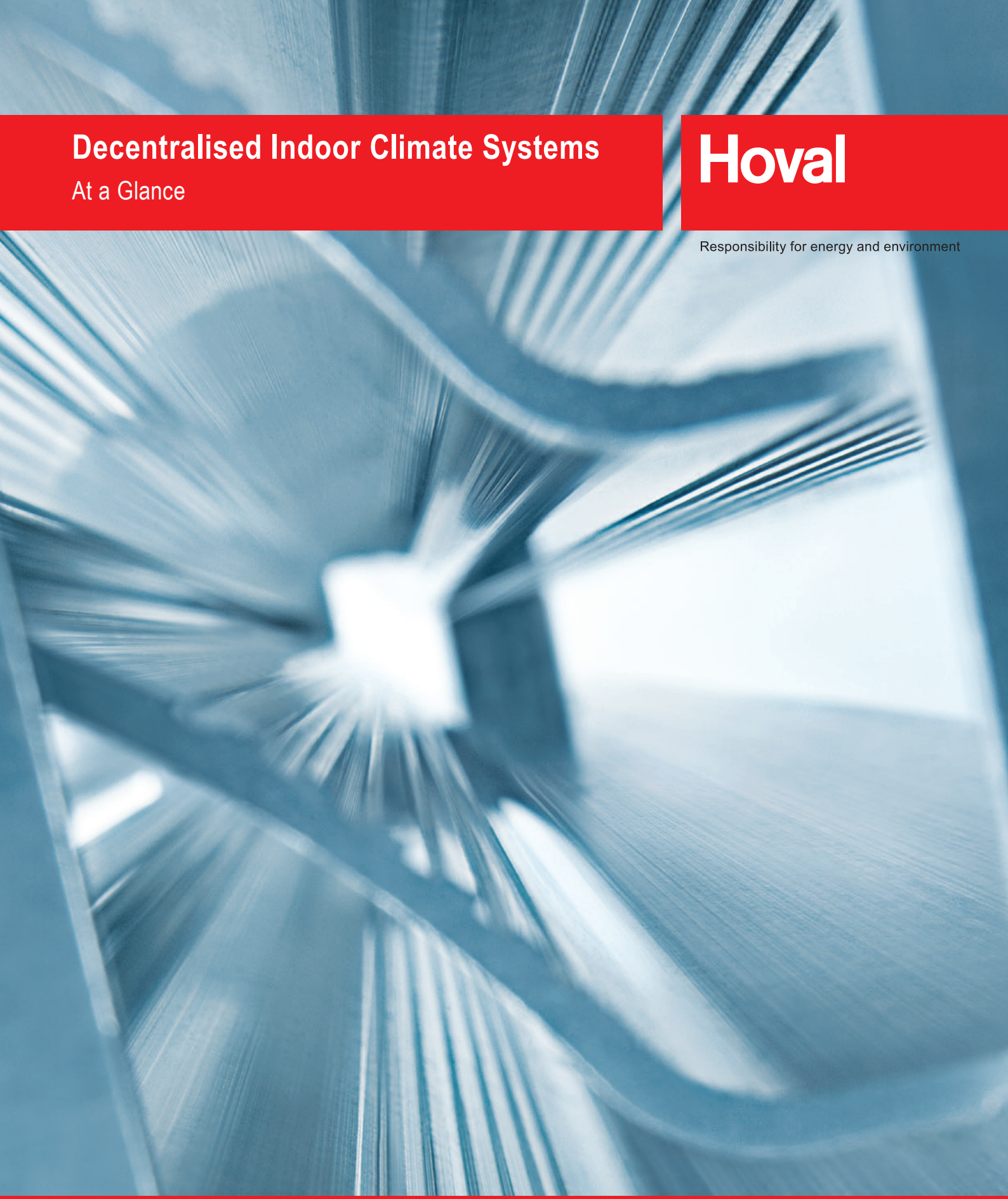
Decentralised Indoor Climate Systems

At a Glance

Hoval

Responsibility for energy and environment



Flexible, efficient and comfortable.

Maximum flexibility.

The Hoval indoor climate system creates a comfortable climate in large interior areas while minimising energy consumption. Unlike centralised systems, it has a modular structure in which one system contains multiple and possibly different indoor climate units. This guarantees maximum adaptability and flexibility in all phases: planning, installation, operation and maintenance.

Indoor climate systems from Hoval ensure good air quality. They inject fresh air into the interior from above using the patented vortex air distributor. The occupied area is thoroughly ventilated without draughts; and temperature and air quality are uniform throughout the room. People occupying these areas feel comfortable. The climate is just right for working productively, for relaxed shopping, for informative trade fair visits, for playing sports, etc.
The systems work in a decentralised fashion; they consist of autonomous ventilation and indoor climate units with air flow rates of up to 10,000 m³/h (2.8 m³/s). This results in significant advantages:

Simple planning. Different unit types can be combined to create solutions tailored to each individual project. The compact, light design of the functional units facilitates their integration into buildings. The decentralised system enables the gradual expansion of new systems and the uncomplicated extension of existing systems.

Short installation times. The units are delivered ready to plug in, making them rapid and easy to install. Their installation under the ceiling or in the roof also saves valuable usable space in interiors.

Reliable, flexible operation. The use of multiple units makes the system extremely reliable and adaptable to a wide range of operating conditions.

