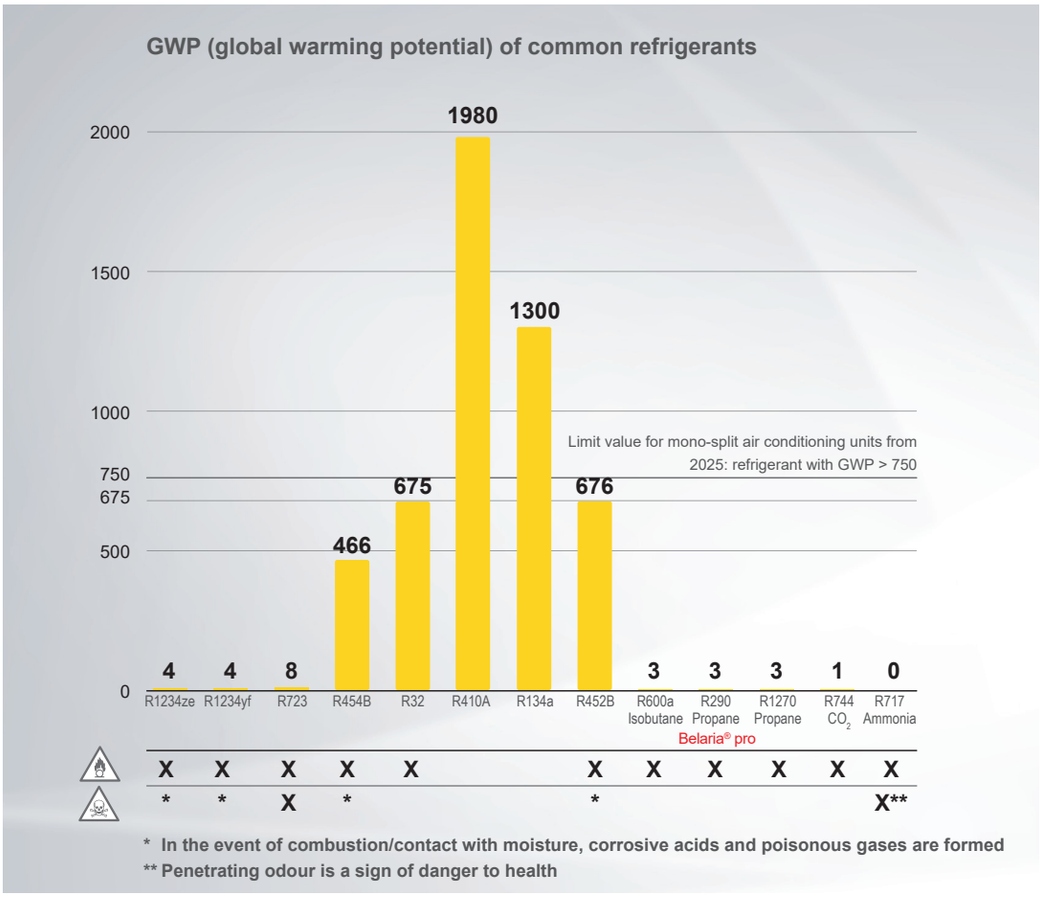
The common refrigerant R410A, which is often used in heat pumps, is to be largely replaced by the Phase Down Scenario (roadmap for the gradual reduction of synthetic refrigerant production) by 2025 due to its high GWP value. Despite apparently closed refrigerant circuits and clear regulations on the extraction and reuse of refrigerants, R410A pollutes the climate 1980 times more than CO_2, for example, in the event of a leak.

As a result of the technological development of refrigerants, alternatives are available. A balance needs to be struck between the GWP value, combustibility and toxicity in the process.

Some manufacturers of heat pumps are taking a considerable step towards a lower global warming potential with the gradual switch to refrigerants with a GWP < 750. However, Hoval is going even further in protecting the climate from greenhouse gases with the Belaria® pro.

The main advantage of propane is its low GWP value of 3. It is also non-toxic. And the potential flammability of propane is counteracted by the monoblock design.

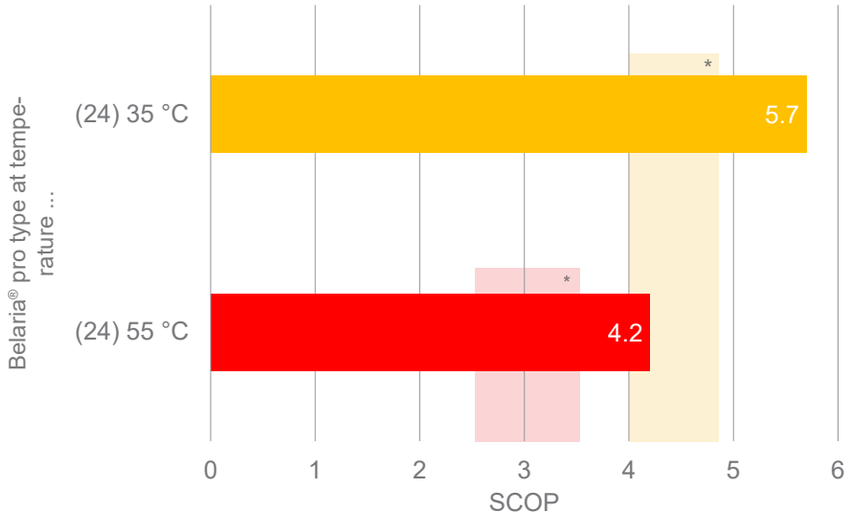
That means Belaria® pro meets the legislation of tomorrow – today.



Hoval Belaria® pro
Efficiency SCOP.

Warm in summer, cold in winter. The required heat output for a building changes with the seasonal temperature fluctuations. The Belaria® pro optimally adapts its output to the respective demand thanks to modulating inverter technology. It switches on and off less frequently, i.e. it works more evenly. This not only increases efficiency, but also reduces operating costs. Thus, the Belaria® pro is one of the most efficient heat pumps in its competitive environment. The Seasonal Coefficient of Performance (SCOP) enables efficiency values to be compared.

SCOP = Seasonal Coefficient of Performance
The calculation is made from the ratio of the annual heating energy demand to the annual electricity demand depending on the supply temperatures 35 °C or 55 °C to be provided. The two values are determined at different operating conditions over one year and weighted by climate zone.



* Most comparable heat pumps are in this range.

CleverCool inside

Integrated cooling function

Heat in winter and cool in summer. With the integrated CleverCool function, the heat pump ensures pleasant temperatures in the rooms in summer. In heating mode, the heat pump extracts heat from the ambient air and uses it for heating. If the cooling function is active, the circuit works in the opposite direction. Heat is extracted from the rooms and released into the environment by the heat pump.

