

PRODUCT BROCHURE

**Climate control and air treatment
Overview of the product lines**

Everything at a glance



The signs of the times are unmistakable



Investors, plant engineers, planners, and architects no longer ask “whether” but “how” they can enhance the degree of sustainability of their plants and building management systems. Each building is unique. Its location, size, construction quality, and increasingly the building management system determine its value and profit. The energy state of a building has gained appreciably in significance here: it is a fact that buildings consume around 40 percent of the world’s energy, and produce 21 percent of global greenhouse-gas emissions. The proportion of the energy costs in the “second rent” for users and residents is constantly increasing.

Where the heating, cooling, cleaning, purification, humidification and dehumidification of air are required, DencoHappel makes its contribution to progress. Customised climate control and air treatment, with the maximum-possible reduction in energy consumption over the entire life cycle of the facilities: this all pays out handsomely in euros and cents, in comfort, and in staff productivity. Our solutions reliably comply with all international standards in highly sensitive areas such as hospitals and cleanroom applications. They likewise set new standards for sustainability and flawless system integration in advanced sports arenas, production facilities, airport buildings, and swimming pools – as well as in offices, museums, and hotels.

The one who processes air must master it

It is due to the precision work that has gone into the development of the hardware and software that our air treatment can neither be seen nor be heard, provides pleasant experience and helps in avoiding wastage of energy and money.

Can a building with large glazed areas be heated during spring and autumn on its north side and cooled on its south side, with only one system and without having to switch on the central heating? Does a system used, e. g., for heating cooling, humidification and dehumidification in pharmaceutical or electronic industry also protect against dirt and bacteria? Can investors and building owners calculate the life cycle costs of a central plant air handling unit, determine the effect of an energy-saving equipment on the operating cost for this purpose and thus select the optimal efficiency class right in the configuration stage of the plant?

DencoHappel has found answers to these and many other questions concerning air treatment and climate control – and has implemented them in solutions which reflect its experience gained in many and various successful applications. The core proposal consists of a broad spectrum of central and decentral air treatment plants, separators and filter plants up to complete clean-room systems. Their function, control and design can be fine tuned to their task, the condition and infrastructure of buildings, the operating cost calculations and the highest standards of energy efficiency and climate protection. State-of-the-art control technology developed in-house permits the individual control in individual rooms just as it permits the central handling in the context of building management system.

Control unit, which has interfaces to all usual systems of the building automation, provide for the trouble-free integration of the devices into the building management system. The fact that planners and users can implement their own desires at the design stage of the plant itself is the proof of the precision work involved in the air conditioning equipment.

DencoHappel stands for:

- Tailor-made air quality and a healthy, comfortable room climate with extremely noiseless operation
- Maximum energy efficiency and reduction in the CO₂ emission
- Precise central and decentral control and regulation
- High adaptability to most diverse functions and environments
- Easy system integration
- Durability and high degree of availability at low maintenance costs



Airports

- Air handling units
- Air filter systems including fire protection

Industry and Trade

- Air handling units
- Decentral air conditioning
- Extract fans
- Energy recuperation systems
- Air curtains
- Chillers
- Heat pumps
- Ceiling outlets
- Air filter systems
- Dust extraction systems
- Suction plants
- Material recovery systems
- Controls and regulation systems

Shipping

- Air handling units
- Chillers
- Fan coil units

Computer Centres

- Close control units
- Chillers
- Controls and regulation systems



Office Buildings

- Air handling units
- Chillers
- Close control unit
- Energy recuperation systems
- Base convectors and fan coil units
- Controls and regulation systems

Hotels and Restaurants

- Air handling units
- Swimming pool climate control
- Extract fans
- Chillers
- Energy recuperation systems
- Fan coil units
- Controls and regulation systems

Clinics and Hospitals

- Air handling units
- Chillers
- Air filter systems

Clean Rooms for Many Sectors

- Ventilation components
- Building elements

Training Facilities

- Air handling units
- Heat pumps
- Chillers

Museums and Public Buildings

- Air handling units
- Close control unit
- Heat pumps
- Chillers

Shopping Centres, Commercial Centres

- Air handling units
- Heat pumps
- Chillers
- Split AC units
- Fan coil units
- Air curtains
- Air filter systems
- Controls and regulation systems

Indoor Swimming Pools

- Swimming pool climate control

Our Products

Commercial and Industrial Applications

Central Plant Units

8–9

- Low-profile air handling units
- Air handling unit – modular
- Air handling unit – compact

Decentral Units

10–13

- Unit heaters / cooling units
- Unit heaters – system engineering
- Air curtains
- Extract fans

Chillers/Heat Pumps

14–15

- Compact air cooled
- Split water cooled
- Split air cooled

Compressor/Condenser Units

- Split air cooled

Close Control Units

16–17

- Climatic exposure test cabinets and systems
- Compressor/condenser units and heat-rejection units

Commercial and Residential Applications

Decentral Units for Comfort Areas

18–21

- Fan coil units
- Split AC units

Swimming Pool Climate Control

22–23

- Air handling units – compact
- Air handling units – modular
- Decentral cabinet unit

Commercial – Industrial – Residential Applications

System Controls

24–25

- MATRIX for air handling units and decentral units

Filtration Units – Filtration Plants – Filtration Systems

- Filter media
- Electrostatic and duct air filters
- Dust extraction units and plants
- Intake air filter systems
- Filter system controls

26–33

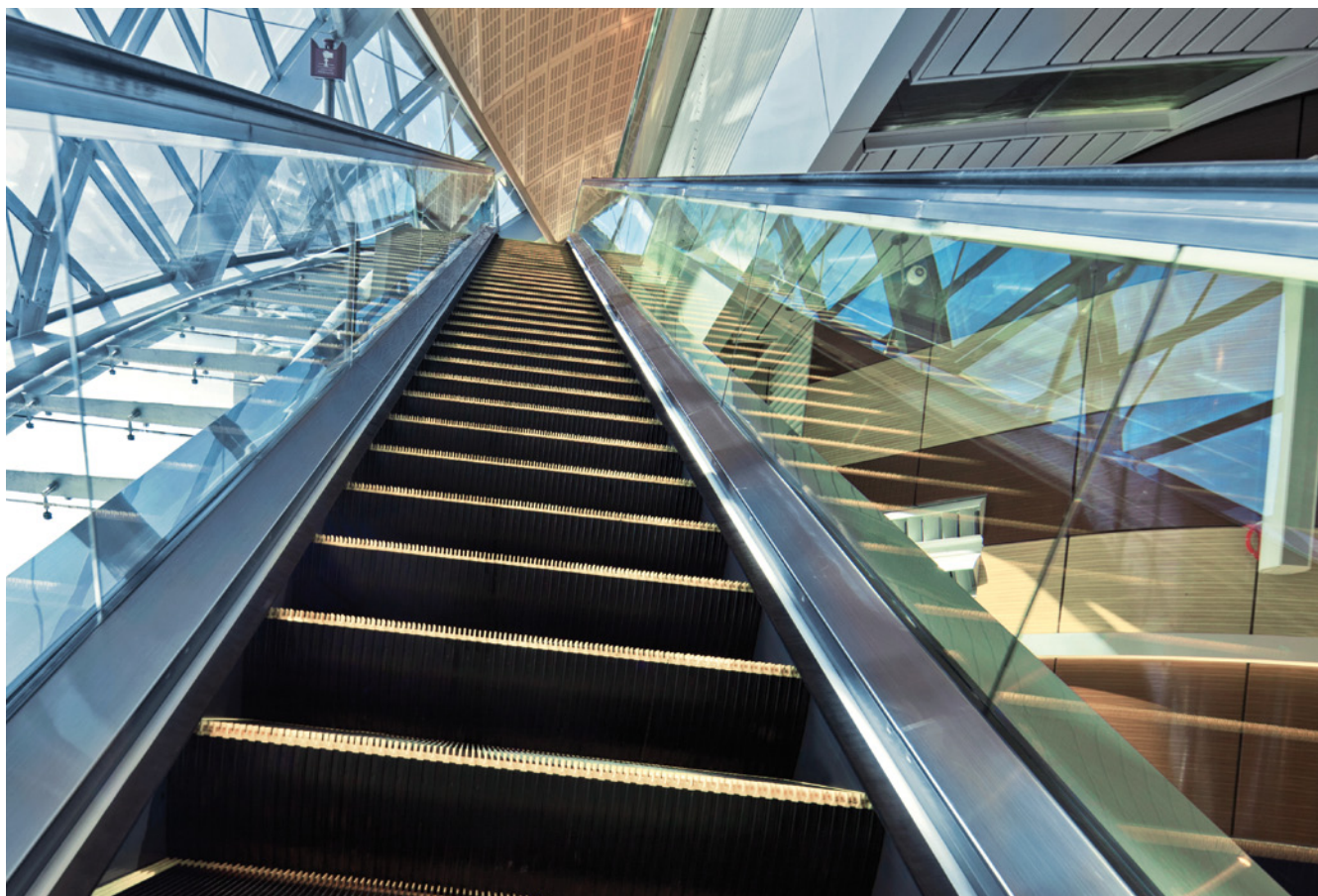
Clean Rooms

34–37

Service & Spare Parts

38–39

Optimised for each application

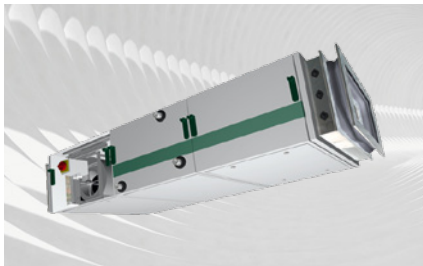


Central-plant building air conditioning

If the state of the room air is in the close comfort range, we feel well. However, the climate in rooms is affected by many factors and the requirements for air conditioning can differ depending on type of the room and/or its use. A regular fresh air supply is important. This requirement is fulfilled by the DencoHappel air handling units. Besides, these units also have to create and maintain a defined air condition.