Problem-free maintenance. Maintenance work can be performed easily and cost-efficiently during normal operation since it is not necessary to switch off the entire system.

Duct-free Hygiene.

The indoor climate systems are installed on the ceiling or in the roof, distributed throughout the interior. They inject supply air directly into the interior without requiring supply air and exhaust ducts. This is advantageous in terms of space requirements, hygiene and efficiency.

The duct-free system has many advantages:

- It simplifies installation.
- Valuable space otherwise occupied by the ducts is freed up. There are no elements that interfere with the hall infrastructure (cranes, supply lines, conveying system, etc.).
- The supply air is not contaminated by dirty, difficult-to-clean air ducts; it remains clean and hygienic.
- No ducts also means no duct pressure loss and less leakage. This reduces the specific fan power (SFP value) and thus lowers power consumption.
- The absence of duct pressure loss allows a compact, lightweight unit design. A saving in weight of some 70 % versus centralised systems enables a significantly lighter building construction.

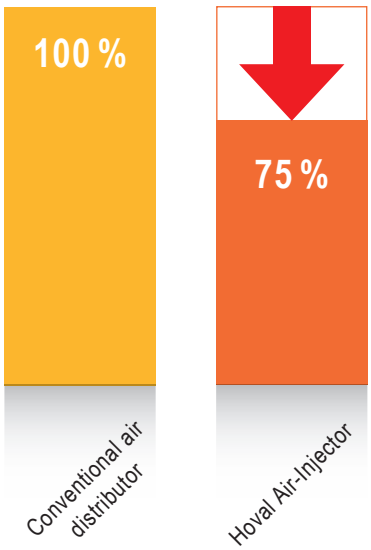
Patented Air Distribution.

Indoor climate systems from Hoval are masters in saving energy. They break down the temperature stratification in interiors, keeping heat loss through the roof to a minimum. Thanks to their high ventilation efficiency, less air needs to be circulated and treated, saving electrical power and reducing ventilation heat requirements.

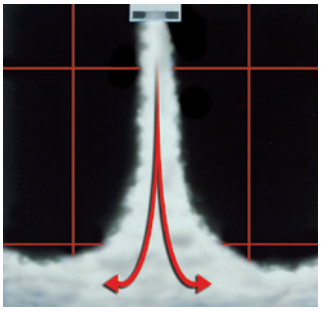
Maximum efficiency. The central element of the indoor climate systems from Hoval is the patented vortex air distributor, the so-called Air-Injector. It is so efficient that, compared to other systems, it requires a 25 % to 30 % smaller air flow rate to achieve the desired conditions. This saves costs in many ways:

- Units with a lower air flow rate can be used, saving investment costs.
- Less air needs to be moved, which saves operating power.
- The ventilation heat requirement sinks, which in turn reduces operating costs.

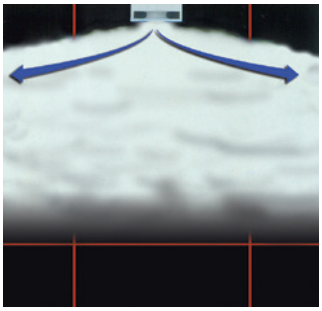
Compared to other systems, they often require far lower air flow rates to achieve the desired conditions.



Greater comfort. The Air-Injector ensures optimal air distribution under fluctuating operating conditions and prevents draughts in the occupied area. It is suitable for mounting heights of 4 m to 25 m.
Depending on the temperature difference between the supply air and interior air and on the air flow rate, the unit adjusts the blowing angle of the air continuously between vertical and horizontal. The unit can be adapted to changing conditions automatically or by hand using a potentiometer.



Heating operation: The supply air is warmer and thus lighter than the interior air. The vertical inflow of air ensures that the heat reaches the areas where it is needed.



Cooling operation: The inflowing air is colder than the interior air and sinks. To avoid draughts, it is injected horizontally.

Less heat loss. Due to the air supply from above and the intensive mixing of supply air with interior air, temperature stratification is reduced to only 0.15 K/m, which in turn reduces heat loss through the roof.

Stable flow pattern. Detailed series of measurements have shown that the flow pattern of the Hoval Air-Injector is exceptionally stable and largely independent of the volume flow rate. This flow pattern is particularly important for indoor climate systems with a variable air flow rate.

Precise Control.

Control and regulation systems developed specifically for decentralised systems reliably ensure optimal use of resources and in this way keep operating costs down. The indoor climate units are regulated individually and controlled based on zones. The system flexibly adjusts to local requirements.

Tailored control. The control algorithm has been specially developed for Hoval indoor climate systems. This sophisticated control system ensures full utilisation of the potential of decentralised indoor climate systems:

- Units that operate under the same conditions are grouped into control zones. In addition, each indoor climate unit is individually and autonomously regulated.
- The system saves operating costs by enabling need-based ventilation, heating and cooling of separate indoor areas that are used at different times.
- It flexibly adjusts to the prevailing requirements (heat loads, oil mist, etc.).
- Maximum comfort is ensured by means of control parameters that can be individually adjusted for separate zones.

Time-saving planning and installation. The units are delivered ready to plug in with integrated I&C components. This keeps planning and installation work to a minimum.