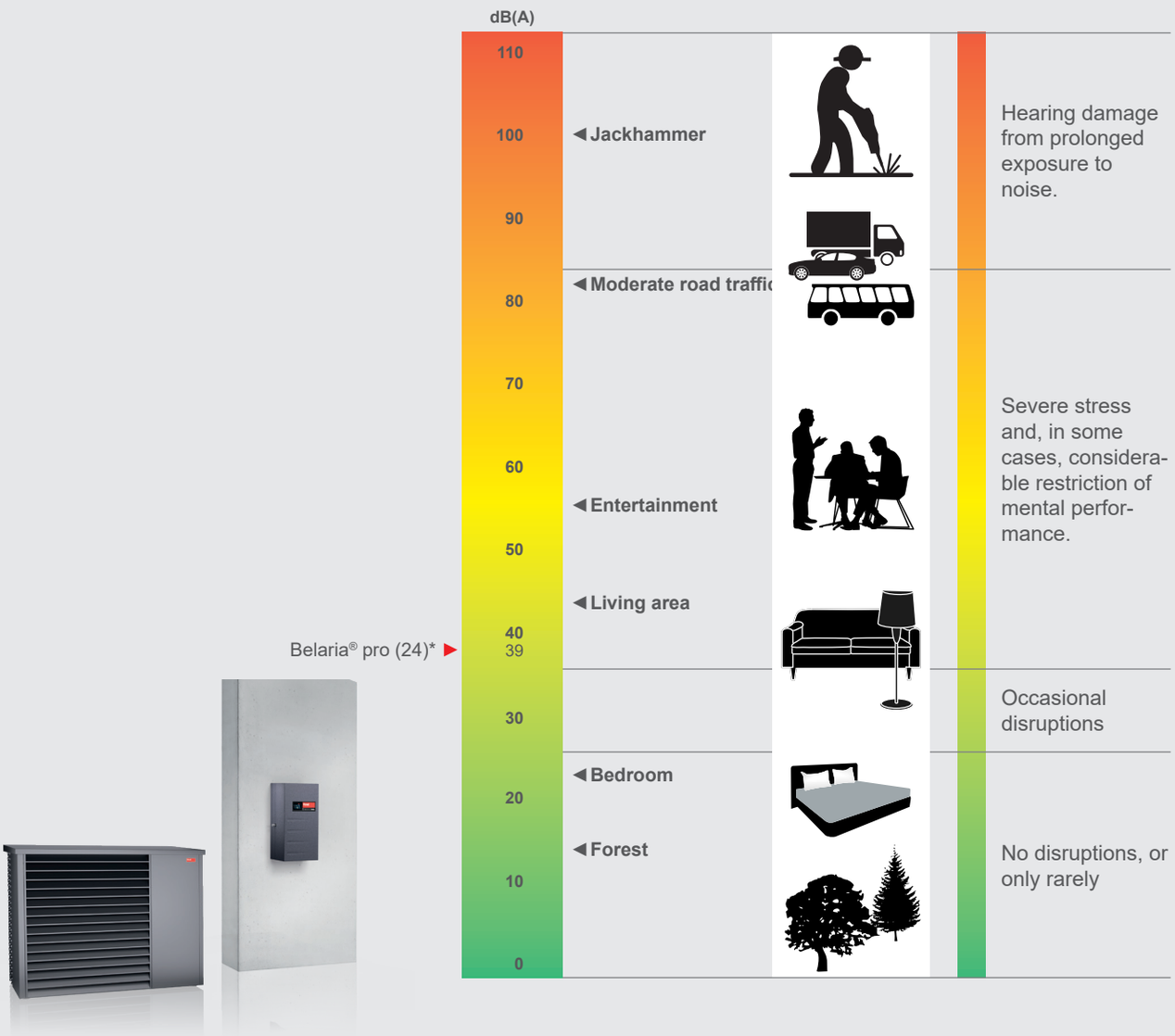
Sound
Quiet: inside and out.

The Belaria® pro is one of the quietest heat pumps in its performance class. In the case of sound, it can meet exacting requirements without the need for any further acoustic insulation measures. In the Belaria® pro air/water heat pump, the complete refrigeration circuit operates in the outdoor unit, a characteristic of the monobloc design. And practically noiseless with only 39 dB(A) at a distance of 5 metres with the Belaria® pro (24). The specifications apply to normal operation in accordance with EN 12102 and are achieved with a clean and free evaporator.

The heat pump always adjusts its output precisely to the current heat demand – experts refer to this as “modulating”. The indoor unit is also extremely quiet.

“Quiet” is perceived very differently by different people. For better classification, the Belaria® pro is shown in comparison to sounds from everyday life.

Sound pressure levels from different sound sources and acoustic effects



* at a distance of 5 m if the outdoor unit is positioned against a wall. These values are reduced by 3 dB if the outdoor unit is free-standing. With installation in a corner, the sound pressure level increases by 3 dB. The sound values apply with a clean evaporator. These values are temporarily exceeded shortly before defrosting.
Sound pressure level at a distance of 10 m: Belaria® pro (24) ▶ 33 dB(A)

Hoval Belaria® pro in refurbishments

Quick and easy.

When converting and refurbishing a house, the available space is often limited.
Building conditions often conflict with the needs of the residents and the available budget. Under such conditions, the Belaria® pro shows its strengths.

Radiators are retained.

Radiators require a higher flow temperature than underfloor heating. However, to install underfloor heating during a renovation is often costly or even impossible. Due to its flow temperature of up to 70 °C, the Belaria® pro is thus ideal for renovation projects. The existing radiators can thus continue to be used. The cost of the renovation remains within reasonable limits.

Compact installation

While the space available inside the house is often limited during conversion and renovation, there is almost always room in the garden or outdoor areas. In the monoblock design of the Belaria® pro, the main components are housed in the outdoor unit. This makes the indoor unit compact and takes up little space inside the house. Practically no noise is generated inside, as all of the steps required to produce heat are carried out in the outdoor unit. This works just as quietly, thanks to generous dimensioning and excellent insulation.

Simple bringing in and installation

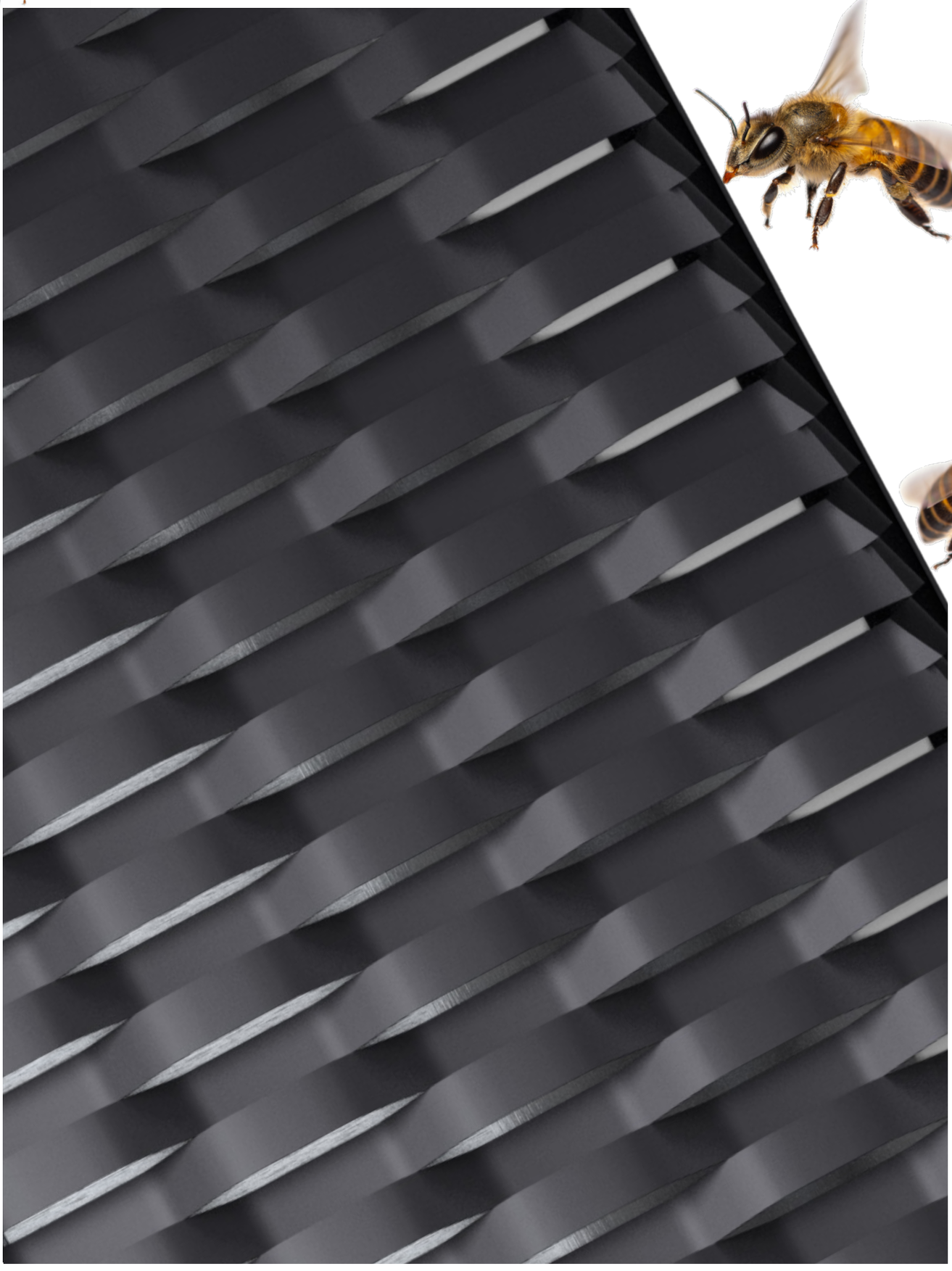
The Belaria® pro features an impressive compact indoor unit for wall installation.

