VENTUS PRO

2024





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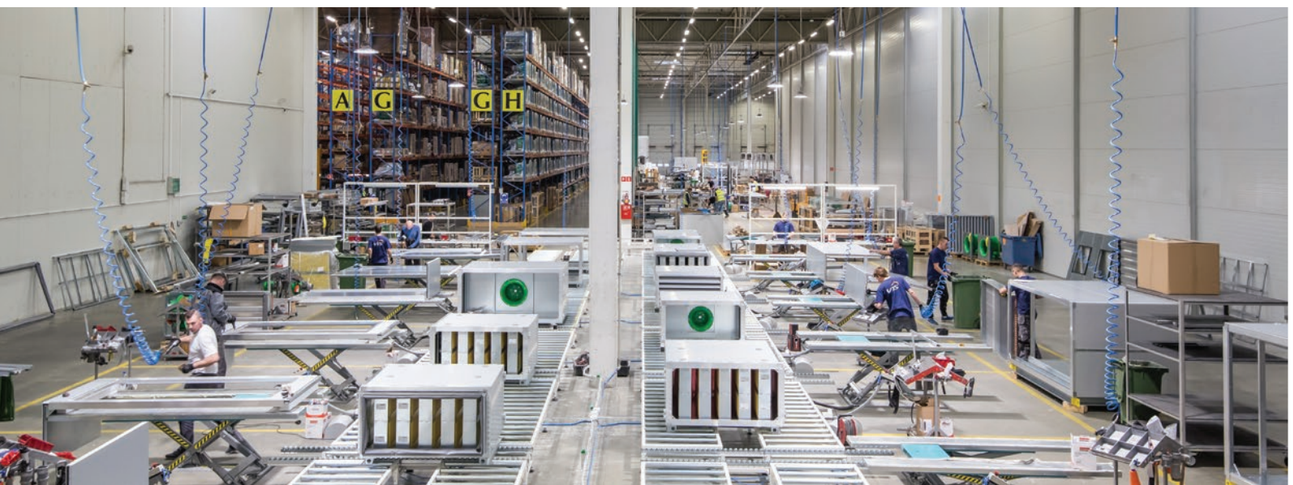
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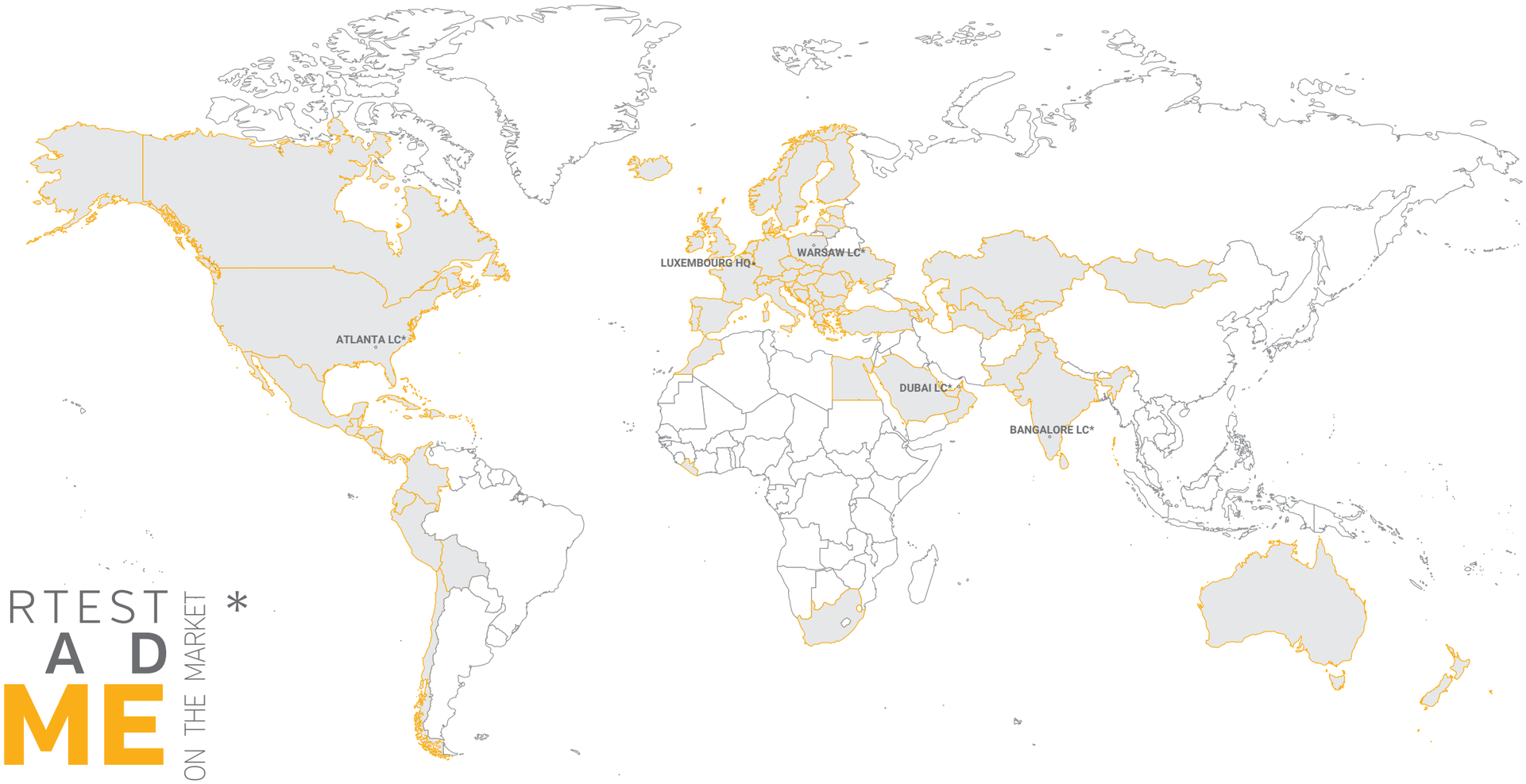
VTS Group