While some applications require only an air change to take place, the requirements regarding temperature, humidity and cleanness of air are higher for other applications. Modular units permit a free selection of components and functions and can be adapted to their application in detail. Compact units are optimised for the use, fitted with a highly efficient heat recovery system and are delivered ready for installation with an integrated control system.

Commercial and Industrial



MODULAR LOW-PROFILE
AIR HANDLING UNITS

ATpicco

Air volume flow rate		500–4,000 m ³ /h
Centrifugal fans		
Heating	Cooling	Filtering
Humidify	Dehumidify	
Supply air	Extract air	Outside air
Exhaust air	Recirculating air	Mixed air

Energy recovery

Liquid-coupled energy recovery system	ECOFLOW
Heat pipe	ECOSTAT
Plate heat exchanger	ECOPLAT

System Control

MATRIX 4700	optional
DDC control system	optional



MODULAR
AIR HANDLING UNITS

CAIRplus®

Air volume flow rate		1,000–100,000 m ³ /h
Centrifugal fans		
Heating	Cooling	Filtering
Humidify	Dehumidify	
Supply air	Extract air	Outside air
Exhaust air	Recirculating air	Mixed air

Energy recovery

Liquid-coupled energy recovery system	ECOFLOW
Heat pipe	ECOSTAT
Plate heat exchanger	ECOPLAT
Rotation heat exchanger	ECOROT

System Control

MATRIX 4700	optional
DDC control system	optional



COMPACT
AIR HANDLING UNITS

COM4plus

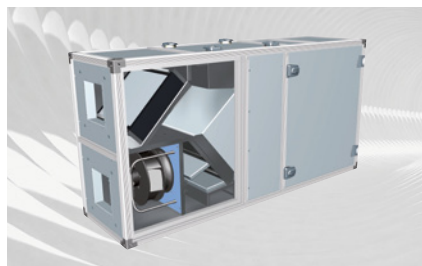
Air volume flow rate		1,700–16,000 m ³ /h
Direct-driven plug fans		
Continuous EC motors, electr. commutated		
Heating	Cooling	Filtering
Supply air	Extract air	Outside air
Exhaust air	Recirculating air	

Energy recovery

Plate heat exchanger	ECOPLAT
Rotation heat exchanger	ECOROT

System Control

MATRIX 4700	integrated
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COMPACT
AIR HANDLING UNITS

COM4mini

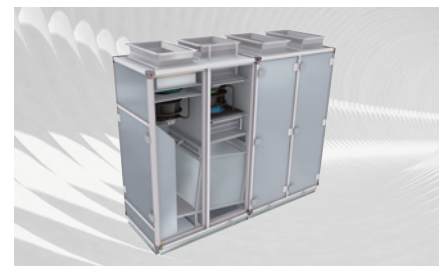
Air volume flow rate		600–2,200 m ³ /h
Direct-driven plug fans		
Continuous EC motors, electr. commutated		
Heating	Cooling	Filtering
Supply air	Extract air	Outside air
Exhaust air	Recirculating air	

Energy recovery

Cross-flow plate heat exchanger	ECOPLAT
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System Control

MATRIX 4700	integrated
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COMPACT
AIR HANDLING UNITS

COM4top

Air volume flow rate		600–6,500 m ³ /h
Direct-driven plug fans		
Continuous EC motors, electr. commutated		
Heating	Cooling	Filtering
Supply air	Extract air	Outside air
Exhaust air	Recirculating air	

Energy recovery

Plate heat exchanger	ECOPLAT
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System Control

MATRIX 4700	integrated
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Air treatment on the spot



Whether classy laid out shops, food product markets, indoor tennis courts or industrial buildings: DencoHappel systems offer decentral air treatment solutions perfectly fine-tuned to the individual object. The product programme covers unit heaters, combined unit heaters and cooling units, door and gateway air curtains as well as (roof mounted) extract fans.

DencoHappel unit heaters combine multi-function comfort with the highest economy and efficiency. Their decentral air treatment is versatile and means much more than just heating of a room.

DencoHappel air curtains shield doors and entrance areas reliably against cold and warm air entering in. They form a sturdy air jet and thus separate the inside of a building from the external climatic influences invisibly. Valuable heating and/or cooling energy remains inside the rooms. Besides, they are convincing due to their high efficiency and convincing design. The covered mounting of the control valves and painting in many RAL colours ensure a seamless installation into each shop and business facility.

DencoHappel extract air fans offer a proven technology for the exhaustion of extract air and other non-aggressive gases or vapours. These systems are also suitable for applications with special requirements such as quiet operation or installation in explosion risk areas.

Commercial and Industrial Applications



UNIT HEATERS AND
COOLING UNITS

MultiMAXX® HN

Air volume flow rate		900–12,500 m³/h
Axial fans		
Heating	Cooling	Filtering
Supply air	Outside air	Recirculating air
Mixed air		

Energy recovery

without

System control/control units

MATRIX	optional
Speed switch units	optional



UNIT HEATERS/COOLING UNITS
EX PROTECTION

MultiMAXX® HX

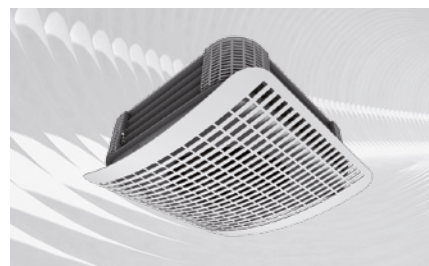
Air volume flow rate	1,900–9,600 m³/h	
Axial fans		
Heating	Cooling	Filtering
Supply air	Outside air	Recirculating air
Mixed air		

Energy recovery

without

Control units

Control units IP 54	optional
Control units Eex	field-provided



UNIT HEATERS
AND COOLING UNITS

Multi Flair M

Air volume flow rate	370–3,800 m³/h		
Axial fans			
Heating	Cooling	Filtering	
Supply air	Primary air	Recirculating air	

Energy recovery

without

System control/control units

MATRIX	optional
Speed switch units	optional



UNIT HEATERS EX STOCK

MultiMAXX® HP

Air volume flow rate	2,000–5,800 m ³ /h
Axial fans	
Heating	Recirculation air

Energy recovery

without

System control/control units

Speed switch units	optional
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UNIT HEATERS

MultiMAXX® HD

Air volume flow rate	1,200–13,300 m³/h		
Centrifugal fans			
Heating	Filtering		
Supply air	Outside air	Recirculation air	
Mixed air			

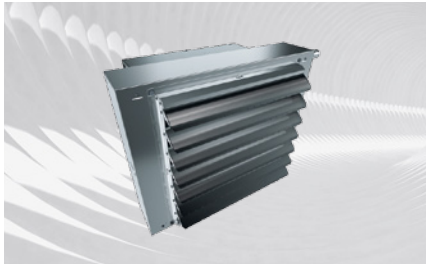
Energy recovery

without

System control/control units

MATRIX	optional
Speed switch units	optional

Commercial and Industrial Applications



UNIT HEATERS
STAINLESS STEEL

MultiMAXX® HS

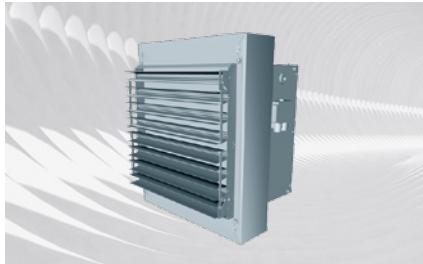
Air volume flow rate 1,300–10,400 m³/h
Axial fans
Heating Filtering
Supply air Outside air Recirculation air
Mixed air

Energy recovery

without

System control/control units

MATRIX optional
Speed switch units optional



ELECTRICAL
UNIT HEATERS

MultiMAXX® HE

Air volume flow rate 1,200–9,900 m³/h
Axial fans
Heating Filtering
Supply air Outside air Recirculation air
Mixed air

Energy recovery

without

System control/control units

MATRIX optional
Speed switch units optional



GAS
UNIT HEATERS

MultiMAXX® HG

Air volume flow rate 2,400–10,800 m³/h
Axial fans
Heating Filtering
Supply air Outside air Recirculation air
Mixed air

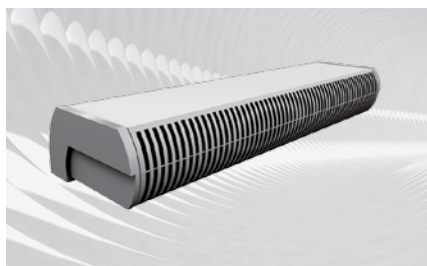
Energy recovery

without

System control/control units

Stage/burner control unit optional

Commercial and Industrial Applications



AIR CURTAINS

Viento

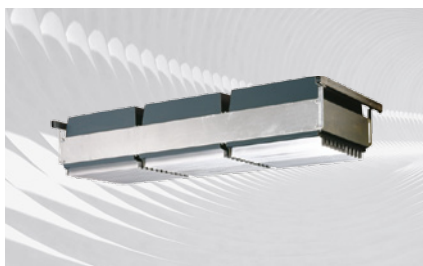
Air volume flow rate 700–8,200 m³/h
 Centrifugal fans
 Heating Filtering
 Supply air Outside air rate max. 25 %
 Recirculation air Mixed air

Energy recovery

without

Control units

Speed switch units optional



AIR CURTAINS

MultiMAXX® HT

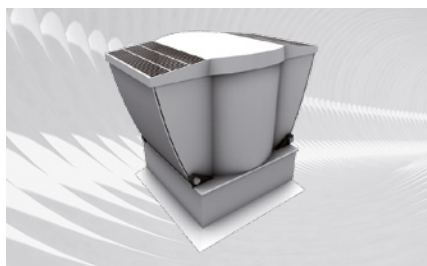
Air volume flow rate 4,500–33,000 m³/h
 Centrifugal fans
 Heating Recirculation air

Energy recovery

without

Control units

Speed switch units optional



ROOF EXTRACT FANS

RoofJET

Air volume flow rate 1,000–19,000 m³/h
 Centrifugal fans
 Extract air Exhaust air

Energy recovery

See MAXX Ergo

System control/control units

MATRIX optional
 Speed switch units optional



EXTRACT FANS

MAXXVent

Air volume flow rate 1,700–13,600 m³/h
 Axial fans
 Extract air Exhaust air
 Can also be used as supply air fan without heat exchanger
 Supply air Filtering
 Outside air Recirculation air Mixed air

Energy recovery

without

Control units

Speed switch units optional

Energy-efficient, compact, available in variety of designs



The wide product range of DencoHappel chillers offers the right model for almost every requirement. Irrespective of whether your requirement is for indoor or outdoor installation, air or water-cooled, there is a vast variety of equipment with or without heat pump and an extensive spectrum of accessories available to you within the capacity range of 4.9 to 2,749 kilowatts.