The indoor unit can easily be transported through standard doorways or narrow staircases.

The Belaria® (24) offers complete flexibility for domestic water heating. Drinking water systems with a suitable fresh water module or calorifier can be implemented conveniently.

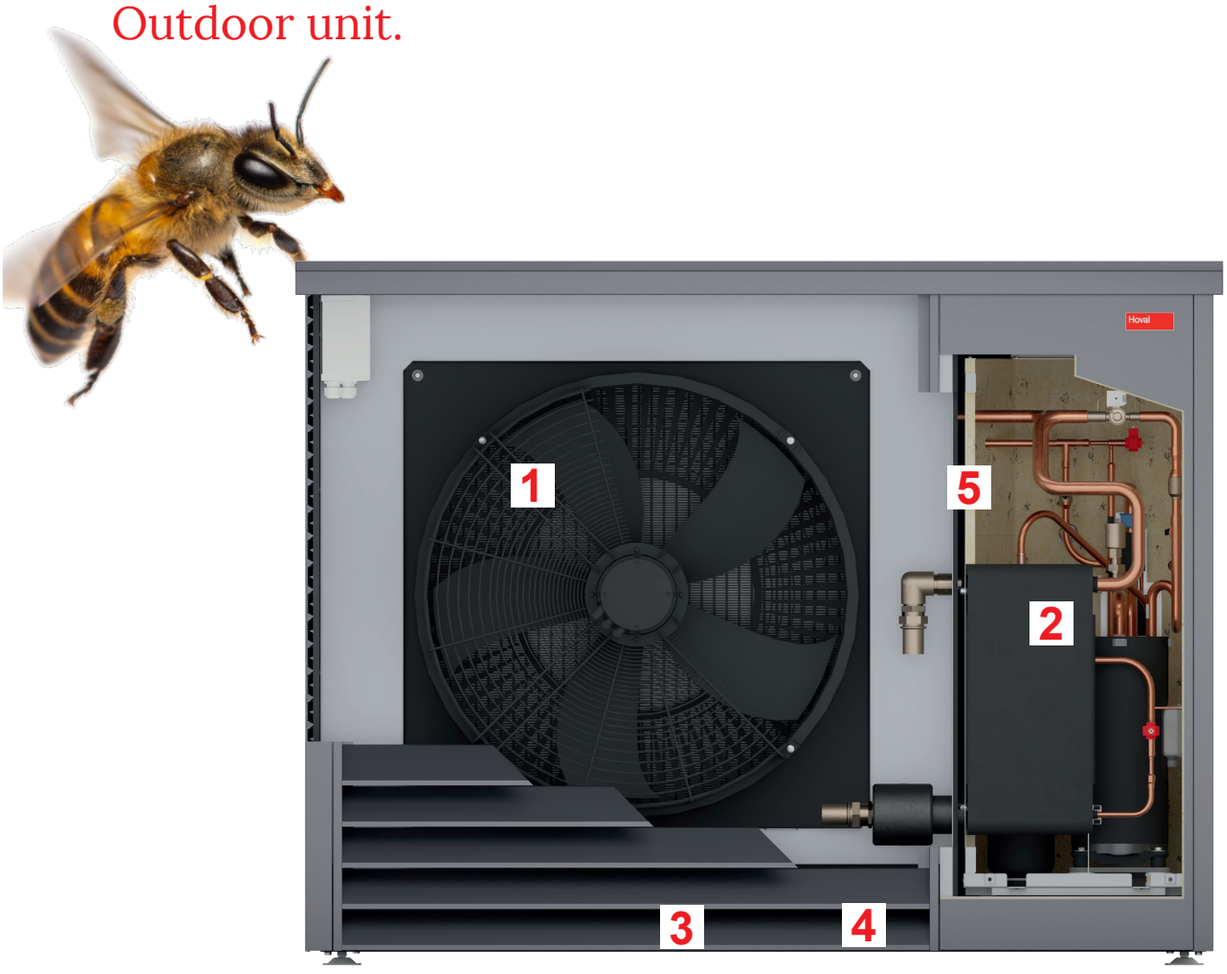
The modular control platform of Hoval TopTronic® E stands for easy system integration and versatile operation.

A look inside
Components and dimensions.



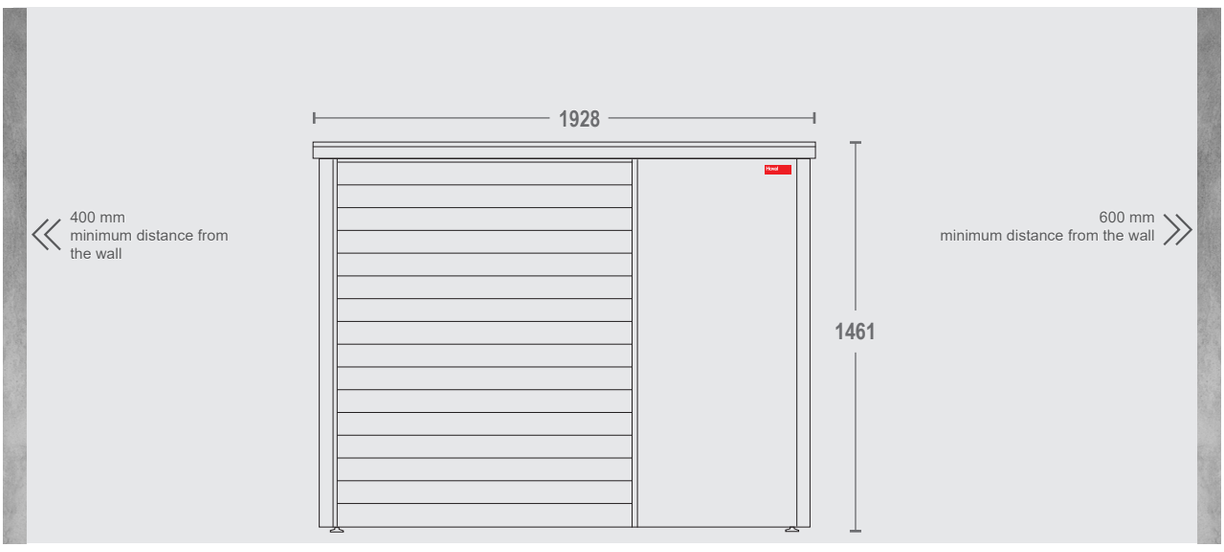
Hoval Belaria® pro (24)

Outdoor unit.



Hoval Belaria® pro (24) outdoor unit

Front view



1 High-tech fan assembly

The air flow through the fan has been optimized. Equipped with HyBlade® technology, it requires a low speed to move large volumes of air. The large fan adjusts its speed of revolution to the required output. The FlowGrid air guide grille directs the intake air so that it flows through the evaporator optimally and almost silently. The latest fan technology for efficient and quiet operation.