VTS Group

VTS GROUP – is a manufacturer of technically advanced HVAC equipment, combining innovative technologies in the field of research&development, production and logistics.

OUR MISSION

AHU#1



SHORTEST LEAD TIME ON THE MARKET *

* Logistics center

Conforms to UL Std 1995
Certified to CSA Std C22.2 No. 236

3 PILLARS OF SUCCESS

Constantly highest quality of products. Best prices on the market. Shortest lead time. These 3 pillars of marketing policy allows VTS to be always one step head, wherever in the world.

Following the best practices of the branch, VTS has created a network of 4 efficiently running production and logistic centers (**Atlanta, Dubai, Warsaw, Bangalore**), enable to ensure the shortest lead time on the market, wherever in the world.

SHORTEST LEAD TIME ON THE MARKET

4 CENTERS LOGISTIC

Large-scale production of repetative units allows VTS to offer them at **the most competitive price, simultaneously keeping their highest possible quality**

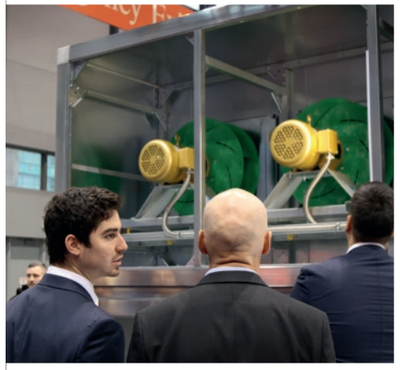
$ COMPETITIVE PRICE

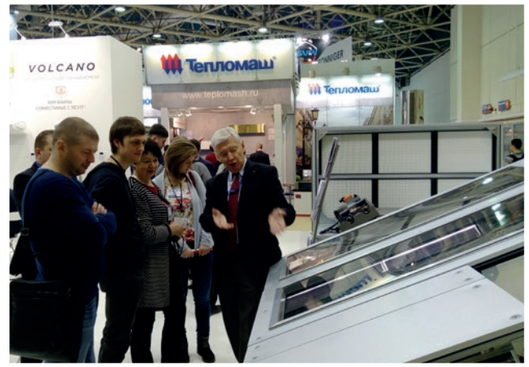
150 000 UNITS SOLD ANNUALLY

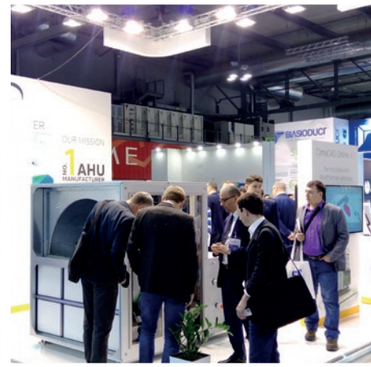
Multistage quality control system allows VTS to offer **2 years warranty.**

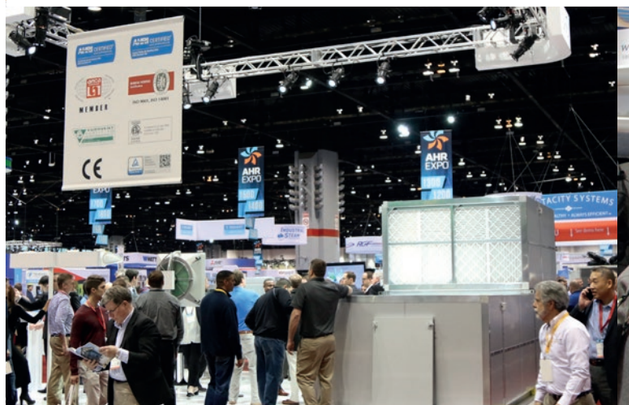
BEST QUALITY

2 YEARS WARRANTY FOR EACH UNIT









Technical Specification

VENTUS PRO

PRODUCT RANGE

Series	PVS	PVS H	PVS HY
Typical applications	Pharmaceutical industry, food industry, chemical industry, electronics industry	Design for sterilized applications: Hospitals, clean room, testing laboratories, pharmaceutical plants and food&beverage industries	Design to be used in hospital, clean rooms that require sensitive and sterile conditions. Can be used in pharmaceutical, chemical industry, health and food sector.
Air flow range	1 000 – 125 000 m³/h	1000 - 125 000 m³/h	2 400 – 10 000 m³/h