Last but not the least, DencoHappel chillers are characterised by their efficiency and high energy conservation potential, which is additionally underlined by the use of high-quality components and environment friendly refrigerants R410A and R134a, which are used in most DencoHappel chillers depending upon the model.

You can get air cooled models for outdoor installation with or without free-cooling function as well as for indoor installation with duct connectors. Water cooled units were conceived exclusively for indoor installation.

With DencoHappel chillers and heat pumps with reversible circuit, you can provide energy not only for cooling, but also for heating. And if you require a compressor/condenser unit or desire to have a system with external condenser, our programme includes the suitable unit for you even here. The choice is with you.

Versatile and super quiet

Thanks to the use of state-of-the-art compressors and the insulation of the compressor sections, the DencoHappel chillers are characterised by efficient performance and low noise emission. In addition, super quiet versions which permit trouble-free installations even in close proximity of residential areas are also available to you in almost every series. Frames and panels of the DencoHappel chillers are made from coated steel sheet. Depending upon the model fully hermetic scroll compressors or semi-hermetic screw compressors are used.

Commercial and Industrial Applications



CHILLERS –
AIR COOLED

Outdoor installation

Compact
Series GSAC – GAC – GMAC – GLAC
Cooling capacity 4–1,750 kW

Series GLFC with free cooling
Cooling capacity 35–326 kW

Series GSAH – GAH – GLAH
with heat pump switch
Heating capacity 6–517 kW
Cooling capacity 5–466 kW



CHILLERS –
AIR COOLED

Indoor installation

Packaged for duct connection
Series GSDC – GDC – GLDC
Cooling capacity 5–312 kW

Series GSDH
with heat pump switch
Heating capacity 6–17 kW
Cooling capacity 5–15 kW



CHILLERS –
AIR COOLED

Indoor installation

Split without condenser
Series GRC – GLRC
Cooling capacity 12–435 kW



CHILLERS –
WATER COOLED

Indoor installation

Packaged without heat rejection
Series GWC – GLWC
Cooling capacity 13–2,430 kW

Series GLWH
with heat pump switch
Heating capacity 51–2,750 kW
Cooling capacity 38–2,170 kW



COMPRESSOR/
CONDENSER UNIT

Outdoor installation – air cooled

Split without evaporator
Series GLCU
Cooling capacity 39–171 kW

Series GCH
with heat pump switch
Heating capacity 7–35 kW
Cooling capacity 6–31 kW

Accurate air data for critical processes



Close control units are much more than just words for us; they are also a promise. A promise, which we can keep due to our long-lasting expertise. All units of the DENCO product series are bywords for accurate-to-the-degree cooling, exact control of humidity and absolutely reliable, space-saving and at the same time energy-efficient air conditioning solutions.

The DENCO close control units meet the stringent requirements in computer centres and telecommunications installations and make a valuable contribution to the reliable operation and permanent availability of the IT. All air conditioners of the DENCO series fulfil the temperature requirements precise to a degree and at the same time maintain a constant humidity in the room and thus prevent heat-related failures and premature ageing of the hardware. But DENCO does not provide valuable services to the information technology industry alone. Accurate maintenance of given air parameters and a particularly good air quality are of extremely high importance even in laboratories and chip production, nano-technology and hospitals.

DencoHappel manufactures the equipment and supports the units by providing service, helps planners with the project engineering for the optimum air conditioning and air circulation and tests the products in its own laboratories and measuring rooms under realistic conditions. The DencoHappel technicians also check the efficiency of the equipment, simulate and inspect the air flow on the object and measure the sound power. Thus our clients always receive a fully developed and inspected product, which was also manufactured according to DIN ISO 9001.

Commercial and Industrial Applications



CLOSE CONTROL UNITS
COMPACT

Multi-DENCO®

Cooling capacity	5 – 130 kW
Air volume flow rate	3,000 – 31,100 m³/h
Humidification capacity	3 – 15 kg/h

Fans/drives

EC Plug fan Direct driven

Refrigeration systems

Chilled water operation
Direct evaporation R-410A
Free cooling

Air routing

Upflow – Downflow



CLOSE CONTROL UNITS
COMPACT

Ultra-DENCO®

Cooling capacity	50 – 180 kW
Air volume flow rate	11,000 – 39,000 m³/h
Humidification capacity	8 – 15 kg/h

Fans/drives

EC plug fan Direct driven

Refrigeration systems

Chilled water operation

Air routing

Downflow



AIR HANDLING UNIT
MODULAR

Adia-DENCO®

Cooling capacity	100 kW
Air volume flow rate	30,000 m³/h
Humidification capacity	3 – 15 kg/h

Fans/drives

EC plug fan Direct driven

Refrigeration systems

Chilled water operation (redundance)
Indirect free cooling
Indirect adiabatic evaporative cooling

Air routing

Horizontal



CLOSE CONTROL UNITS
COMPACT

DENCO® T-Range

Cooling capacity	5 – 136 kW
Air volume flow rate	1,590 – 29,160 m³/h
Humidification capacity	3 – 15 kg/h

Fans/drives

AC-Radial Direct driven
EC plug fan Direct driven

Refrigeration systems

Chilled water operation
Direct evaporation
Free cooling

Air routing

Upflow – Downflow



CLOSE CONTROL
CABINET UNIT

Picco-DENCO®

Cooling capacity	5 – 14 kW
Air volume flow rate	1,080 – 2,520 m³/h
Humidification capacity	3 kg/h

Fans/drives

AC-Radial Direct driven

Refrigeration systems

Chilled water operation
Direct evaporation



HEAT REJECTION UNIT

DENCO® DCRA- / DDRA-Range

Heat rejection capacity	5-140 kW
Refrigerant	R407C / R410A

Fans/drives

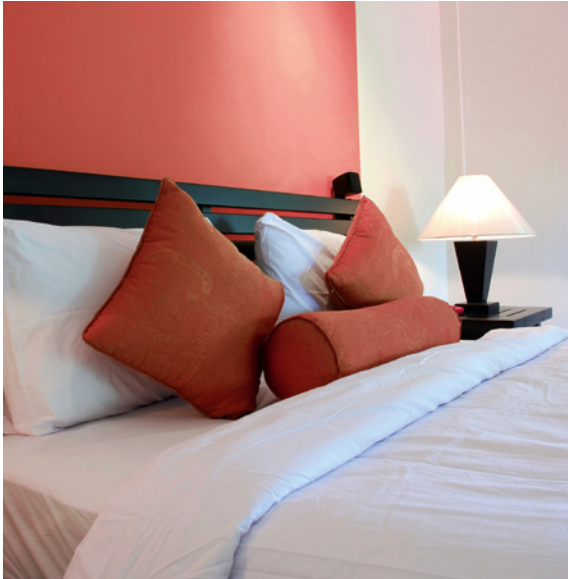
Axial Direct driven
Single stage 6-/8-/12 pole

Refrigeration systems

Condenser
Dry coolers

DECENTRAL SYSTEMS FOR COMMERCIAL AND RESIDENTIAL APPLICATIONS

Innovative systems for a comfortable climate



Wherever a comfortable climate is required for habitation, living and work, DencoHappel has a lot to offer. The programme for the comfort range includes fan coil units and split AC units in diverse variations.

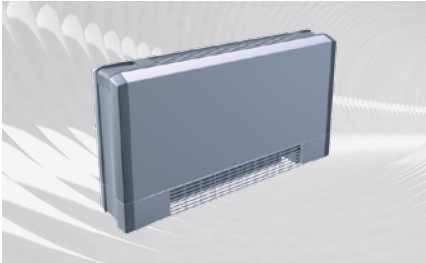
Even DencoHappel fan coil units offer all possibilities of a technology tailored to suit the requirements. The desired temperature can be achieved even with smaller units. DencoHappel fan coil units actively guide the air to be processed through the heat exchanger, whereby it is heated and cooled particularly effectively. The better transmission of heat permits lower inlet temperatures when cooling. This minimises losses and saves energy.

DencoHappel split AC systems are compact room air conditioner which inconspicuously adapt themselves to each interior. They are equipped with a heat pump switch for cooling and heating operation, so that they offer a comfortable room climate throughout the year. The units can be operated as single-split and multi-split installations.