2 Complete refrigeration circuit

Monoblock construction: The refrigeration circuit of the heat pump is completely placed in the outdoor unit and uses propane as a natural refrigerant. In the refrigeration circuit, the inverter optimally adjusts the heat pump's output to the building's requirement; in short, it provides the modulation. The compressor operates according to the specifications of the heat demand determined by the control system. It has multiple mountings for sound decoupling. The more economically it runs, the quieter it is. If full output is ever required, the oscillating mounting and the additional encapsulation of the compressor ensure quiet operation. The plate heat exchanger transfers the heat that the outdoor unit extracts from the ambient air to the heating circuit.

3 Condensate drip tray with tray heating

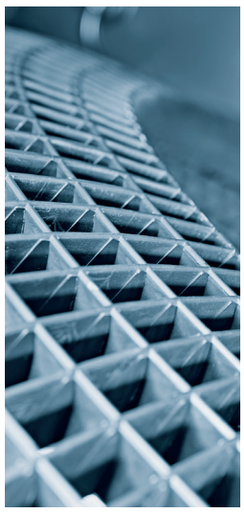
The condensate drip tray with tray heating, which is included as standard, ensures that the condensate produced flows off without any problems even at low outside temperatures. The output of the tray heating is adjusted to the maximum condensate produced and ensures safe operation, even at low temperatures.

4 Hydraulic and electrical systems ready for connection

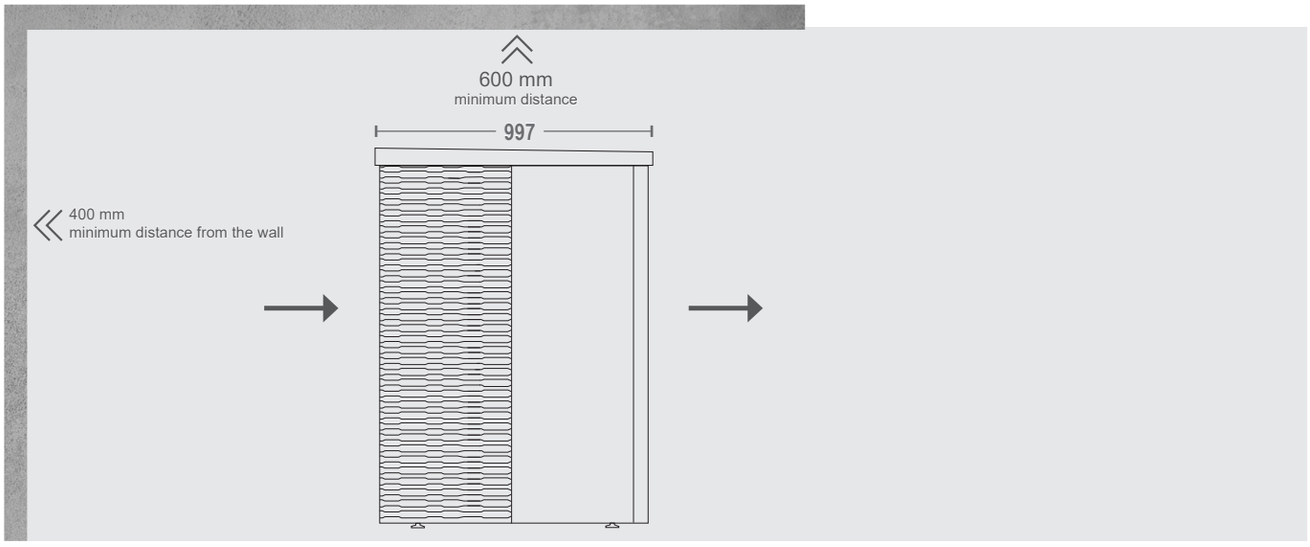
The connections of the flow and return of the hydraulic line for the heating water as well as the main and control current are positioned on the underside of the outdoor unit and are already ready for connection.

5 Insulation against heat loss and sound

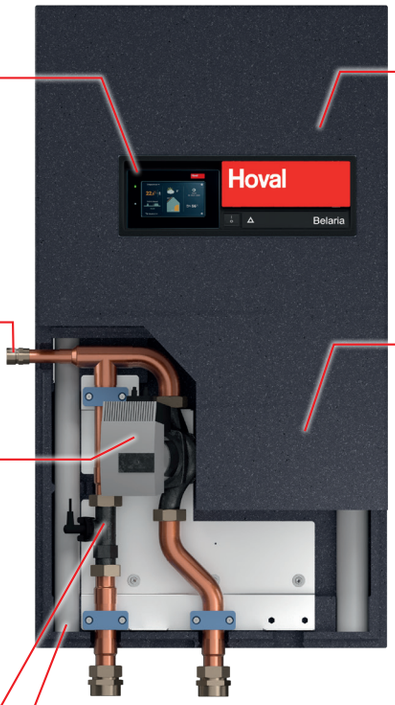
The casing of the outdoor unit is specially soundproofed and insulated with insulation materials against heat losses.



View from right



Hoval Belaria® pro (24)
Indoor unit.



TopTronic® E controller
The modular control platform for versatile operation, simple system integration and with integrated cooling function.

Connection for the safety group

Circulating pump
It conveys the heating water supplied by the heat pump into the heating system either directly or via a buffer storage tank, or as a heat source to the domestic water storage tank.

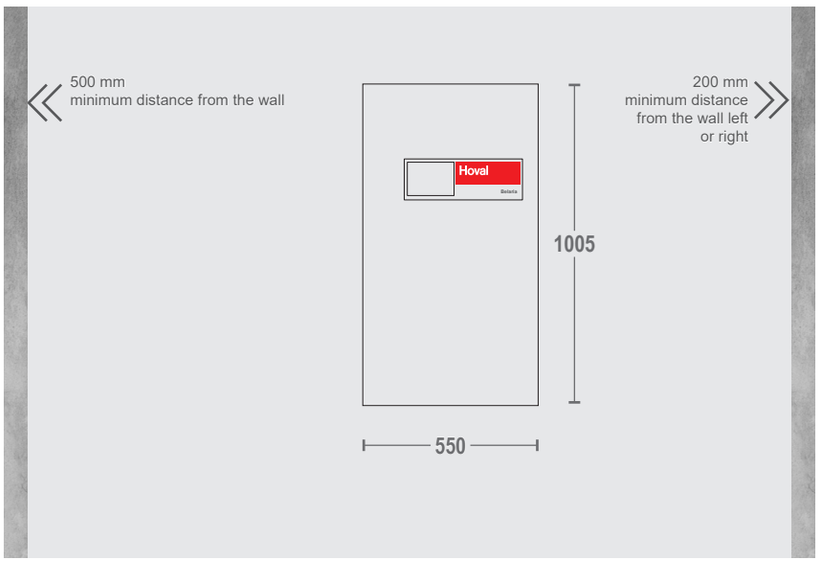
Flow sensor/flow meter
It monitors the throughflow.

Cable feed-in
The connections for main or control current are placed at the bottom left and right.

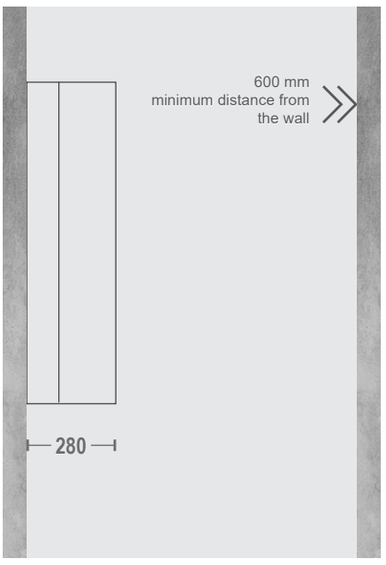
Optional: Control set (switching contactor)
Necessary for activating an external electric heating element. Control kit for installation in the wall-mounted indoor unit.

Casing
Casing made of expanded polypropylene (EPP). It is lightweight and serves to insulate against heat and moisture.