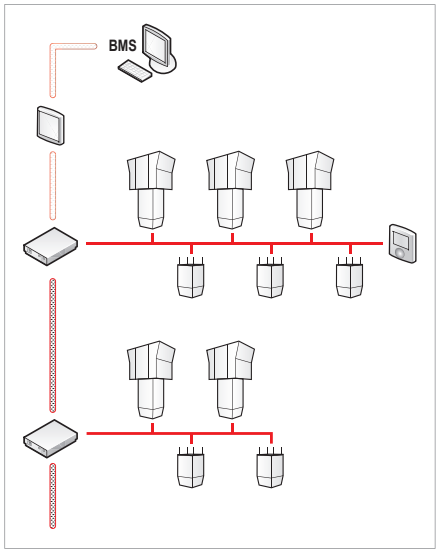
Plug & Play. All units are preprogrammed at the factory and pre-addressed according to the system layout. The user-friendly Plug&Play principle makes expensive engineering work during system commissioning unnecessary.

Advantages

- Adaptable, zone-based control concept
- Ready to plug in units with integrated I&C components
- Simple and rapid commissioning
- Automatically controlled air distribution
- Energy-optimised operation

Optimal air distribution. Control of the air distribution using the Air-Injector is integrated in the control algorithm. Depending on the temperature difference between the supply air and interior air and on the air flow rate, the unit adjusts the blowing angle of the air. This prevents the occurrence of draughts.

Controller for recirculated air and air mixing units. Optimal energy utilisation and cost-efficient operation of the TopVent® gas unit series are achieved by the electronic TempTronic RC controller, specially developed for this purpose. Its control algorithm is based on fuzzy logic. Air distribution control using the Air-Injector is integrated as well.



The zone-based control concept enables need-based ventilation, heating and cooling of differently used indoor areas

The New RoofVent® Generation

RoofVent® units are roof ventilation units for supplying fresh air and removing extract air. They heat and cool the supply air using integrated heat exchangers. The units of the new generation are ErP compliant and meet the highest demands: They save energy using high-performance energy recovery systems and have fans with variable speed drive for need-based ventilation.

RoofVent® RH

Supply and extract air handling unit with high-performance energy recovery for heating high spaces

RoofVent® RH also provides needs-based ventilation in high spaces using infinitely variable fans. It contains a highly efficient energy recovery unit as well as a heating coil for supplemental heating of the air transported into the room.

RoofVent® units of the new generation are characterized by their significant energy efficiency boost.

Functions at a glance

(* = optional)

- Heating (with connection to boiler system)
- Fresh air supply
- Extract air removal
- Recirculation operation
- Energy recovery
- Air distribution with Air-Injector
- Air filtration

Technical data		RH-6	RH-9
Air flow rate	m³/h	5500	8000
Heating capacity	kW	up to 80	up to 121
Cooling capacity (total)	kW	–	–
Range	m x m	22 x 22	28 x 28
Weight	kg	809	1053

RoofVent® RC

Supply and extract air handling unit with high-performance energy recovery for heating and cooling high spaces

The RoofVent® RC, like the RoofVent® RH, ventilates and heats high spaces with the minimum use of energy. What is more, it can also provide cooling: it is equipped with a heating/cooling coil and a condensate separator.
The automatically adjustable air distributor guarantees maximum comfort and ensures that no draughts are created even during cooling.

- Heating (with connection to boiler system)
- Cooling (with connection to water chiller)
- Fresh air supply
- Extract air removal
- Recirculation operation
- Energy recovery
- Air distribution with Air-Injector
- Air filtration

RC-6	RC-9
5500	8000
up to 80	up to 121
up to 52	up to 98
22 x 22	28 x 28
842	1101

RoofVent® RHC

Supply and extract air handling unit with high-performance energy recovery for heating and cooling high spaces in the 4-pipe system

The RoofVent® RHC is used for ventilation as well as for heating and cooling of high spaces in a 4-pipe system, which means there are two separate hydraulic circuits for heating and cooling. The sizes not only of the heating coil but also of the cooling coil can thus be selected optimally according to local requirements.

- Heating (with connection to boiler system, 4-pipe system)
- Cooling (with connection to water chiller, 4-pipe system)
- Fresh air supply
- Extract air removal
- Recirculation operation
- Energy recovery
- Air distribution with Air-Injector
- Air filtration

RHC-6	RHC-9
5500	8000
up to 80	up to 121
up to 52	up to 98
22 x 22	28 x 28
879	1174

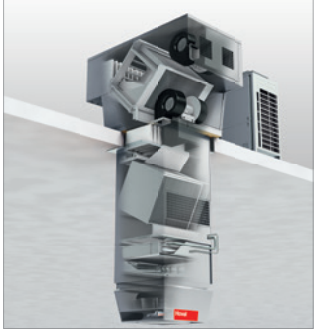
RoofVent® R

Supply and extract air handling unit with high-performance energy recovery for high spaces

RoofVent® R supplies fresh air in high spaces using energy-optimised fans. It incorporates a high-performance plate heat exchanger for energy recovery from extract air. Consequently, it is especially suitable for use in spaces where process heat is present.