DECENTRAL UNITS FOR COMFORT AREA

Commercial and Residential Applications



CABINET FAN COIL UNITS

Flex-Geko® Basic-Edition

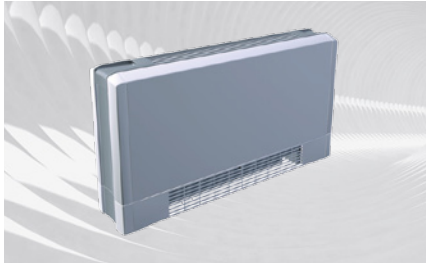
Air volume flow rate	175–1,800 m³/h
Centrifugal fans	
Heating	0.70–15.50 kW
Cooling	1.10–10.70 kW
Filtering	
Supply air	Recirculation air

Energy recovery

without

System Control

MATRIX optional



CABINET FAN COIL UNITS

Flex-Geko® Comfort-Edition

Air volume flow rate	145–1,820 m³/h
Centrifugal fans	
Heating	0.60–19.60 kW
Cooling	0.90–10.80 kW
Filtering	
Supply air	Recirculation air Outside air
Mixed air	

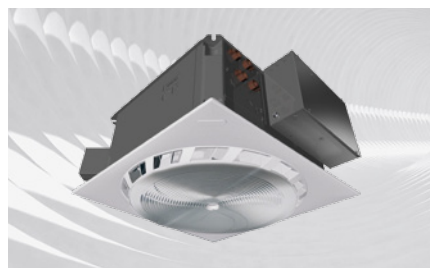
Energy recovery

without

System Control

MATRIX optional

Commercial and Residential Applications



CASSETTE FAN COIL UNITS

HyCassette-Geko®

Air volume flow rate	210–850 m ³ /h	
Centrifugal fans		
SWIRL air outlet		
Heating	1.10–10.80 kW	
Cooling	1.10–5.60 kW	
Filtering		
Supply air	Recirculation air	Primary air

Energy recovery

without

System Control

MATRIX	optional
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CASSETTE FAN COIL UNITS

Cassette-Geko®

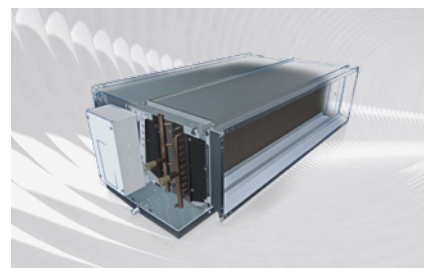
Air volume flow rate	250–1,530 m³/h		
Centrifugal fans			
Heating	2.20–18.60 kW		
Cooling	1.50–10.50 kW		
Filtering			
Supply air	Recirculation air	Primary air	

Energy recovery

without

System Control

MATRIX	optional
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INTERMEDIATE CEILING FAN COIL UNITS

HyPower-Geko®

Air volume flow rate	310–3,900 m³/h	
Centrifugal fans		
for higher static Pressure		
Heating	2.20–49.80 kW	
Cooling	1.60–25.50 kW	
Filtering		
Supply air	Recirculation air	Primary air

Energy recovery

without

System Control

MATRIX	optional
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Commercial and Residential Applications



SPLIT AC – WALL UNIT

Mitsubishi – MSZ series

Cooling capacity 0.8–8.7 kW
Optional with heat pump function
Heating capacity 0.8–9.9 kW

Refrigerant R410A

Infra-red remote control
With swing mode for fast cooling/heating.



SPLIT AC – CEILING CASSETTE UNIT

Mitsubishi – MLZ series

Cooling capacity 2.5–5.0 kW
With heat pump function
Heating capacity 3.3–6.0 kW

Refrigerant R410A

Infra-red remote control
Integrated condensate pump
1-way ceiling cassette system



SPLIT AC – CEILING CASSETTE UNIT

Mitsubishi – SLZ series

Cooling capacity 0.9–5.2 kW
With heat pump function
Heating capacity 0.9–6.5 kW

Refrigerant R410A

Infra-red remote control
Integrated condensate pump
4-Way ceiling cassette system



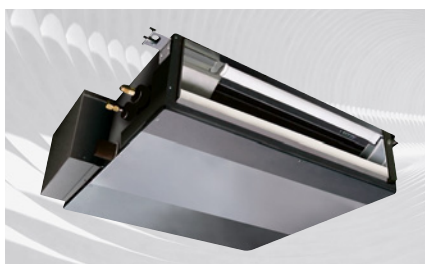
SPLIT AC – CABINET UNIT

Mitsubishi – MFZ series

Cooling capacity 0.9–5.4 kW
With heat pump function
Heating capacity 0.9–7.9 kW

Refrigerant R410A

Infra-red remote control
With additional super high fan speed for fast cooling/heating.



SPLIT AC – UNIT FOR DUCT INSTALLATION

Mitsubishi – SEZ series

Cooling capacity 0.9–8.3 kW
With heat pump function
Heating capacity 0.9–10.4 kW

Refrigerant R410A

Cable remote control with multi-language display,
Weekly timer and self diagnostic function



MULTI-SPLIT AC – OUTDOOR UNITS

Mitsubishi – Multi-split-inverter

Cooling capacity 1.1–14 kW
With heat pump function
Heating capacity 1.1–16 kW

Operation for 2-8 indoor units

Inverter-controlled rolling piston or scroll compressor with minimum noise and vibration development. Single-split-inverter in similar construction.

Dehumidifier units create an atmosphere with a feeling of well-being

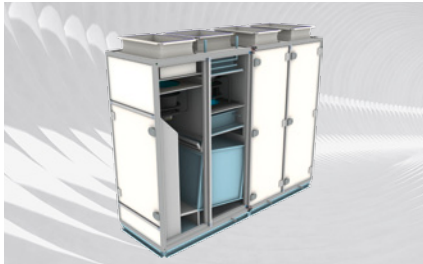


The air conditioning of indoor swimming pools and baths is one of the most demanding tasks among aerodynamic systems. They produce an air temperature which is appropriate for the water temperature, so that the persons bathing do not freeze outside of the pool. At the same time they ensure that the persons bathing find the humidity pleasant and not “oppressive”. The dehumidification thereby also protects the structural core against fungus growth – here humans and brick-work profit equally from the functioning of the air conditioning equipment. The characteristics of an effective air conditioning are in demand in a private pool just as they are in hotel baths or in public baths. DencoHappel offers custom-made solutions for all areas.



Depending upon the area of application, central and decentral systems can be selected, which visually integrate smoothly into any ambience. All systems have energy recovery and DencoHappel system controls. The solutions with tried and tested materials and corrosion protection measures which are fine tuned to the case of application, correspond to the high requirements in terms of material resistance: In case of devices which, e.g., are exposed to saliferous and thus aggressive atmosphere in saline or sea water baths, a special equipment provides for additional protection and ensures a long service life for the unit.

Commercial and Residential Applications



AIR HANDLING UNITS COMPACT

CAIRfricostar® Micro

Air volume flow rate 750–6,500 m³/h
Centrifugal fans – EC drive

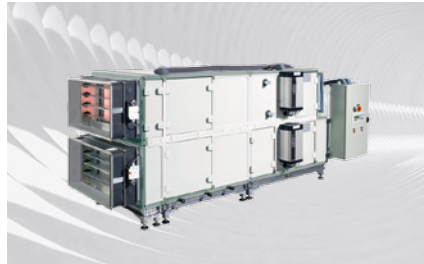
Heating	Dehumidification	Filtering
Supply air	Extract air	Outside air
Exhaust air	Recirculating air	Mixed air

Energy recovery

Double plate heat exchanger	ECOPLAT
Heat pump system *	integrated

System Control

DDC control system	integrated
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AIR HANDLING UNITS MODULAR

CAIRfricostar®

Air volume flow rate 750–45,000 m³/h
Centrifugal fans – EC drive
Centrifugal fans – FU drive

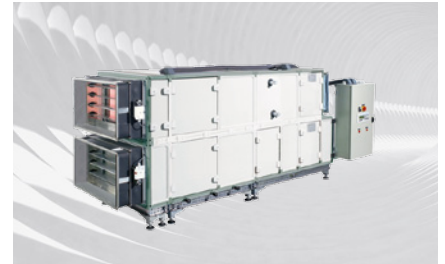
Heating	Dehumidification	Filtering
Supply air	Extract air	Outside air
Exhaust air	Recirculating air	Mixed air

Energy recovery

Liquid-coupled energy recovery system	ECOFLOW
Heat pipe	ECOSTAT
Double plate heat exchanger	ECOPLAT
Heat pump system *	integrated

System Control

DDC control system



AIR HANDLING UNITS MODULAR

CAIR®pool

Air volume flow rate 750–36,000 m³/h
Centrifugal fans – EC drive

Heating	Cooling	Dehumidification
Filtering	Supply air	Extract air
Outside air	Exhaust air	Mixed air

Energy recovery

Double plate heat exchanger	ECOPLAT
Heat pump system *	integrated

System Control

DDC control system	MODbus
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DECENTRAL CABINET UNIT

F800

Air volume flow rate 800 m³/h
Centrifugal fans

Heating	Dehumidification	Filtering
Supply air	Extract air	Outside air

Energy recovery

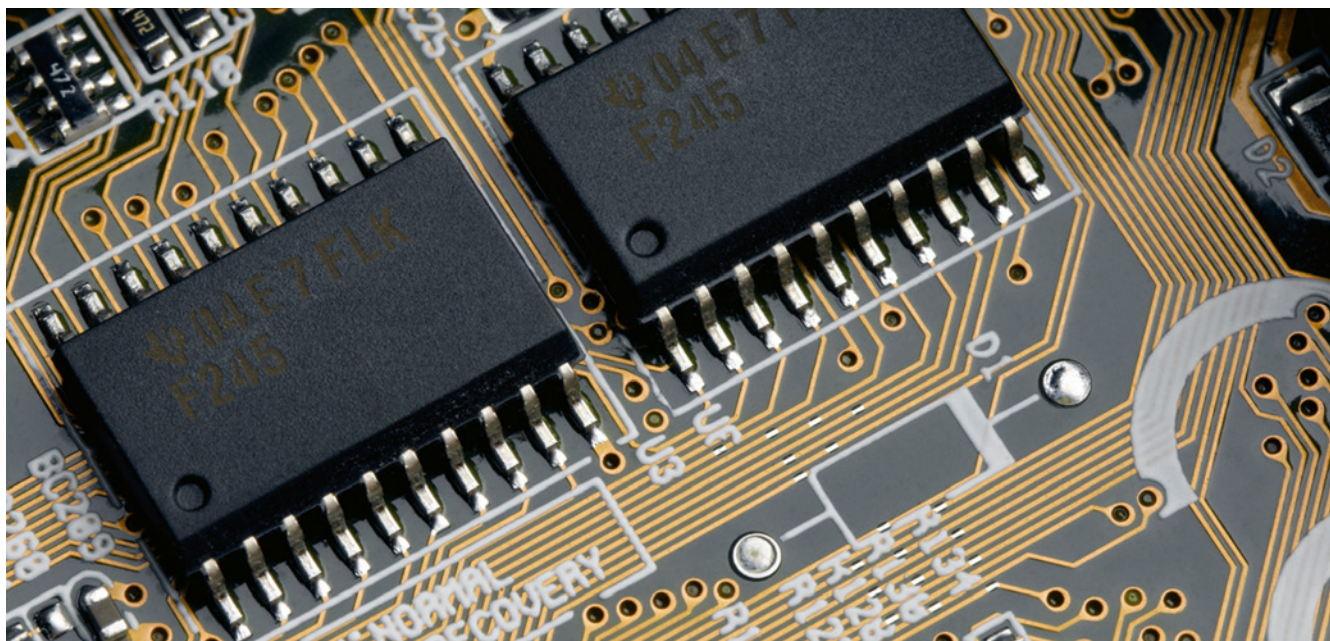
Heat pump system	integrated
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System Control