Front view



View from the left



Hoval Belaria® pro (24)

Technical data.

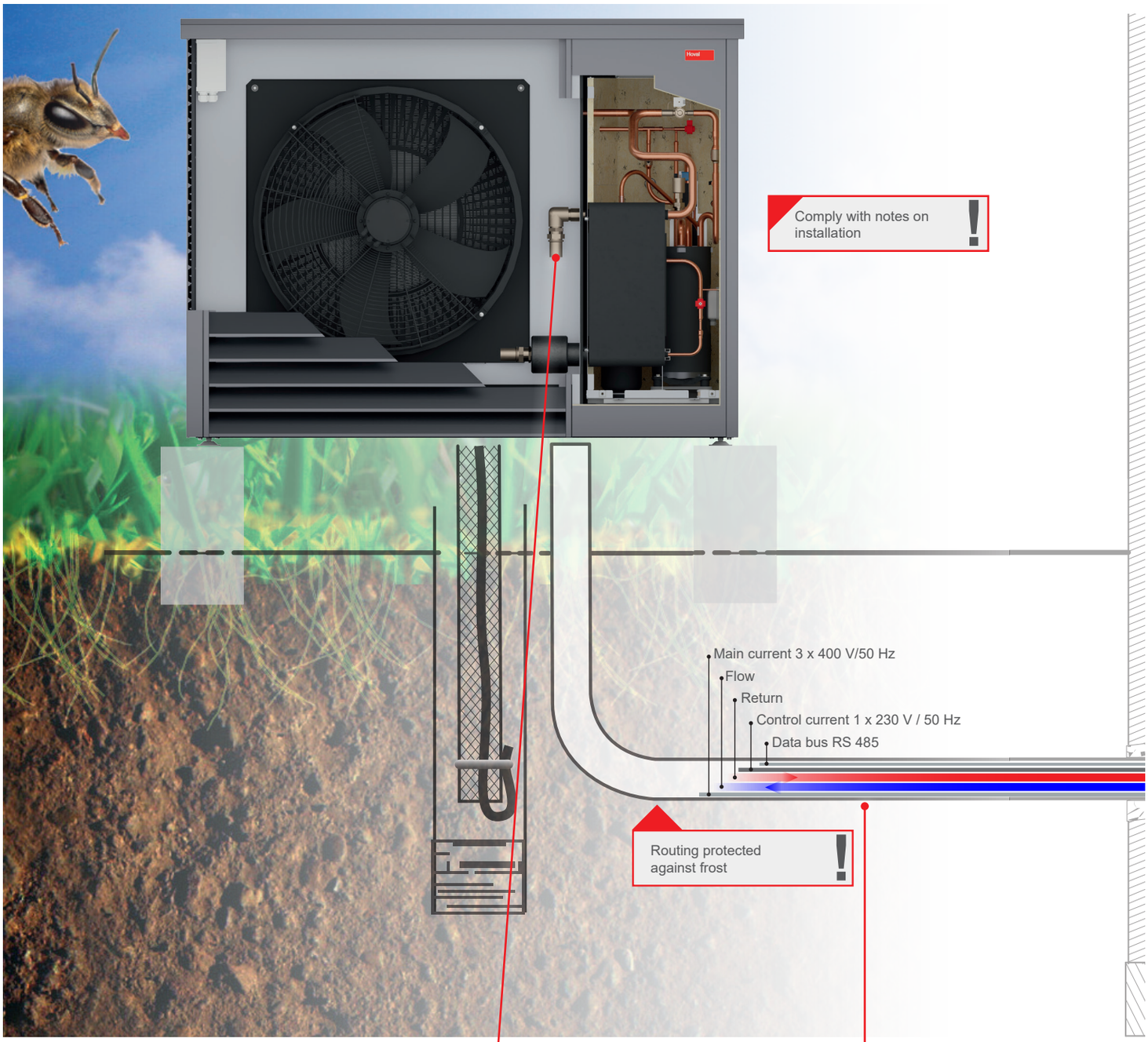
Hoval Belaria® pro		(24)
Room heating energy efficiency “moderate climate” 35 °C	ηS	225
Room heating energy efficiency “moderate climate” 55 °C	ηS	165
Energy efficiency class heating 35 °C		A+++
Min. - max. heat output for A2W35 (EN 14511)	kW	10.1 – 24.0
Min. - max. heat output for A-7W35 (EN 14511)	kW	10.5 – 22.1
Min. - max. cooling capacity for A35W18 (EN 14511)	kW	10.2 – 24.4
Seasonal coefficient of performance moderate climate at 35 °C/55 °C (EN 14825)	SCOP	5.7 / 4.2
Flow temperature	°C	70
Refrigerant		R290
Dimensions of outdoor unit (height x width x depth)	mm	1461 x 1928 x 997
Dimensions of indoor unit (height x width x depth)	mm	1005 x 550 x 280
Outdoor unit sound power level (EN 12102)	dB(A)	58

Hoval Belaria® pro and its accessories

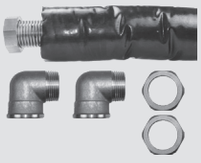
What and where at a glance.

Connection

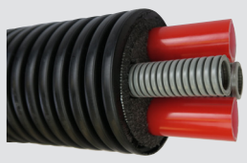
Precisely fitting accessories at a glance.