- Fresh air supply
- Extract air removal
- Energy recovery
- Air distribution with Air-Injector
- Air filtration

R-6	R-9
5500	8000
–	–
–	–
22 x 22	28 x 28
772	980



RoofVent® twin pump

Supply and extract air handling unit with reversible heat pump for heating and cooling high spaces

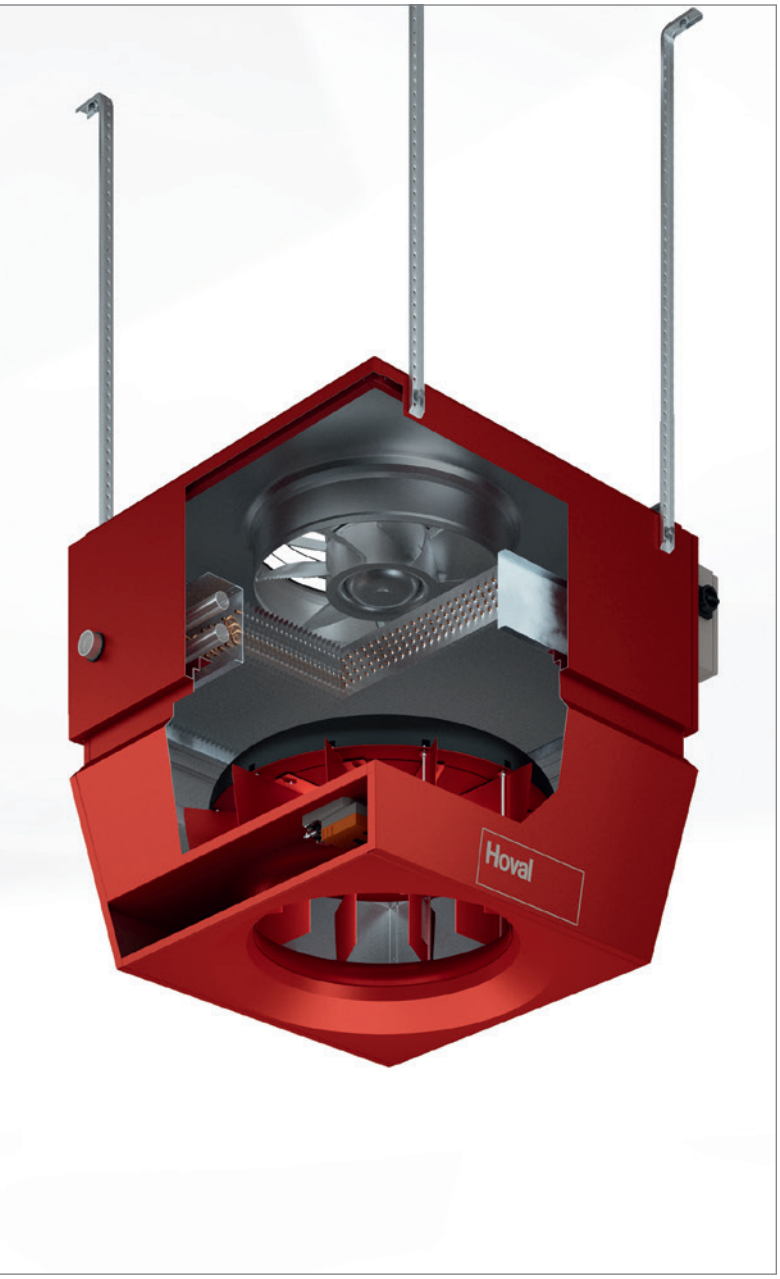
RoofVent® twin pump is equipped with a modulating air/air heat pump system which generates both heat and cold decentrally. In this way, it utilises the energy in the ambient air for environmentally friendly heating and cooling of the hall
The reversible heat pump together with the twin plate heat exchanger makes this unit the consummate energy saver. The outstanding performance data confirm the extremely efficient operation of the unit: COP 4.1, EER 3.8, heat recovery efficiency up to 84 %. The system requires neither an equipment room nor a water distribution network.

- Heating (with integrated heat pump)
- Cooling (with integrated heat pump)
- Fresh air supply
- Extract air removal
- Recirculation operation
- Energy recovery with twin plate heat exchanger
- Air distribution with Air-Injector
- Air filtration

TWP-9
7000
31
28
26 x 26
661

TopVent®

TopVent® are recirculation or supply air units for heating and cooling with recirculated air, mixed air or fresh air. Thanks to the broad spectrum of models, a perfectly suited unit is available for every application. Controllable fans with highly efficient EC drive guarantee particularly energy-saving operation.



TopVent® DHV

Recirculation unit for heating high spaces

TopVent® DHV has been specially developed for use in high spaces. Thanks to its high performance and efficient air distribution, the unit has a large coverage area. Because fewer units are needed, investment and installation costs are lower. 2 unit sizes, EC fans, different heater battery types and a whole string of accessories provide a tailored solution for any large space. Special batteries (steam, electric heating coils) are also available.

Functions at a glance

(* = optional)

- Heating (with connection to boiler system)
- Recirculation operation
- Air distribution with Air-Injector
- Air filtration*

Technical data		DHV-6	DHV-9
Air flow rate	m³/h	6000	9000
Heating capacity	kW	up to 89	up to 164
Cooling capacity (total)	kW	–	–
Range	m x m	23 x 23	30 x 30
Weight	kg	103	157

TopVent® DKV

Recirculation unit for heating and cooling high spaces

TopVent® DKV is similar in design to recirculation air heating unit TopVent® DHV, but it can be used for cooling as well as heating. The major difference is the built-in condensate separator. In addition, the unit is insulated.
TopVent® DKV, too, is available with numerous output ratings.