Analog control system	integrated
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*Air handling units CAIR optional with or without integrated heat pump system

Regulate efficiently, conserve resources



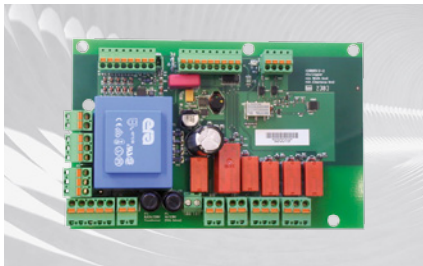
MATRIX is a control system developed by DencoHappel inhouse which can be used across all products. It offers quite a few advantages to installers, investors, planners and users. The offer for complete packages makes the process of selecting suitable control components simple and effective, the uniform concept permits intuitive commissioning. Control panels automatically adapt themselves to the respective unit and can thus be used universally.

It is not only the quick installation that conserves the budget: owing to the function-oriented selection, you pay only for the control functions which are required. In addition, the combination options ensure high flexibility and the exactness of the selection.

MATRIX has only five different groups of components:

Using a control panel it is possible to set the desired values and get information about important unit statuses; controllers compare the setpoint and actual values, control and supervise the units and react to external events. The control signals of this control electronics convert power units into switching commands. Global modules which receive the control signals, control the actuators of the pump up to the chiller or enable the connection to external systems, such as, for instance the building management system, are available for extending the functionality. And finally a comfortable PC-software ensures smooth commissioning, setting and systems analysis.

Commercial – Industrial – Residential Applications



SYSTEM CONTROL IN THE UNIT CASING

MATRIX 500 – 2000 – 3000 – 4000

for decentral unit functions:

Heating	Cooling	Filtering
Supply air	Extract air	Outside air
Exhaust air	Recirculating air	Mixed air

Assembly in DencoHappel unit casing.

and energy recovery

Liquid-coupled energy recovery system ECOFLOW
in combination with MATRIX 4000
for the MAXX Ergo system.



SYSTEM CONTROL IN THE WALL CASING

MATRIX 4700

for air handling unit functions:

Heating	Cooling	Filtering
Supply air	Extract air	Outside air
Exhaust air	Recirculating air	Mixed air

and energy recovery

Liquid-coupled energy recovery system	ECOFLOW
Heat pipe	ECOSTAT
Plate heat exchanger	ECOPLAT
Rotation heat exchanger	ECOROT



CONTROL PANELS WITHOUT DISPLAY

MATRIX 500 – 2000 – 3000 – 4000

for the decentral unit system control, without timer. Protection class IP21 with integrated or IP54 with separate room temperature sensor. IP21 optionally with protective cover.

without energy recovery



CONTROL PANELS WITH DISPLAY

MATRIX – 3000 – 4000 – 4700

for the central and decentral unit system control, alternatively with or without timer. Protection class IP21 with integrated or IP54 with separate room temperature sensor.

and energy recovery

Liquid-coupled energy recovery system	ECOFLOW
Heat pipe	ECOSTAT
Plate heat exchanger	ECOPLAT
Rotation heat exchanger	ECOROT



GLOBAL MODULES

MATRIX 2000 – 3000 – 4000 – 4700

for extending the functions of the central and decentral system controls. Available in a on-wall-mounted casing or for the top rail assembly in a control cabinet.



SERVICE TOOL MATRIX.PC

MATRIX 2000 – 3000 – 4000 – 4700

Software for service and commissioning. Connection via the service plug of a control panel, regulator or one of the global modules.

Access to all functions, components and possibly existing faults in the network. Display of the actual values and setting the desired values.

Reading out the error memory and inspection of the actuators, such as, e.g., valves or motors.

Custom-made and efficient air conditioning



Whether restaurant kitchen, shopping centre, hotel lobby, industrial hall or operating theatre: There is always an air filter, which fulfils the unique requirements of the respective area of application. The current programme comprises more than 2,000 different standard and special filters, which provide clean air in commercial, industrial and residential areas. Finest emulsion mists, toxic vapours, fine dusts and material chips are filtered just as reliably as odours, bacteria, fungus pores or viruses.

In addition, air filters support an economic process control. Consumption costs for electricity, heat and water are lowered noticeably and statutory provisions are certainly fulfilled.

The product range overview on the following pages introduces you to a series of filter systems which are just as innovative as they are tried and tested. These include electrostatic filters, duct air filter, dust extraction units and plants as well as intake air filter systems. The range is rounded off with a variety of suitable filtering media, filter system controls and accessories.



As a planner, you benefit from the maximum flexibility. Which user profile an area or a process has to fulfil, or how high the requirements even for the extract air are: Due to the variety of possible variations, you find a tailored solution for each project. We draw on the vast range of process engineering possibilities of air filtration.

Commercial – Industrial – Residential Applications



FILTER MATS, ROLLS, PRE-CUT SECTIONS, PADS

Filter classes G2–M5

Application: Filtration of coarse or fine dust particles

Nominal air volume flow rate:
up to 10,000 m³/h

Series: CTM, VENUFA, MYSTOP, FIBROIDELASTOV, PERFECT, ACELAN, SERIES 1000, FIBROBAND and 412 roll-band filter, LoTex particularly for the aerosol and mist filtration.

Product details

Filter material elastic, without wetting agent and regenerable, usually made from polyester fibres or glass fibres.

Overall depth: 5–100 mm.



BAG FILTER

Filter classes G3–F9

Application: Filtration of coarse or fine dust particles

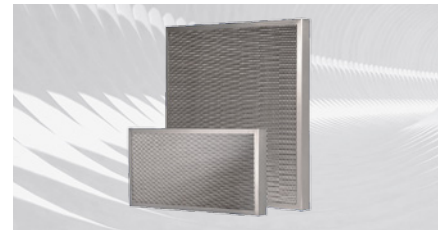
Nominal air volume flow rate:
3,400–4,250 m³/h per cell 592x592 mm.

Series: MULTISACK and SERIES 4000 SepTex with depth effect against germs and mould fungi. FireTex as fire-retardant design. StaTex for explosion-protection areas.

Product details

Wedge-shaped filter bags with spreader bar. Alternatively made from synthetic fibre fleece or micro glass-fibre fleece, front frame alternatively made from plastic or galvanized steel

Overall depth: 195–635 mm.



METAL FILTER

Filter classes G2–M5

Application: Filtration of coarse or fine dust and aerosol particles

Nominal air volume flow rate:
up to 10,000 m³/h

Series: GAL, HL 12.5, ST 8 and SERIES 2000

Product details

Filter plates and cells, filter material regenerable, made from several layers of aluminium, stainless steel, polyester fabric and/or mixed fabric or expanded metal.

Overall depth: 8–82 mm.



FILTER CELLS

Filter classes G4–F9

Application: Filtration of coarse or fine dust and aerosol particles

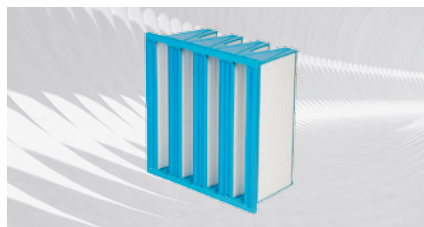
Nominal air volume flow rate:
up to 10,000 m³/h

Series: AeroPlus and SERIES 3000 Z-cells, FILTERGLAS, FIBERGLAS, ULTRAGLAS, ULTRANGLAS-H (up to 300°C)

Product details

Pleated glass or synthetic fibre fleece in the fibreboard, synthetic or metal frame. In case of glass cells, glass fibre mat held within the frame

Overall depth: 14–96 mm.



FILTER ELEMENTS

Filter classes M6–E12

Application: Filtration of fine or finest dust and aerosol particles

Nominal air volume flow rate:
1,500–5,100 m³/h per cell 610x610 mm.

Series: MULTIFORM, MULTIPLAN, SERIES 8000 (AeroPlus and MultiPlus), Multi 2004 and MultiPack back-loading type, MULTICOL, MULTITHERM (up to 250°C)

Product details

Synthetic or Micro glass-fibre fleece in Mini-Pleat design. Frame made from plastic or metal depending on series. Designs with and without burst protection.

Overall depth: 40–292 mm.



HEPA FILTERS

Filter classes E11–U15

Application: Filtration of suspended solid particles

Nominal air volume flow rate:
600–4,000 m³/h

Series: MICROPUR, MACROPUR, ABSOPUR, ULTRAPUR and SERIES 6000

Product details

Table filter elements made from micro glass-fibre fleece in Mini-Pleat or separator design. FV design with package of folds arranged in V shape Frame material selectable or metal

Overall depth: 30–292 mm.

Commercial – Industrial – Residential Applications



ACTIVATED CARBON FILTER

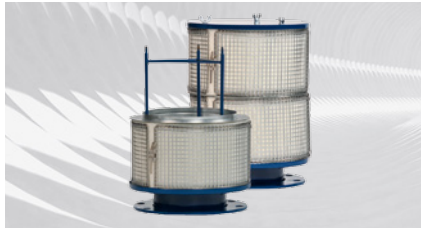
Application: Filtration of gaseous contaminations and odours

Nominal air volume flow rate:
10–300 m³/h per cartridge

Series: 705–709
available with different AKOLIT activated carbon types.
Alternatively even filter plates, filter elements or packed bed filters available.