Number of available sizes	71	71	7
Controls	» Availability of industrial controllers » Plug&Play standard is available	» Availability of industrial controllers » Plug&Play standard is available	» Plug&Play standard
Important data	» EN 1886 Casing Classes: T2, TB2, F9, L1, D1 » Panel: 60 mm high density rock wool » Galvanized, Stainless Steel, Epoxy Inner & Outside sheet » EPA, HEPA, ULPA and electrostatic high efficiency filters	» DIN 1946; VDI 6022 » RoS, TUV certificates » Inner side panels with epoxy coated » Bottom panels from SS304 or SS316 » Epoxy or hydrofilic coated coils	» Sheet Material: Stainless Steel 304, 316K » Coils: Cu/Al with epoxy coated » Heat Recovery: Plate or Run Around coils » Humidification: Steam

Technical Specification

VENTUS PRO

PRODUCT RANGE

Series	PVS PO	PVS PCR	PVS HX
Typical applications	Indoor swimming pools, places where dehumidification is necessary	Indoor swimming pools, places where dehumidification is necessary	Indoor swimming pools, places where dehumidification is necessary
Air flow range	2 500 – 30 000 m³/h	2 500 – 30 000 m³/h	2 500 – 30 000 m³/h
Number of available sizes	15	15	15
Controls	» On-Board Microprocessor controlled panel and Power boad » Plug&Play standard	» On-Board Microprocessor controlled panel and Power boad » Plug&Play standard	» On-Board Microprocessor controlled panel and Power boad » Plug&Play standard
Important data	» Dehumidification capacity: 18 - 212 kg/h » Compressors: Scroll Hermetic » Energy Saving: Heat Pipe HRU and Free cooling » Coils: Cu/Al with epoxy coated	» Dehumidification capacity: 28 - 312 kg/h » Cooling capacity: 7.7 - 80.5 kW » PVS PCR C: build-in cross-flow recuperator and DX cooler » PVS PCR HP: build-in cross-flow recuperator and heat pump	» Pool surface area: 61-732 m² » Dehumidification capacity: 28 - 312 kg/h » Energy Saving: Hexagonal counter flow recuperator and Free cooling