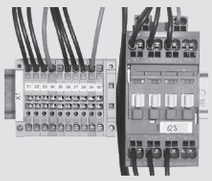
Connection set



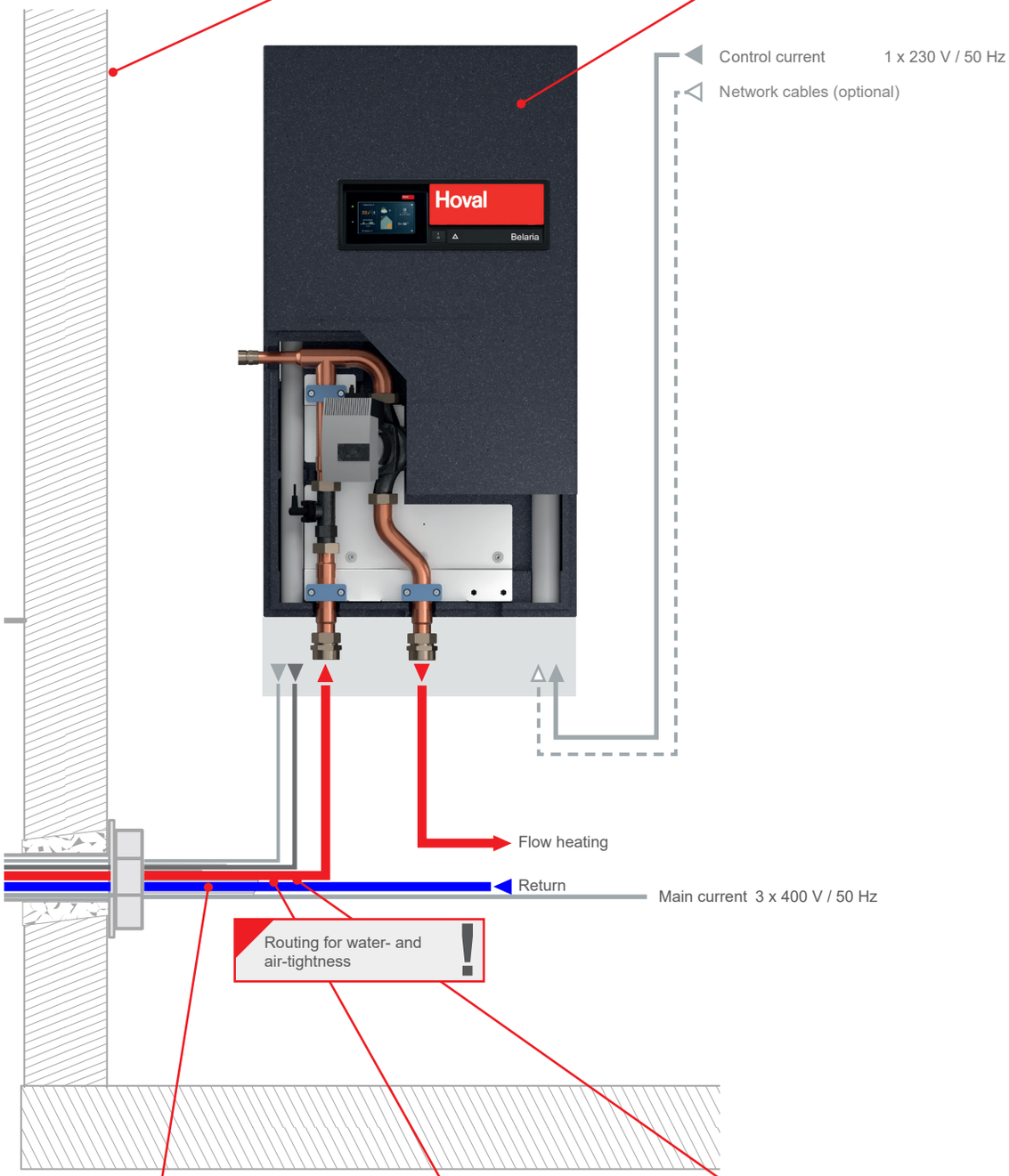
HP pipe



Fan convector



Control set
(switching contactor)



Connector set HP pipe

Separation system

Set of vibration decouplers

On site

- Safety group
- Diaphragm pressure expansion tank
  When the pressure of the closed circuit increases, the pressure expansion vessel absorbs the liquid or vapour and thus protects the system from damage.

Hoval TopTronic® E controller

The licence for combinations.

Easy

+

Online

TopTronic® E

Convenient **operation** and control

integration into the system

Standard functions
Included in the unit

- Direct circuit
- Mixed circuit
- Domestic hot water
- Cascades

Optional depending on plant

Controller module

Module expansions

- Add. heating circuit
- Buffer storage tank
- Solar
- Additional heating circuits
- Special functions

System can be expanded

The modular design of the TopTronic® E controller allows plants to be individually configured. A complete system with coordinated components is more energy efficient than the combination of individual devices.

Cascades as standard

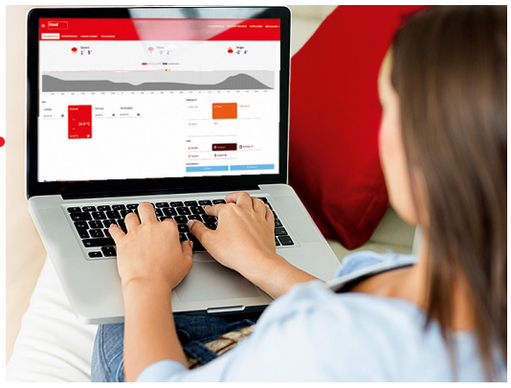
Hoval's extensive product range is also reflected in the functionality of the controls. Communication between the individual products is guaranteed.

Operating from near and far

Nothing is impossible.

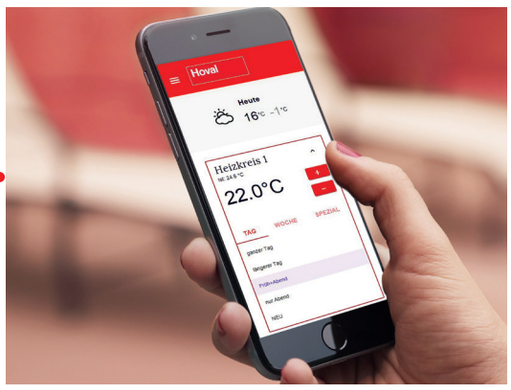
Hoval room control module

Using the control module installed in your living room, for example, you can even adapt heat pump operation in line with individual daily or weekly programmes. What's the weather forecast? The Hoval TopTronic® E control system knows. Every hour, it retrieves a reliable weather forecast for your location from the Internet and aligns heating operation with this. So you can save energy while looking after the environment and your costs – and still enjoy the same level of comfort.



HovalConnect

The HovalConnect online service allows you to operate your system via the Internet from home or via an app when you are on the go. The service is accessed using a personal password. The software is easy to use and provides an overview of your heating system in the form of graphics. It allows you to optimise your system and reduce costs.



Hoval app

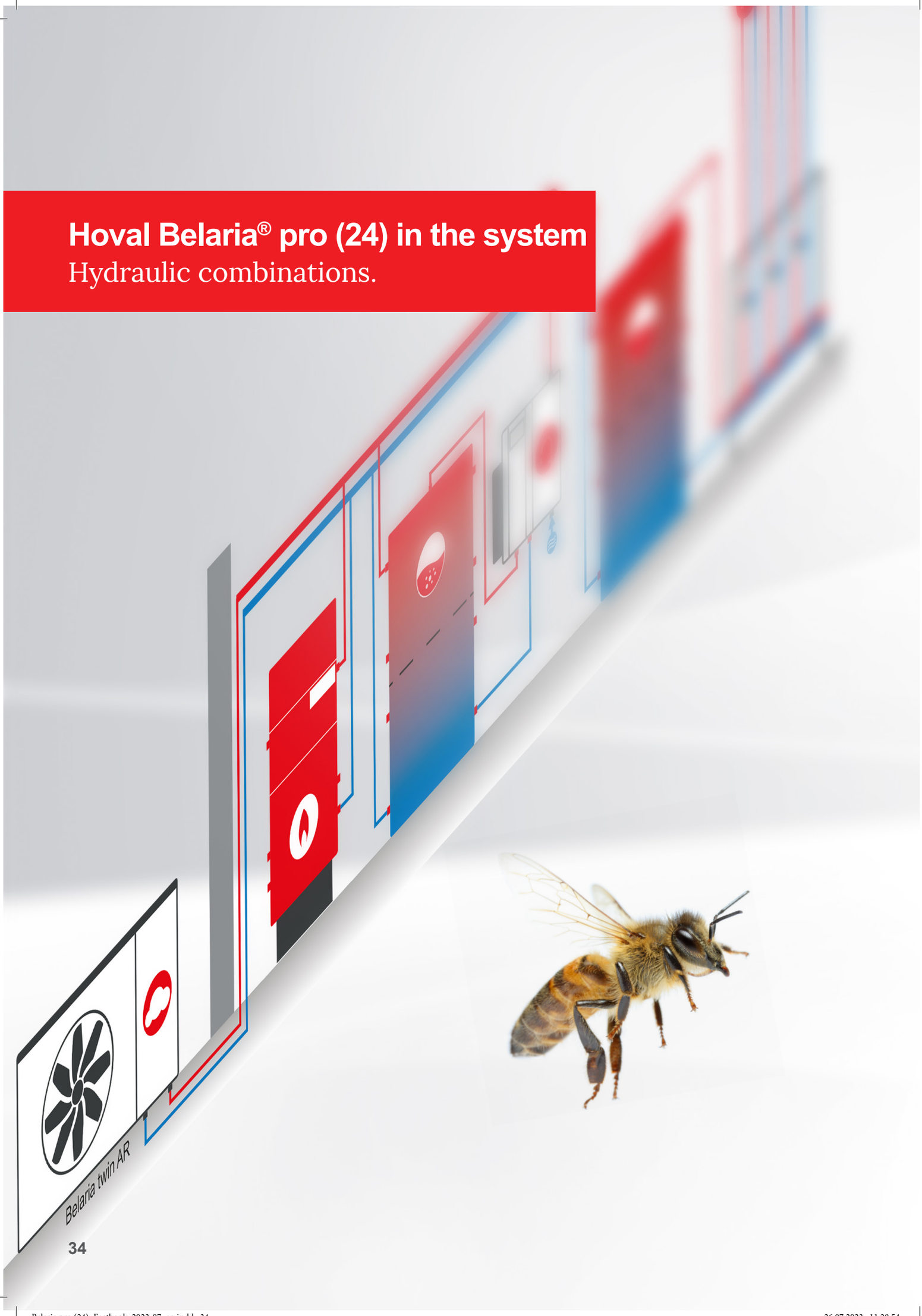
Stay flexible with everything available at a glance. Let's say you've decided to head home from work a little earlier than usual – just increase the temperature and look forward to reaching your cosy, warm house. If you want to control your heating while you're out and about, you can do this quickly from the Hoval app for your smartphone.