Product details

Activated carbon filter cartridges in concentric plastic or metallic cylinders, activated carbon replaceable or regenerable with bayonet, plug-type or screw-type closures
Overall depth (Länge): 291, 450, 600 mm



ROUND AIR FILTERS

Filter classes G2–M5

Application: Filtration of coarse and fine dust particles

Nominal air volume flow rate:
220–7,000 m³/h per filter

Series: DAH, DBH, DBA, DBV, DAC and DBC
Diameter 130–500 mm
Intake air cleaning for IC engines or fans.

Product details

Filter cartridges in different sizes and with different filtering media. Filtering media replaceable or reusable after cleaning and, if necessary, wetting.
Overall depth (height): 120–705 mm



COPULAR HEPA FILTER

Filter class H13

Application: Filtration of suspended solid particles

Nominal air volume flow rate:
50 and 220 m³/h

Series: CKL
Sizes 240x240 and 490x490 mm

Product details

Copular filter with one or two connection sockets. The HEPA filter element is not replaceable.

Overall depth: 140, 228 and 192, 330 mm



GLOVE BOX FILTERS

Filter classes E12–H13 / activated carbon

Application: Filtration of suspended solid particles and gaseous materials

Nominal air volume flow rate:
25 m³/h per filter

Series: DKA, DKB, DKC, DKD
Diameter 140 mm

Product details

HEPA filters in totally enclosed design, also available with activated carbon insert.

Overall depth: 172, 194, 257, 279 mm



CEILING OUTLET HEPA FILTER

Filter classes E11–H14

Application: Filtration of suspended solid particles

Nominal air volume flow rate:
260–1,400 m³/h

Series: CGF
as the last filter stage in RLT plants, for clean air rooms with turbulent ventilation in the hospital and in the life sciences area.

Product details

Compact system powder coated, with integrated isolation damper, pressure gauge connection for differential pressure monitoring and filter seat testing facility. Filter element replaceable.

Model sizes: 305/305–610/610 mm



WALL FRAME

Application: For the mounting of air filters

Materials: Galvanized or painted steel sheet or stainless steel.

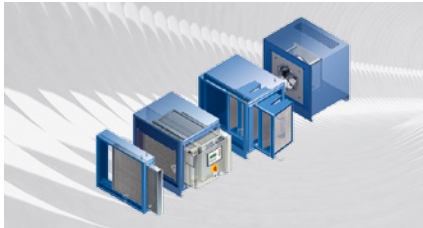
Series: CDD, CKC, MPW, CKG, CFC, MCB
CDD for bag filters and filter elements CKC/MPW for HEPA filters CKG for activated carbon cartridges CFC/MCB for filter mats and table filter cells

Product details

Filter frame also suitable for the modular configuration of filter walls.

Model sizes: 305/305–610/610 mm

Commercial and Industrial Applications



**COMPACT
ELECTROSTATIC FILTER**

Application: Filtration of cooling lubricants particularly oil mist, smokes and oxides

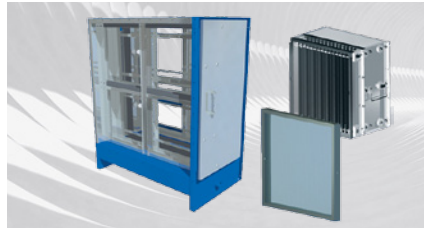
Nominal air volume flow rate:
500–8,500 m³/h

Series: MultiTronPremium
Extract air Process air
Decentral

Product details

- Modular configuration • Minimum power costs due to lowest pressure drops • Recirculating air mode possible • Regenerable filter elements • Fans, standard accessories

Application: Metalworking industry



**COMPACT
ELECTROSTATIC FILTER DRAW-OUT UNIT**

Application: Filtration of cooling lubricants particularly oil mist, hall exhaust

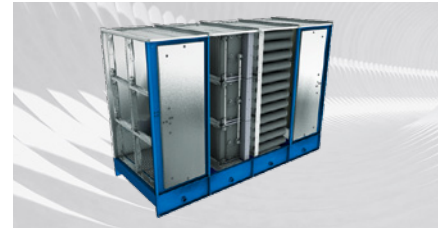
Nominal air volume flow rate:
10,000–40,000 m³/h

Series: MultiMaster-Vario, Ek
Extract air Process air
Central Decentral

Product details

- Lateral insertion resulting in shorter over-all length • Low power costs due to lowest pressure drops • Recirculating air mode possible • Regenerable filters

Application: Industrial, climate control, ventilation



ELECTROSTATIC FILTER

Application: Filtration of cooling lubricants particularly oil mist, hall exhaust

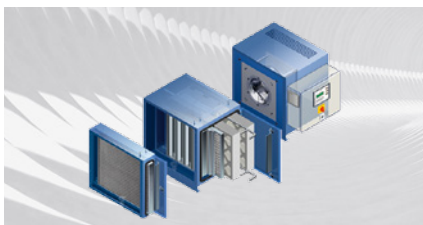
Nominal air volume flow rate:
10,000–200,000 m³/h

Series: MultiMaster-Vario, E
Extract air Process air
Central

Product details

- Modular configuration • Low power costs due to lowest pressure drops • Recirculating air mode possible • Regenerable filter elements

Application: Industrial, climate control, ventilation



COMPACT AEROSOL FILTER

Filter class F7–H13

Application: Filtration of emulsion mists and solid aerosols

Nominal air volume flow rate:
500–6,800 m³/h

Series: MultiAirPremium
Extract air Process air
Decentral

Product details

- Modular configuration
- Extensive range of pre and main filters
- Vast range of efficient fans
- Recirculating air mode possible

Application: Metalworking industry



DUCT MIST FILTERS

Filter classes G3–F9

Application: Filtration of emulsion and oil mists and fine particles

Nominal air volume flow rate:
3,000–61,000 m³/h

Series: KNA
Extract air Process air
Central Decentral

Product details

- Compact design • Regenerable design, maintenance-free • Vast range of different pre and main filters

Application: Metalworking industry



DUCT AEROSOL FILTERS

Filter classes G3–F9

Application: Filtration of dry and liquid aerosols

Nominal air volume flow rate:
20,000–400,000 m³/h

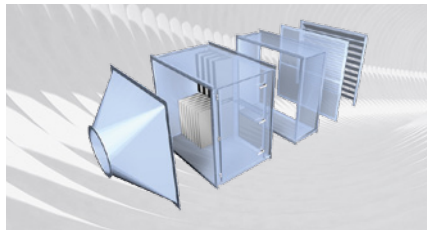
Series: MultiMaster-Vario, MCB
Supply air Extract air Process air
Central

Product details

- High volume flow rates at small cross section • Multi-stage filter arrangement possible • Modular configuration • Standard accessories

Application: Industrial, intake filter for gas turbines, compressors and motors

Commercial and Industrial Applications



DUCT AIR FILTERS

Filter classes G3–F9 / Activated carbon

Application: Filtration of coarse and fine dusts and odours

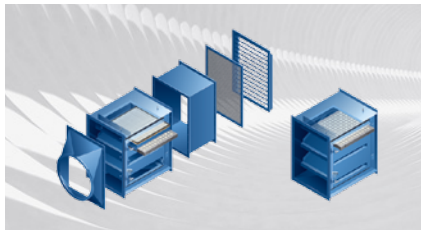
Nominal air volume flow rate:
2,000–41,000 m³/h

Series: MultiMaster
Supply air Extract air Process air
Central Decentral

Product details

- Extensive standard accessories
- Available as kit
- Measuring points for the differential pressure measurement by default

Application: Climate control, ventilation, industrial



UNIVERSAL DUCT AIR FILTER

Filter classes G3–H13

Application: Filtration of coarse, fine and suspended particulate matter or oil and emulsion mists

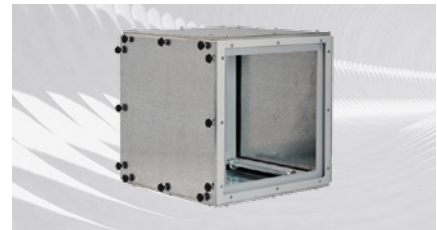
Nominal air volume flow rate:
1,000–49,000 m³/h

Series: MultiClean
Supply air Extract air Process air
Central Decentral

Product details

- Use of up to 4 different filter stages possible
- Reinforced and pulse-jet resistant design
- Normal steel, stainless steel

Application: Industrial, pharmaceutical and chemical industry



MODULAR DUCT AIR FILTERS

Filter classes G2–H13 / Activated carbon

Application: Filtration of coarse and fine dusts and odours

Nominal air volume flow rate:
1,200–4,250 m³/h per module 610/610 mm

Series: EBE
Supply air Extract air
Central Decentral

Product details

- Housing made from galvanized steel sheet or stainless steel
- With measuring points for differential pressure measurement
- Single modules for plants can be combined

Application: Climate control, ventilation, industrial



SAFETY FILTER

Filter classes M5–U15 / Activated carbon

Application: Filtration of viruses, bacteria, radioactive and toxic materials

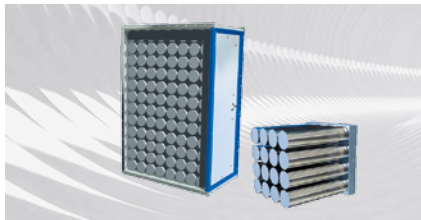
Nominal air volume flow rate:
1,000–32,000 m³/h

Series: MultiSafe
Supply air Extract air Process air
Central Decentral

Product details

- Contamination-free filter replacement
- Maintenance-free clamping device
- Filter seat testing possible during the operation
- Extensive standard accessories

Application: Pharmaceutical, chemical, nuclear, health care industry, laboratories



ACTIVATED CARBON FILTER

Application: Filtration of odours and gaseous pollutants

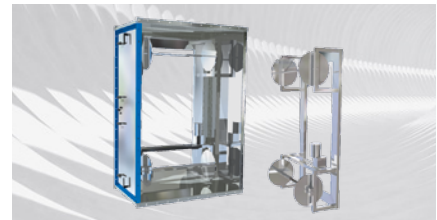
Nominal air volume flow rate:
12,000–144,000 m³/h