02

VENTUS PRO - PVS

VENTUS PRO - PVS SERIES AIR HANDLING UNITS

The casing of the VENTUS PRO - PVS AHUs is made of a steel or aluminum frame, to which "sandwich" panels made of rock wool, covered with a metal sheet on both sides, are attached. Air Handling Units are available in 20 sizes covering a flow range from 1 000 – 125 000 m³/h. A wide range of options and accessories are available. Units are manufactured in modular sections, which are easy to handling and installation.

- 1 000 - 125 000 m³/h air flow
- 60 mm standart panel thickness
- 0,8 mm - 1,0 mm sheet thickness
- Galvanized, stainless, epoxy inner & outside sheet
- Different & special production options

QUALITY AND STANDARDS

Production is carried out in accordance with EN 1886 and EN13053 standards in production facilities holding ISO-9001, ISO-14001 and OHSAS-18001 certificates. VENTUS PRO - PVS series air handling units have been approved by Eurovent.

MECHANICAL PERFORMANCES ACCORDING TO EN1886 NORMS

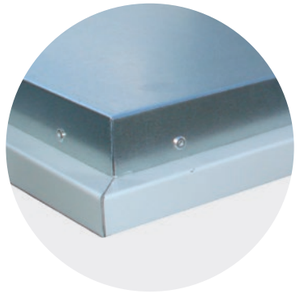
Brand	Range	Heat Transfer Calss	Thermal Bridge Factor	Filter Bypass Leakage	Casing Tightness -400 / + 700 pa	Mechanical Strength Class of the Casing
VTS	VENTUS PRO - PVS	T2	TB2	F9	L1	D1

* Performance values certified by Eurovent

CASING ACCOUSTICAL PERFORMANCES

HZ	125	250	500	1000	2000	4000	8000
dB	14	28	26	31	22	27	42

* Performance values certified by Eurovent

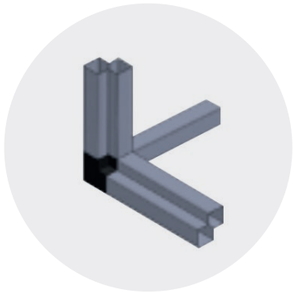


Outer panel sheets are resistant to corrosive conditions with electrostatic powder painted, UV protected special PVC coating.

Panel insulation is made with 60 mm 70 kg/m³ (standard) or 110 kg/m³ (option) rock wool. Inner surface sheets are 110 gr/m² or 275 gr/m² galvanized, stainless, epoxy or painted.

Available thickness options of inner & outside sheet are 0.8mm or 1 mm.

EPDM gaskets between panels and profiles.

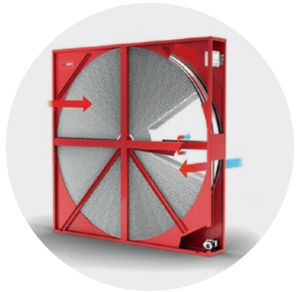


Central interior surfaces are designed without any indent or protrusion

- VPRO-ST / 1,2 mm steel profile
- Polyamide corner piece
- VPRO-HB

Technical Specification

SPECIFICATIONS



ROTARY WHEEL EXCHANGER

- Rotor type: Condensation, Enthaply, Sorption
- Efficiency 60-80%
- Variable speed motor control

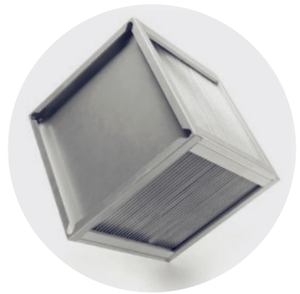
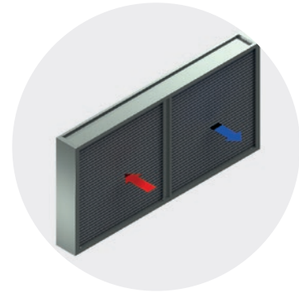