EnergyManager PV smart

The EnergyManager PV smart also helps you save money. By using this standard, free feature together with the HovalConnect online service, you will use more power generated by your own photovoltaic system and therefore consume less from the public grid.

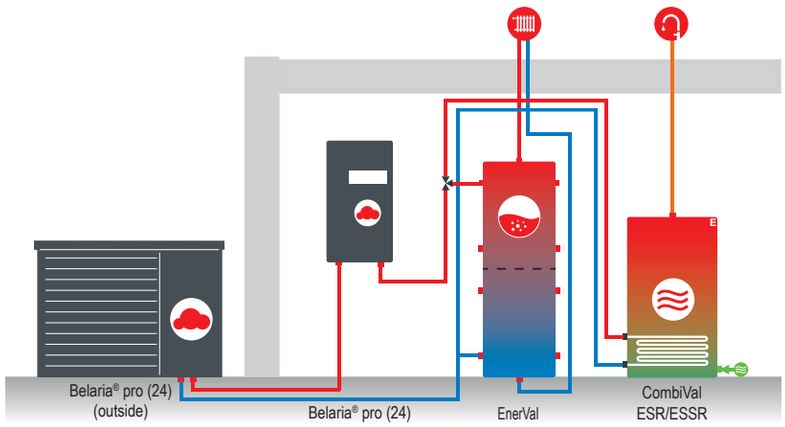
Hoval Belaria® pro (24) in the system

Hydraulic combinations.



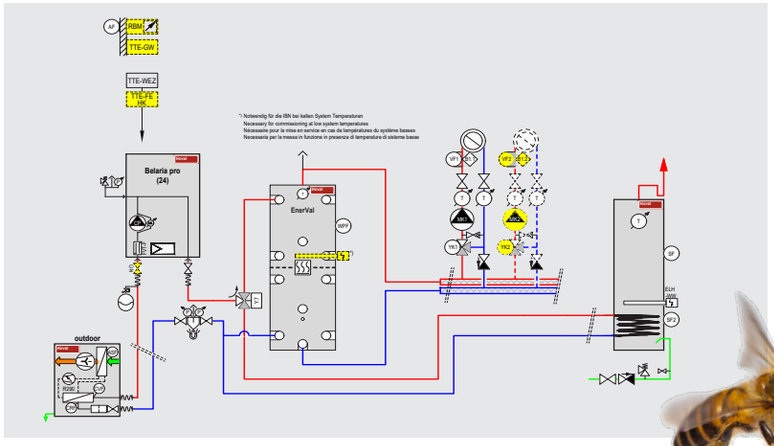
Complete solutions

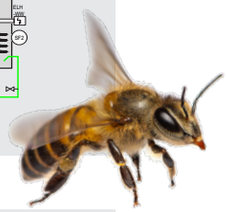
Fossil or renewable energy source, simple or complex, space-saving, stringent hygiene standards. Hoval offers an extensive range of products that are combined to create the Hoval solution. A Hoval solution presents the Hoval products and their connections schematically. A brief functional description is provided with the graphic.

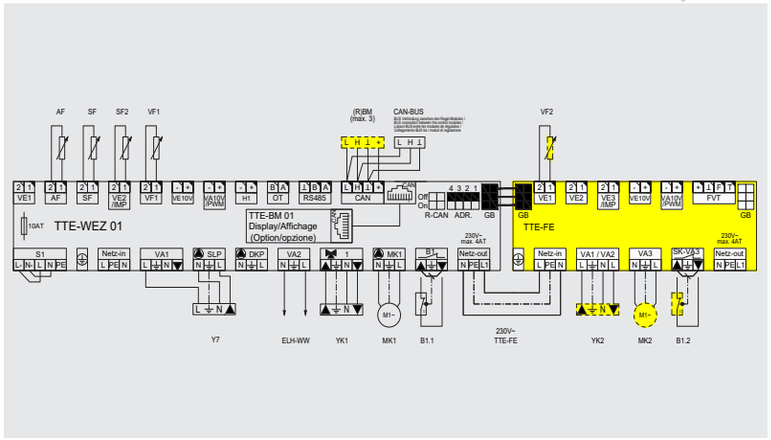


Details

A detailed description of the solution can be found in an accompanying hydraulic schematic. This is usually supplemented by electrical connection diagrams and parameter settings for the TopTronic® E system control. The detailed hydraulic schematics save time during planning and installation. And if help is needed, Hoval is there to provide advice and service. Everything from a single source: fitting, function-tested and efficient.





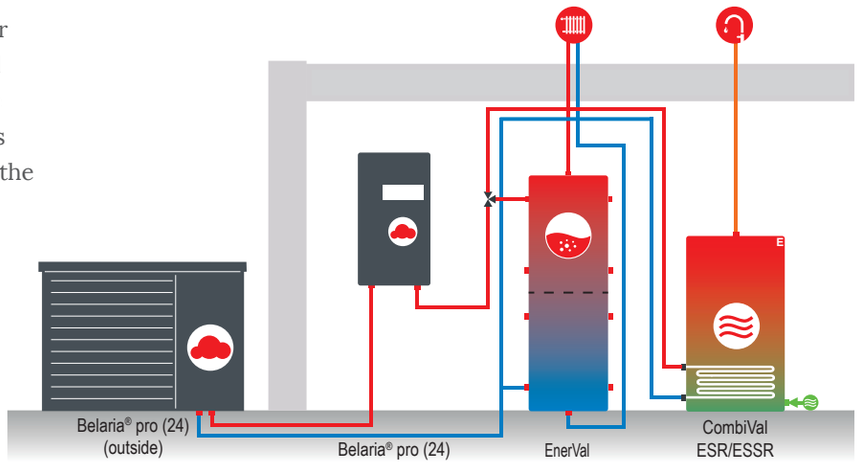


Added value for your benefit:

- From simple to detailed
- Wide range of solutions
- Simple and reliable from a single source
- Rapid planning and installation

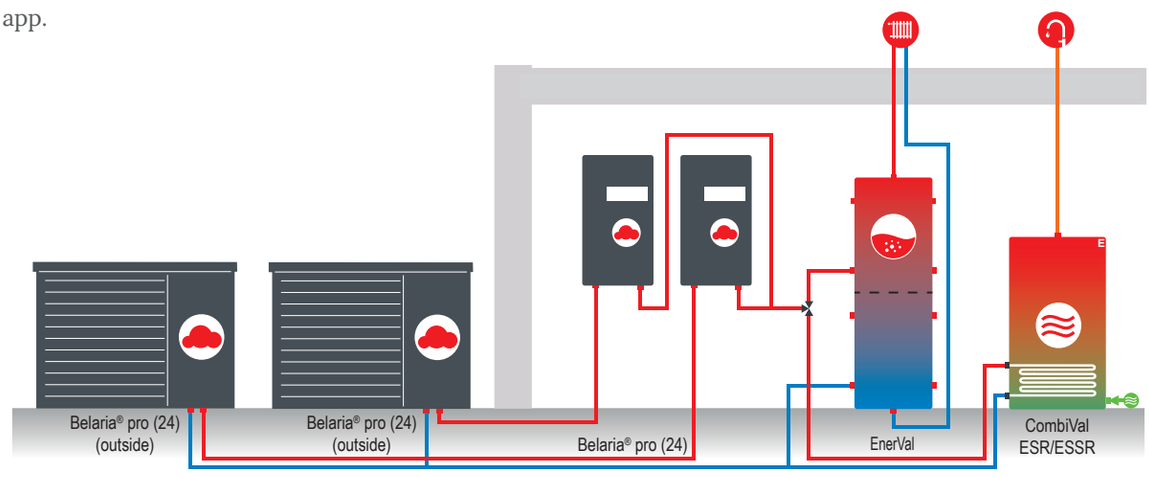
A straightforward and compact system for multiple dwelling units (refurbishment and new building)

The Belaria® pro heats the rooms exactly as is needed using radiators or underfloor heating, and provides hot water. The water is stored in the adjacent storage tank until it is needed. The system is easy to operate using the TopTronic® E system controller's room control unit and a smartphone with the HovalConnect app.