Series: MultiMaster-Vario, CKG
Supply air Extract air Process air
Central

Product details

- Vast range of application-specific activated carbon variety
- Filter cartridge housing made from galvanized steel, stainless steel or plastic

Application: Climate control, ventilation, industrial



ROLL-BAND FILTER

Filter class G3

Application: Filtration of coarse particles

Nominal air volume flow rate:
10,000–150,000 m³/h

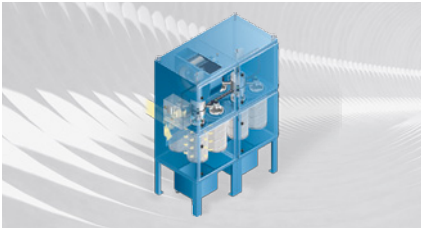
Series: MultiMaster-Vario, GDB
Supply air Process air
Central

Product details

- Automatic, differential pressure-controlled further transportation of the filtering medium
- Maintenancefree
- Adjustable band guide

Application: Ventilation, industrial, intake filter for gas turbines, compressors and motors

Commercial and Industrial Applications



CARTRIDGE DUST FILTERS

Filter categories L, M

Application: Filtration of dry dust and smoke

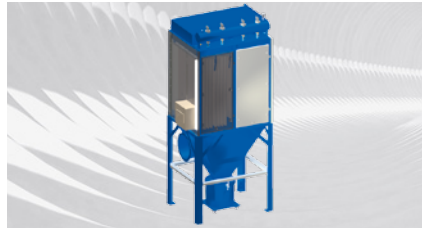
Nominal air volume flow rate:
2,000–24,000 m³/h

Series: EuroJet
Extract air Process air
Central Decentral
Back-loading system for filter cartridges

Product details

- Back-loading system of the filter cartridges
- Modular configuration
- Different filtering media
- State-of-the-art controls
- Fans, accessories

Application: Metalworking industry



CARTRIDGE DUST FILTERS

Filter categories L, M

Application: Filtration of dry dusts, for coarse to sub-micron particles

Nominal air volume flow rate:
2,000–50,000 m³/h

Series: MultiJet
Extract air Process air
Central Decentral
Compact hose cartridges

Product details

- Reinforced and pulse-jet resistant design
- Modular configuration
- Various filter media
- State-of-the-art controls
- Fans, accessories

Application: Industrial, pharmaceutical and chemical industry



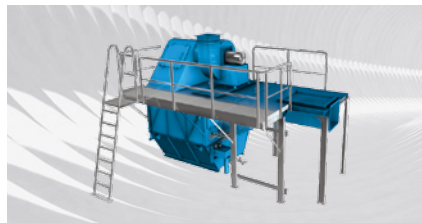
SPARE FILTER MATERIAL DRY DUST EXTRACTION

Filter categories L, M

Filter cartridges
Filter hoses
Flat bag filters
Hose cartridge filters
Deicolon candle filters
Compact filter elements
all designs alternatively for horizontal and vertical installation

Product details

DencoHappel offers the entire range of the commonly commercially available filter media, materials and designs. In addition, antistatic, hydrophobic, temperature-resistant, flame retardant and other special media available for special applications.



VORTEX SCRUBBER

Application: Filtration of sticky dusts, aluminium dusts, for the process cooling and spark quenching

Nominal air volume flow rate:
2,500–82,000 m³/h

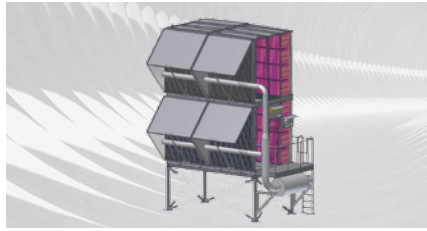
Series: AquaClean
Extract air Process air
Central Decentral

Product details

- Extremely sturdy and durable
- Automatic water level regulation with overflow protection
- State-of-the-art controls
- Fans
- Accessories

Application: Metalworking industry

Commercial and Industrial Applications



STATIC FILTER SYSTEMS

Filter classes G4–H13

Application: Intake filter for moderate dust loading (e.g. Europe)

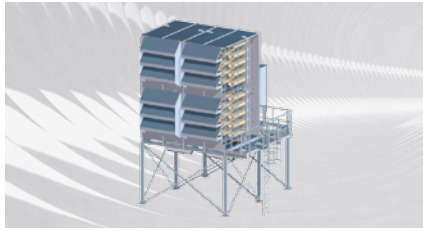
Nominal air volume flow rate:
10,000–750,000 m³/h

Series: Static filters

Product details

- Custom-made system
- Retrofit • Coalescer • Droplet separator
- Anti icing systems • Air conditioning
- Noise control

Application: Energy and process industry



PULSE FILTER SYSTEMS

Filter classes M6–F9

Application: Intake filter for high dust loading (e.g. desert region)

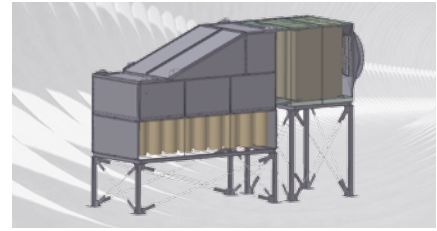
Nominal air volume flow rate:
10,000–750,000 m³/h

Series: Pulse filter

Product details

- Use of up to 4 different filter stages possible
- Reinforced and pulse-jet resistant design
- Normal steel, coated or stainless steel

Application: Energy and process industry



DEEP BED FILTER CARTRIDGE SYSTEMS

Filter classes F9–E11

Application: Intake filter for moderate dust loading and max. filter performance

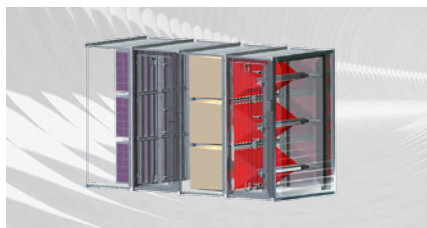
Nominal air volume flow rate:
10,000–750,000 m³/h

Series: Deep bed filters

Product details

- Custom-made system
- Retrofit • Horizontal or vertical cartridge arrangement
- Pre-filter sock • Air conditioning
- Noise control

Application: Energy and process industry



STANDARD FILTER SYSTEMS

Filter classes G4–H13

Application: Intake filter for moderate dust loadings (e.g. Europe)

Nominal air volume flow rate:
2,000–100,000 m³/h

Series: Multi-Master Vario

Product details

- Modular system with several variants
- Coalescer • Droplet separator
- Anti icing systems • Air conditioning
- Noise control

Application: Energy and process industry



STANDARD OIL BATH-ROTARY FILTER SYSTEMS

Filter classes G3–G4

Application: Intake filter (coarse dust filtration) with wide range of application

Nominal air volume flow rate:
2,000–100,000 m³/h

Series: RotaClean

Product details

- Modular system with several variants
- Automatic operation • Maintenance-free
- For difficult operating conditions
- Noise control

Application: Energy and process industry



SPARE FILTER MEDIA INTAKE AIR FILTRATION

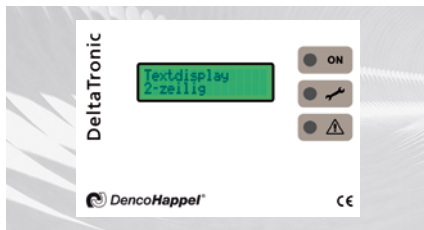
Filter classes G2–H13

Coalescer Filter
Filter mats G2–M5
Filter band G3
Filter cells G4–M5
Bag filters G3–F9
Filter elements M6–F9
HEPA filter elements E10–H13
Pulse filter cartridges M6–F9
Deep bed filter cartridges F9–E11

Product details

DencoHappel offers the entire range of the commonly commercially available filter media, materials and designs. In addition, antistatic, hydrophobic, temperature-resistant, flame retardant and other special media available for special applications.

Commercial and Industrial Applications



FILTER MONITOR

Application: For differential pressure monitoring of mechanical filters

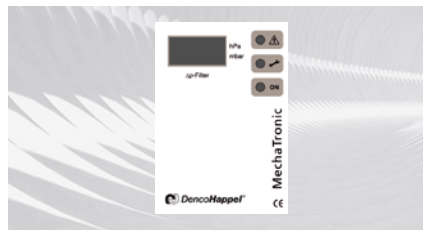
Application:
Duct air filters, separators, intake filters

Series: DeltaTronic

Measuring range 0 – 5,000 Pa

Product details

- Control LED's for OPERATION/CSERVICE/ FAULT • Digital display of the operating pressure difference • 2-button menu operation • Two-position controller, time functions, operating and service -production line operating hour counter • Control outputs



FILTER CONTROL

Application: For differential pressure monitoring of mechanical filters with fan

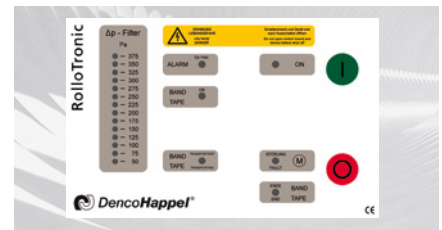
Application:
Compact separator

Series: MechaTronic

Measuring range 0 – 1,000 Pa

Product details

- Control LED's for OPERATION/SERVICE/ FAULT • Digital display of the operating pressure difference • Differential pressure switch point and connection for mains supply of the fan adjustable • Fan monitoring • Control outputs



ROLL-BAND FILTER CONTROL

Application: Filter control for band air filters

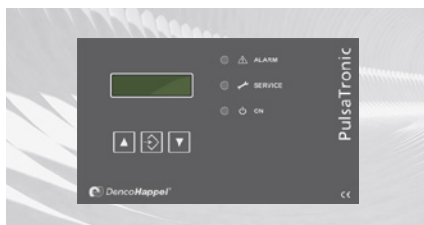
Application:
Roll-band filter

Series: RolloTronic

Measuring range 0 – 375 Pa

Product details

- Automatic band feed
- Monitoring of up to 4 band limit switches
- Motor control (direct start up) for max. 4 geared motors • Fan monitoring (optional) • Manual band feed possible • Control outputs