TopVent® DKV units are suitable for heating and for cooling.

- Heating (with connection to boiler system)
- Cooling (with connection to water chiller)
- Recirculation operation
- Air distribution with Air-Injector
- Air filtration*

DKV-6	DKV-9
6000	9000
up to 89	up to 164
up to 60	up to 118
23 x 23	30 x 30
202	289

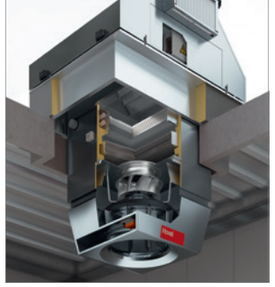
TopVent® NHV

Recirculation unit for heating high spaces with lower comfort requirement

TopVent® NHV is installed under the ceiling. It takes in room air, heats it by means of the heater battery and injects it back into the room via the outlet nozzle. The air distribution cannot be adjusted with TopVent® NHV. Therefore, the unit is specially suited for applications where comfort requirements are relatively low (e.g. high racking warehouses).

- Heating (with connection to boiler system)
- Recirculation operation
- Air distribution with outlet nozzle
- Air filtration*

NHV-6	NHV-9
6000	9000
up to 89	up to 164
–	–
23 x 23	30 x 30
103	157



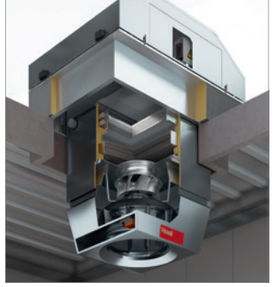
TopVent® commercial CAU

Roof unit for ventilating, heating and cooling supermarkets

TopVent® commercial CAU creates the right indoor climate in hypermarkets and supermarkets. It has been specially developed for this application: The unit is easily and quickly installed in the roof with the corresponding roof frame. Depending on the damper position, it takes in fresh air and/or room air, filters it, heats or cools it and injects it back into the room via the Air-Injector. Thanks to their installation in the roof, the units do not protrude far into the room and maintenance work can be performed from the roof without disturbing operations. Special sound insulation ensures particularly quiet operation.

- Heating (with connection to boiler system)
- Cooling (with connection to water chiller)
- Fresh air supply
- Mixed air operation
- Recirculation
- Air distribution with Air-Injector
- Air filtration

CAU-9/D
9000
up to 164
up to 118
30 x 30
578



TopVent® commercial CUM

Roof unit for heating and cooling supermarkets

TopVent® commercial CUM is similar in design to TopVent® commercial CAU, but only operates in recirculation mode.

TopVent® commercial units are installed in roofs over high spaces.

- Heating (with connection to boiler system)
- Cooling (with connection to water chiller)
- Recirculation operation
- Air distribution with Air-Injector
- Air filtration*

CUM-9/D
9000
up to 164
up to 118
30 x 30
498

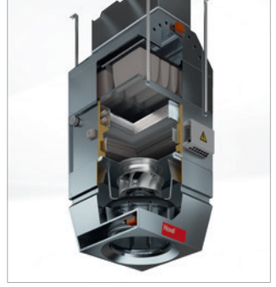
TopVent® MH

Supply air unit for ventilating and heating high spaces

TopVent® MH has been specially developed for use in high spaces. The unit is installed under the ceiling and connected to a fresh air duct. Depending on the damper position, it takes in fresh air and/or room air, filters it, heats it by means of the heater battery and injects it back into the room via the Air-Injector. 2 unit sizes, EC fans, different heater battery types and a whole string of accessories provide a tailored solution for any large space. Special batteries (steam, electric heating coils) are also available.

- Heating (with connection to boiler system)
- Fresh air supply (duct connection)
- Mixed air operation
- Recirculation
- Air distribution with Air-Injector
- Air filtration

MH-6	MH-9
6000	9000
up to 89	up to 164
–	–
23 x 23	30 x 30
153	217



TopVent® MK

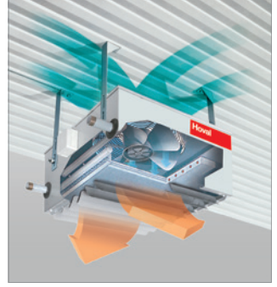
Supply air unit for ventilating, heating and cooling high spaces

TopVent® MK is similar in design to TopVent® MH, but it can be used for heating as well as cooling. The major difference is the built-in condensate separator. In addition, the unit is insulated.

TopVent® MK units provide the right climate in a production plant for automotive components.

- Heating (with connection to boiler system)
- Cooling (with connection to water chiller)
- Fresh air supply (duct connection)
- Mixed air operation
- Recirculation
- Air distribution with Air-Injector
- Air filtration

MK-6	MK-9
6000	9000
up to 89	up to 164
up to 60	up to 118
23 x 23	30 x 30
251	348



TopVent® HV

Recirculation unit heater for rooms with a height of up to 6 m

TopVent® HV is the simplest unit in the Hoval indoor climate family. It has been developed for cost-efficient heating of spaces with a height of up to 6 m.
The unit is installed under the ceiling. It takes in indoor air, heats it by means of the heater battery and injects it back into the room via individually adjustable guide vanes.
The unit is available in 3 sizes, each with a 2-speed fan as standard so that altogether six different heat outputs can be selected.