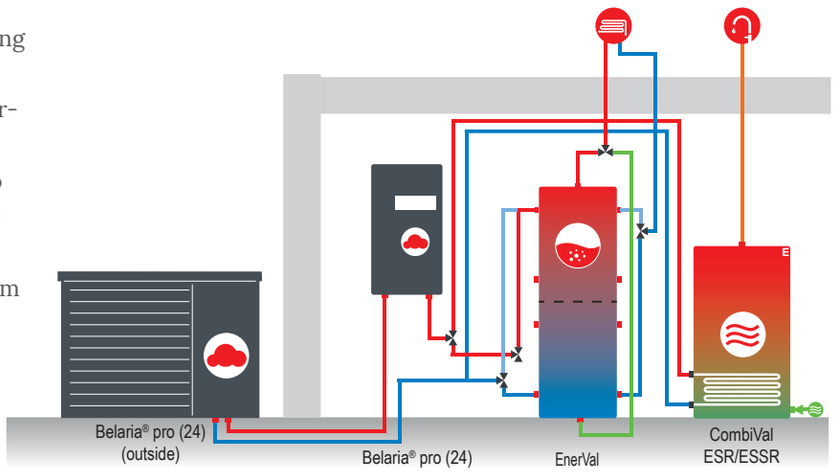
Flexible system for heating relatively large multiple dwelling units (refurbishment and new building)

The Belaria® pro operates in a cascade providing heat for relatively large multiple dwelling units. The heat pump cascade heats the rooms in the refurbished or newly built building exactly as is needed using radiators or underfloor heating, and provides hot water. The water is stored in the adjacent storage tank until it is needed. The system is easy to operate using the TopTronic® E system controller's room control unit and a smartphone with the HovalConnect app.



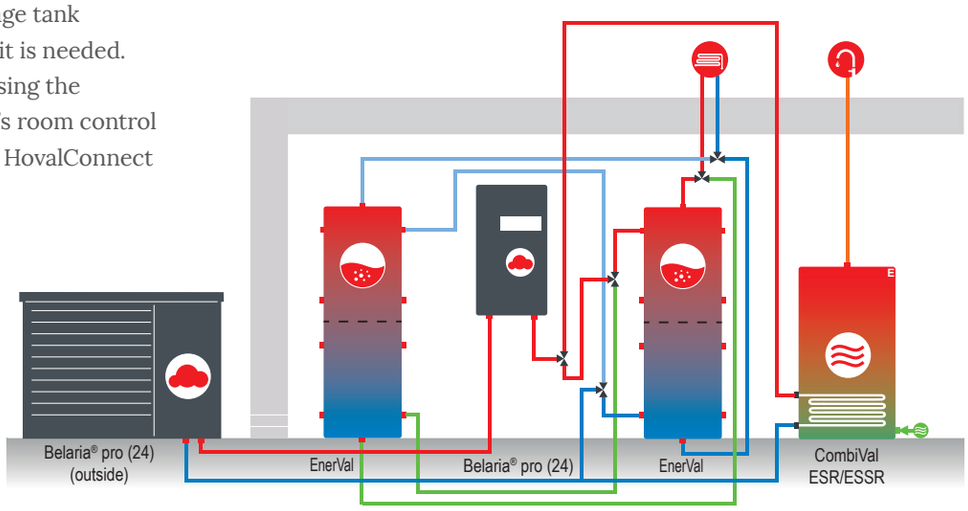
Space-saving solution for heating and cooling multiple dwelling units

The Belaria® pro provides heating and cooling energy. This heat is buffered in the external storage tank (e.g. EnerVal) until is it radiated into the living space via the underfloor heating or the radiators. In summer, the heat pump controls the room temperature via the underfloor heating.
The hot water is provided by the Belaria® pro and is kept in the storage tank (e.g. CombiVal ESR/ESSR) until it is needed. The system is easy to operate using the TopTronic® E system controller's room control unit and a smartphone with the HovalConnect app.



Flexible system for heating and cooling multiple dwelling units

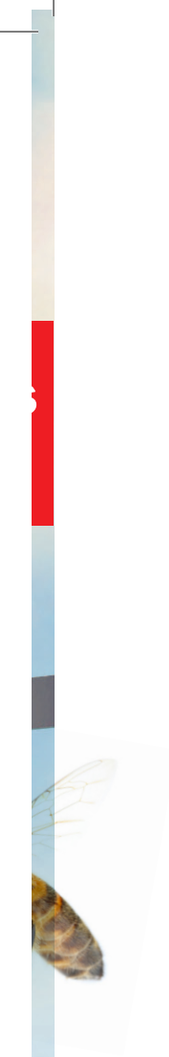
The Belaria® pro provides heating and cooling energy. This heat is buffered in external storage tanks (e.g. EnerVal) until is it radiated into the living space via the underfloor heating, radiators or via fan convectors. In summer, the heat pump cools or controls the room temperature via fan convectors or the underfloor heating.
The hot water is provided by the Belaria® pro and is kept in the adjacent storage tank (e.g. CombiVal ESR/ESSR) until it is needed. The system is easy to operate using the TopTronic® E system controller's room control unit and a smartphone with the HovalConnect app.



Planning as a guarantee of success

Pay attention to these issues.

Checklists
for planning and engineering.



Comprehensive planning is a prerequisite for the safe and reliable operation of a plant and thus for satisfied customers. Country-specific standards, guidelines and instructions for planning, design and installation must be observed. A checklist helps to ensure that nothing is forgotten. Detailed notes are listed in the catalogue.

Requirements and directives
- General
- Environment
- Electrical connection
- Planning and design

Design
- Heat for heating / domestic hot water
- Cooling
- Performance data

Heat source
- Air

Buffer storage tank

Electrical data
- Design
- Approval
- Off-periods by power companies

Water quality
- Heating water
- Replacement water

Connections
- Hydraulic – heating
- Hydraulic – domestic water
- Electrical
- Cooling

Set-up
- General
- Outdoors (refrigerant)
- Indoors
- Sound emissions
- Distance (indoor and outdoor unit)

Hoval quality.
You can count on us.

Hoval

Hoval is one of the leading international companies for heating and indoor climate solutions. Drawing on more than 75 years of experience and benefiting from a close-knit team culture, the Hoval Group delivers exciting solutions and develops technically superior products. This leadership role requires a sense of responsibility for energy and the environment, which is expressed in an intelligent combination of different heating technologies and customised indoor climate solutions.

Hoval also provides personal consultations and comprehensive customer service. With around 2200 employees in 16 companies around the world, Hoval sees itself not as a conglomerate, but as a large family that thinks and acts globally.
Hoval heating and indoor climate solutions are currently exported to more than 50 countries.

Responsibility for energy and environment

Germany
Hoval GmbH
85609 Aschheim-Dornach
hoval.de

Austria
Hoval Gesellschaft m.b.H.
4614 Marchtrenk
hoval.at

Switzerland
Hoval AG
8706 Feldmeilen
hoval.ch

2023 - 03 | Subject to modifications | .....

Your Hoval partner