PULSE FILTER CONTROLS

Application: Filter control for jet filter with/without fan

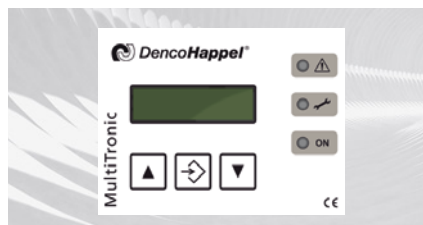
Application:
Cartridge, cassette and bag filters

Series: PulsaTronic

Measuring range 0 – 5,000 Pa

Product details

- Differential pressure monitoring
- Differential pressure switch points
- Optional control of motor and discharge organs • Adjustable down-time cleaning
- Digital recording of operating hours
- Control outputs



FILTER CONTROL

Application: Filter control for mechanical and electrostatic filters with/without fan

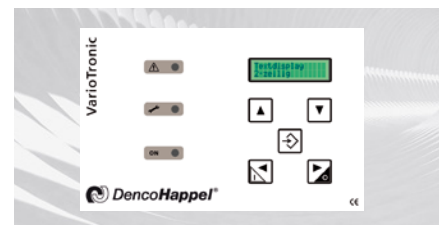
Application:
Compact separator, compact electrostatic filter

Series: MultiTronic, Patented

Measuring range 0 – 1,000 Pa

Product details

- Comprehensive control unit • Automatic adaptation of the optimal high voltage (electrostatic filter) • Fan control • Display of the operating pressure difference • Digital text display of all operating parameters • Control outputs



ELECTROSTATIC FILTER CONTROL

Application: Filter control for large electrostatic filter with/without fan

Application:
Electrostatic filter

Series: VarioTronic

Control of the washer as well as differential pressure monitoring of a pre-filter optional
Measuring range 0 – 1,000 Pa

Product details

- Monitoring and controlling of the plant components • Automatic adaptation of the optimal high voltage • Digital text display of all operating parameters • Monitoring of the HV-modules • Control outputs

CLEAN ROOMS*

Tailored system solutions for strictest requirements





Clean room technologies for flawless quality and absolute hygienic demands

Clean rooms and ultra-clean rooms represent some of the most complex challenges for air treatment. They demand a very strict standard for competence as well as specific experience for reliable clean room and process air treatment. DencoHappel Clean Rooms satisfy all international clean room standards and ISO classifications. They far exceed conventional quality levels.

Research and production under clean room conditions take place extensively in semiconductor production and in the pharmaceutical industry – as well as for work in the chemical industry, medicine, optical and laser technology, and in the aerospace field. These activities involve the further processing of biological, chemical, and technical products in closed areas with highly sensitive production techniques. These processes require the absolute maximum absence of dust and other particles in room air and for production.

DencoHappel Clean Room systems enable users to coordinate all critical parameters exactly with the needs of the respective production process, and to systematically control the decontamination of room air. These systems enable the exact supervision and control of air pressure, temperature, and relative humidity. They likewise eliminate the presence of fine dust, particles, bacteria, pathogens, and the like from products and processes.

DencoHappel customers profit from our comprehensive overall expertise in room-air handling and filter technology. In contrast to other providers, we cover the entire process of air treatment and air filtration for supply-air and extract-air systems.

We understand the interrelationships and control them down to the smallest detail. And we know the requirements of the various sectors of industry, from microbiology to nanotechnology. As a result, we can offer highly effective, process-dedicated package solutions with energy-efficient technology – optimized for your sector and applications.

Efficient DencoHappel heat-recovery systems and reliable DencoHappel filter systems with low pressure drop assure considerable energy savings. In addition, we deliver turnkey solutions on a one-stop-shopping basis: beginning with building elements such as clean room walls, wall paneling, ceiling grid modules, filter and panel ceilings, windows, doors, and laminar-flow ceilings – including the development and installation of your clean room facilities – and extending to after-sales service.

*Currently not yet available for all sales areas. Please get in touch with us.

DencoHappel Clean Rooms for all industrial sectors

- Biotechnology
- Chemistry, pharmaceuticals, and the life sciences
- Semiconductor production
- Industrial production
- Hospitals and laboratories
- Food and beverage industries

Building Elements



BUILDING ELEMENTS

Customized outfitting for all sectors

Walls: sandwich panels, 60 mm, optionally with X-ray and fire protection

Paneling: cladding of existing walls for clean room conformity

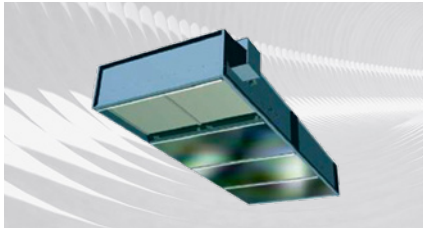
Windows: windows in a range of sizes, especially designed for individual applications, with many positioning possibilities; as option, with fire protection

Doors: hinged and sliding doors, mechanically or automatically operated, single- or double-part doors, glazed, DencoHappel interlock system, optimally with X-ray protection

Suspended ceilings: for gapless installation of lighting elements and ventilation components, designed for pressures up to 200 Pa

DencoHappel Clean Rooms are maximum-quality, tailor-made, and highly and precisely flexible. These systems are customized for individual applications and are delivered as complete systems. The installation of these systems is very simple.

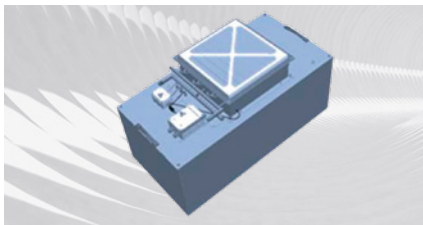
Ventilation components



TAV LAMINAR AIR-FLOW UNIT

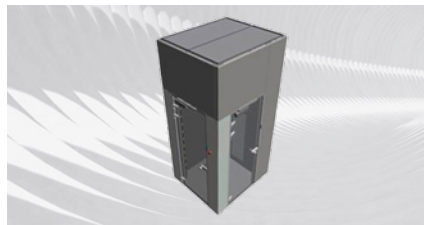
FRESH HEAVEN MAXX	Industry	Operating rooms
Air velocity	0.15–0.45 m/s	0.18–0.38 m/s
Dimensions	As required	3.2 x 3.2 m
Base unit	No	Yes – for operating-room lighting unit
Mode of operation / air supply	Recirculating-air operation using installed fans or without fans. Air supply is performed via central-plant air handling unit.	Without fans, air supply via central-plant air handling unit
Material	AISI 304 stainless steel	Galvanized steel sheet, painted with RAL 9010
Filter gasketing	U-shape	Gel
Diffusors	Perforated steel sheet	Single-layer or double-layer polyester in aluminium frame (double-layer = differential air flow)

Complete filtration – horizontally configured HEPA/ULPA filters H13/H14/(U15)
Optional: chilled-water coil (in Power version)



FAN-FILTER UNIT

FRESH BREEZE
Dimensions: 600x1200 mm oder 1200x1200 mm
Nominal air flow: 1200–2400 m³/h
Motor: EC
Accessories: curtain made of PV strips; illumination
Optional: pre-filter and/or chilled-water coil



STAFF AIR LOCK

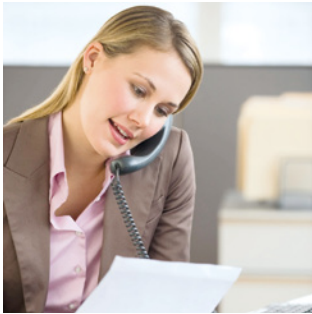
AIR SHOWER
Air shower with clean air
Application in locks for decontaminating clean room staff, to prevent ingress of contamination
For one person



CEILING AIR OUTLET WITH HEPA FILTER

CGF
Application: filtration of suspended solid particles
Nominal air flow: 260–1,400 m³/h
Filter classes: E11–H14
Various filter seals
Various air outlets for turbulent flow
Optional: automatic shutoff flap for filter exchange without contamination
Also available: CGO for air extraction

Always at your side



Our services at a glance

- Own heat exchanger production
- Use of certified products and components
- Use of components from well-known component manufacturers
- Short delivery times for spare parts
- Commissioning of new facilities
- Periodic servicing
- Maintenance
- Factory trial run
- Upgrading and optimisation of old facilities
- Maintenance agreements

Economical from the beginning

The technical developments of DencoHappel represent state-of-the-art swimming pool climate control. Our systems support diverse applications that optimally conform to current criteria of cost effectiveness, safety and sustainability. Our products and services go far beyond pure technology. They are integrated into a comprehensive and in every respect customised service package. This programme includes not only conventional services such as spare part delivery, maintenance, and repair. It unites the consulting and engineering of a technology leader with customised after-sales service and rapid response times. And this not only for installing new equipment. This service also applies for upgrading and optimising old equipment and provides you with perfect support in all project phases. The functionality of the system is secured over its entire service life.

International service und support in experienced hands

Wherever you need us, we will be there for you in the shortest time. All over Europe, our own customer service ensures that you are able to make optimal use of our units' advantages at all times. Many technicians are ready on-call in Germany alone for rapid deployment. All services are designed for absolute safety and reliability. For example, an on-site function check is a part of our delivery service, conducted by an experienced DencoHappel technician together with the installer. This way we directly and personally pass on our functional know-how built up over many years. In this context we should also mention the training we offer in the technology of our climate control systems. Such training is a beneficial instrument for ensuring the lasting functionality and availability of the systems.

A decision for quality

A high quality standard is the basis and principle for all our services. All our service specialists are highly experienced and devote themselves to their work with great diligence. Technically and personally convincing: this is what you can expect from us.



- Initial installation
- Maintenance and servicing
- Assembly services
- Spare parts
- Customer service
- Consulting
- Refurbishing
- Training

DencoHappel is a globally operating company with great expertise in air treatment, air conditioning and filtration technology.

Our nearest consulting and service teams will be glad to discuss ideas and develop creative and effective solutions with you.