- Heating (with connection to boiler system)
- Recirculation operation
- Air distribution with air outlet louvre

HV-2	HV-3	HV-5
2000	3400	5300
up to 16	up to 27	up to 46
–	–	–
7 x 7	9 x 9	11 x 11
18	28	42

TopVent® curtain

Air curtain

The TopVent® curtain is a recirculating air heating unit with a 2-speed fan and an outlet nozzle for use as an air curtain for doors of up to 6 m in height.

TopVent® curtain prevents energy loss through open doors.

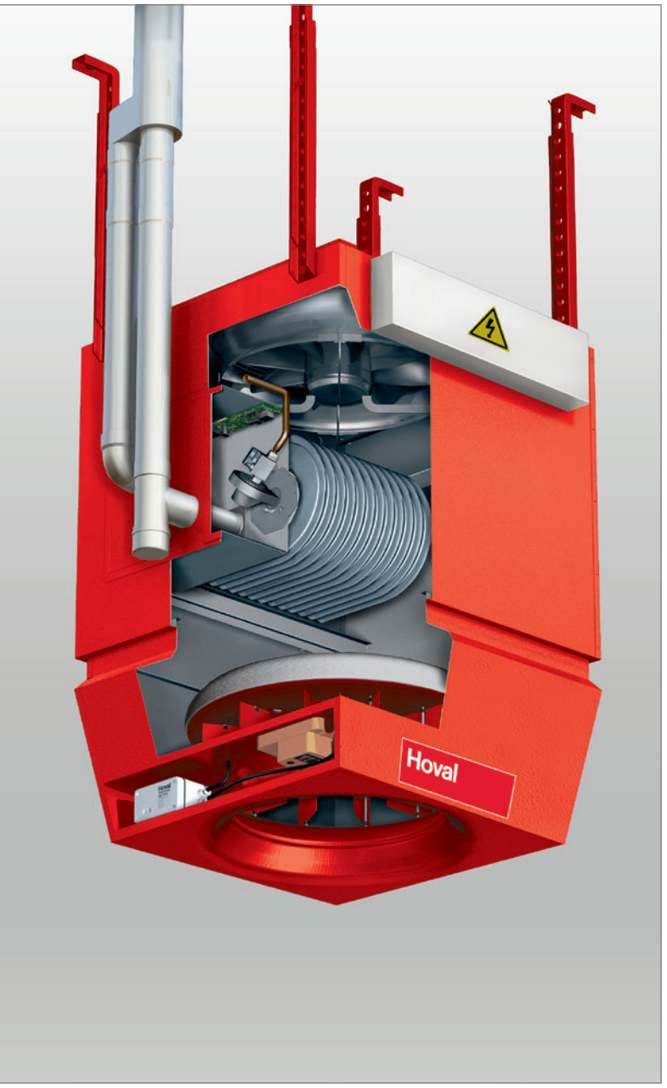
The air curtain minimises any external influences on the room climate. It prevents the incidence of cold air and increases the usable area in the hall.

- Heating (with connection to boiler system)
- Recirculation operation
- Air distribution with outlet nozzle

CUR-2	CUR-3	CUR-5
2000	3400	5300
up to 16	up to 27	up to 46
–	–	–
Door height up to 6 m		
22	36	53

TopVent® gas

TopVent® gas are gas-fired recirculation air or supply air units for heating with recirculated air, mixed air or fresh air. They are equipped with a modular gas burner.



TopVent® DGV

Gas-fired recirculation unit for heating high spaces

TopVent® DGV has been specially developed for use in high spaces. The unit is mounted under the ceiling and draws in interior air. The air is heated in a gas-fired heat exchanger and injected back into the room through the Air-Injector.
These gas-fired units are usually operated independently of the interior air, meaning that the combustion air is drawn in from the outside. The system generates heat where it is needed and guides it directly into the large interior space. It requires neither a boiler room nor a warm water distribution network.

TopVent® NGV

Gas-fired recirculation unit to heat high spaces with low demand for comfort

TopVent® NGV enables cost-efficient heating of high spaces in which the comfort requirements are relatively low (e.g. high racking warehouses). The unit injects supply air into the interior through an outlet nozzle, which means that the air distribution cannot be adjusted.

TopVent® NGV are particularly well-suited for cost-effective heating of high racking warehouses.

TopVent® commercial GA

Gas-fired roof-mounted unit for ventilating and heating high spaces

TopVent® commercial GA is quickly and easily installed in the roof with its corresponding frame. The ducts for the combustion supply air and extract air are already integrated in this unit; a separate roof opening is not needed.
Because of the roof installation, TopVent® commercial GA does not protrude far into the interior. According to the position of the dampers, it draws in fresh air and/or interior air, filters it, heats it in the gas-fired heat exchanger and injects it into the interior through the Air-Injector.

TopVent® MG

Gas-fired supply air handling unit for ventilating and heating high spaces

TopVent® MG was especially developed for use in high spaces. The unit is installed under the ceiling and connected to a fresh air duct. According to the position of the dampers, it draws in fresh air and/or interior air, filters it, heats it in the gas-fired heat exchanger and injects it into the interior through the Air-Injector.
The units are delivered ready to install with a suspension set and exhaust accessories.

TopVent® GV

Gas-fired air recirculation unit for heating low-ceiling spaces

TopVent® GV is suitable for cost-effective heating of low rooms. The unit is mounted under the ceiling or on a wall and draws in room air. The air is heated in a gas-fired heat exchanger and injected back into the interior through the air outlet louvre.

TopVent® GV units are suitable for ceiling or wall installation.

Functions at a glance

(* = optional)

TopVent® DGV	TopVent® NGV	TopVent® commercial GA	TopVent® MG	TopVent® GV
■ Heating (with gas-fired heat exchanger) ■ Recirculation ■ Air distribution with Air-Injector ■ Air filtration*	■ Heating (with gas-fired heat exchanger) ■ Recirculation ■ Air distribution with outlet nozzle ■ Air filtration*	■ Heating (with gas-fired heat exchanger) ■ Fresh air supply ■ Mixed air operation ■ Recirculation ■ Air distribution with Air-Injector ■ Air filtration	■ Heating (with gas-fired heat exchanger) ■ Fresh air supply (duct connection) ■ Mixed air operation ■ Recirculation ■ Air distribution with Air-Injector ■ Air filtration	■ Heating (with gas-fired heat exchanger) ■ Recirculation ■ Air distribution with air outlet louvre

Technical data		DGV-6/30	DGV-6/60	DGV-9/60	NGV-6/30	NGV-6/60	NGV-9/60	GA-9/60	MG-6/30	MG-6/60	MG-9/60	GV-3/10	GV-3/30	GV-5/40	GV-5/60
Air flow rate	m³/h	5700	7000	8200	5900	7200	8800	6800	4200	5900	7000	1050	2350	4250	5750
Heating capacity	kW	29	61	61	29	61	61	61	29	61	61	13	29	40	61
Cooling capacity (total)	kW	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Range	m x m	23 x 23	26 x 26	29 x 29	23 x 23	26 x 26	30 x 30	25 x 25	19 x 19	23 x 23	26 x 26	5 x 5	8 x 8	10 x 10	12 x 12
Weight	kg	125	135	170	117	127	160	510	175	185	230	36	38	78	82

ProcessVent

ProcessVent units are compact units for ventilating, heating and cooling with heat recovery from process air. They are used in tall spaces with enclosed machine tools or welding systems, and form a complete system together with the extract air purification system.

ProcessVent

Compact unit for ventilating, heating and cooling tall spaces

The ProcessVent unit supplies fresh air in tall spaces using energy-optimised fans, and recovers heat from the process air. The extract air from the extract air purification plant flows through a plate heat exchanger in an oil-tight design and is routed to the outside; the heat it contains is transferred to the supply air. Depending on the unit type, a heating/cooling coil for supplemental heating and/or cooling of the supply air can be installed.

- Heating (with connection to boiler system)
- Cooling (with connection to water chiller)
- Fresh air supply
- Extract air removal (air conveyance via the extract air purification plant)
- Recirculation operation
- Energy recovery
- Air filtration

PV-10	PVH-10	PVC-10
12000	12000	12000
–	up to 200	up to 239
–	–	up to 142
–	–	–
1657	1699	1754

AdiaVent®

AdiaVent® are recirculation units for cooling large spaces. They cool by means of adiabatic evaporation of water and do not rely on environmentally harmful refrigerants.

AdiaVent® ADV

Recirculation unit for cooling large spaces

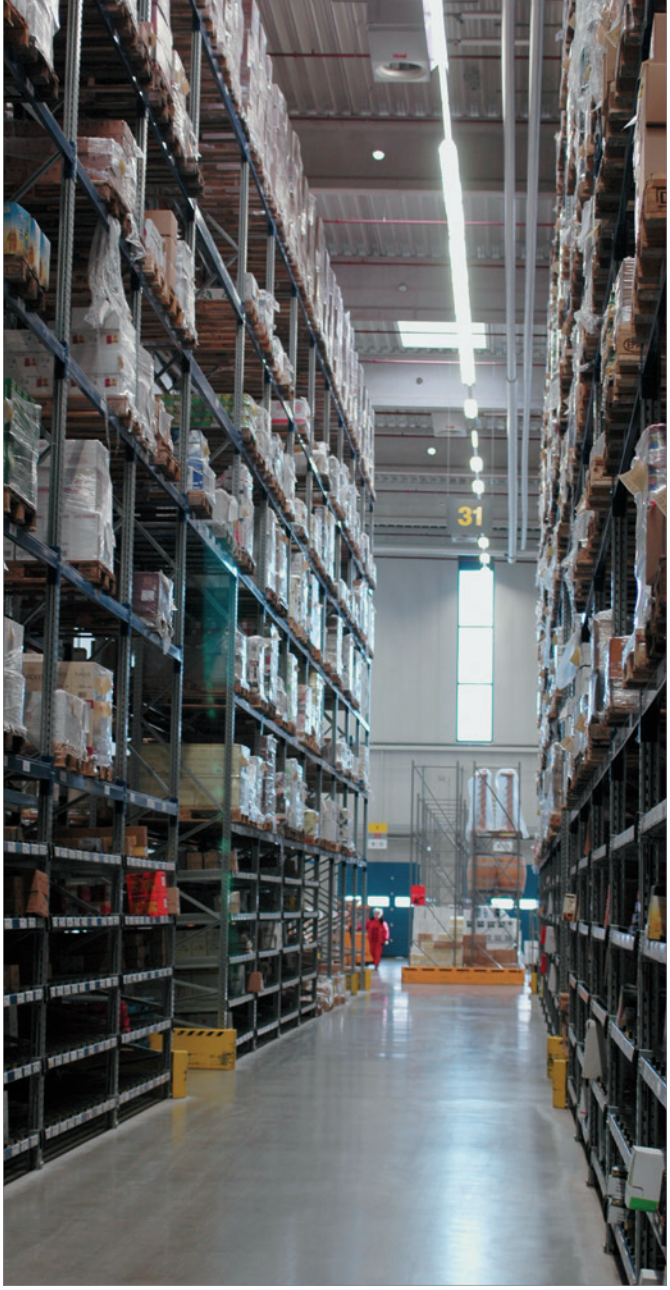
AdiaVent® ADV can be installed on the outer facade or on the roof. It draws in interior air (and optionally up to 20 % fresh air), cools it and injects it back into the interior through the supply air duct.
Thanks to the patented pre-cooling feature, AdiaVent® ADV achieves an energy efficiency of 11.2 – the unit achieves 11.2 kW of cooling power per kilowatt of electrical energy consumed. This far exceeds the performance of conventional cooling systems.

- Cooling (indirect adiabatic)
- Mixed air operation*
- Recirculation
- Air filtration

ADV-6
6080
–
up to 21
–
520

Proven Many Times Over.

Indoor climate systems from Hoval are ideally suited for applications in factory and production halls, logistics centres, airplane hangars, maintenance hangars, shipyards, shopping centres, building centres, sports facilities, swimming pools, trade fair halls, multi-purpose halls, car showrooms, etc.



Indoor climate systems from Hoval have proven themselves over many years in a wide range of applications.

Engineering the weather. Inside and outside.

Weather is inspiration. Particularly so when it is as it is changeable as here in the Alps. It influences life in the mountains more than any other factor. We have not only learnt to forecast the weather but we also know how to use technology to mould the qualities of the weather to our everyday life: warmth, cold, humidity and wind – judiciously measured and correctly applied – give us a comfortable indoor climate.

Weather is motivation. Extreme conditions in the mountains inspire our employees to their best performance. This is seen in our outstanding heating and climate control solutions. Our approach also lends clear contours to entirely different, simple and central values: We are friendly and family-run, responsible, solution-oriented, sophisticated, expert, enthusiastic and technology-driven. This shapes a culture in which the men and women at Hoval enjoy participating day by day.

Responsibility for energy and environment. Indoor climate and world climate are in an ever-changing relationship. We design our heating and ventilation systems fully aware of our responsibilities to the climate. We protect our environment with the highest possible efficiencies and the use of regenerative energy sources. We all profit from this.

Take us at our word! Energy efficiency and alternative energy sources are what propels our corporate development. This helps you to save money and raw materials.

We offer solutions tailored to your particular needs. It goes without saying that this also means providing systems that are easy to commission and operate.

We attach great importance to the quality of our products, consultation and services. As suppliers of complete solutions, we often even exceed our customers' expectations.

The training and skills of the Hoval staff are the foundation of your satisfaction. Dedicated engineers guarantee mature, sophisticated solutions – without compromises.

We are open to unusual ideas and innovations. This, in turn, benefits your project.

As an owner-managed company, we are honest and sincere, in our dealings with our employees and with our customers and suppliers.

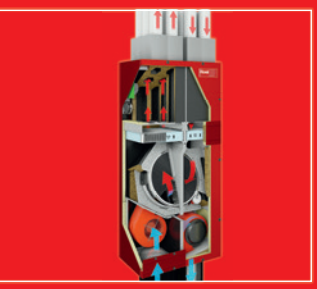
Hoval

Responsibility for energy and environment

The Hoval brand is internationally known as one of the leading suppliers of indoor climate control solutions. More than 70 years of experience have given us the necessary capabilities and motivation to continuously develop exceptional solutions and technically advanced equipment. Maximising energy efficiency and thus protecting the environment are both our commitment and our incentive. Hoval has established itself as an expert provider of intelligent heating and ventilation systems that are exported to over 50 countries worldwide.

Hoval heating technology

As a full range supplier Hoval helps its customers to select innovative system solutions for a wide range of energy sources, such as heat pumps, biomass, solar energy, gas, oil and district heating. Services range from small commercial to large-scale industrial projects.

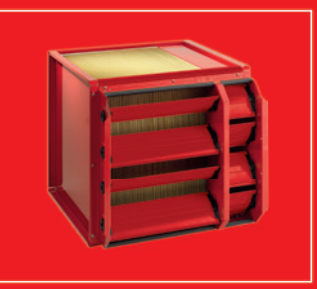


Hoval comfort ventilation

Increased comfort and more efficient use of energy from private housing to business premises: our comfort ventilation products provide fresh, clean air for living and working space. Our innovative system for a healthy room climate uses heat and moisture recovery, while at the same time protecting energy resources and providing a healthier environment.

Hoval indoor climate systems

Indoor climate systems ensure top air quality and economical usability. Hoval has been installing decentralised systems for many years. The key is to use combinations of multiple air-conditioning units, even those of different types, that can be controlled separately or together as a single system. This enables Hoval to respond flexibly to a wide range of requirements for heating, cooling and ventilation.



Hoval heat recovery

Efficient use of energy due to heat recovery. Hoval offers two different solutions: plate heat exchangers as a recuperative system and rotary heat exchangers as a regenerative system.

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Art.No. 4 215 339 – 04/2016