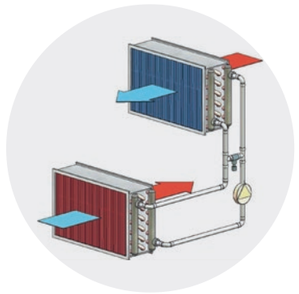
PLATE CROSS-FLOW EXCHANGER

- Plate materials: Aluminum or Epoxy coated
- Efficiency 60-85%
- Bypass damper



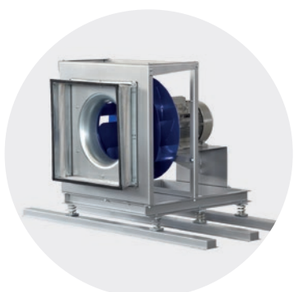
HEAT PIPE

- Closed loop system
- Efficiency 40-60%
- 100% of separated air exchange



RUN-AROUND COILS

- up to 18 rows coils
- Efficiency 50-73%
- 100% of separated air exchange

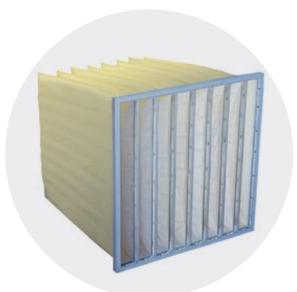


FAN & MOTOR

- Complies with AMCA performance and sound criteria
- Plug fan with AC, EC motors
- IE3 or IE4 motors efficiency
- Complies with ATEX (an option)

COIL

- Eurovent certified
- Copper Pipes / Aluminum Fins
- Different coating options
- Complies with VRF



FILTER

- Complies with ISO 16890
- Filters: Coarse 80% (G4) / ePM2.5 65% (F7) / ePM1 80% (F9) level precise filtering
- Types: carbon, metal, electrostatic, EPA, HEPA

SILENCER

- Double skinned
- Galvanized & stainless sheet
- Filled with high density rock wool
- Founded air inlet and outlet edges

AIR DAMPER

- Complies with EN 1751 standard
- Aluminum structure
- EPDM tightness joint
- Opposite & Parallel wing

CONTROL PANEL

» Both: the MCC (Micro Control Center) power panel and the DDC (Direct Digital Controller) power supply and control panel are offered.

» The panel can be built into the AHU also as Plug & Play version (MCC & DDC) or delivered as an external power supply or power supply and control switchboard.

» General control - temperature and humidity control for simple applications. It includes: an electronic control panel, duct temperature and humidity sensors, valve actuators, and damper actuators. Frequency converters (AC motors) can be added if required.

» Precise control - an advanced microprocessor control system with software specially designed for the needs is used. Flow rate, temperature, humidity, filter contamination, pressure difference between spaces, etc. The location and device information can be controlled by a microprocessor.

» The control system can be integrated with the building management system (BMS).

THE CONTROL SYSTEM CAN MANAGE THE FOLLOWING FUNCTIONS

» Automatic selection of cooling and heating.

» Humidity control (humidity, enthalpy).

» Comfort enhancement or dehumidification control with the after heater.

» The desired air flow can be adjusted according to the operating altitude and temperature.

» Adjusting the Exhaust Fan flow according to the actual fan flow rate at the desired positive or negative pressure ratio.

» Cleaning mode input on the controller that automatically increases the flow for fast cleaning of the room.

» Programming of seven days of the week with 4 different daily programs (temperature, flow rate, on-off).

» Daily, weekly work-stop time can be adjusted.

» Flow temperature limit control (comfort temperature, condensation start temperature).

» It can be integrated into the building automation system with all known communication languages (Modbus, BACnet, Lon-ECHELON, LAN TCP / IP, SNMP) with an additional hardware.

» All similar devices can be communicated as a network.

» The control of the fans can be done parametrically, thermostatic, continuously, gradually or proportionally.

TECHNICAL DATA

VENTUS PRO	Unit inner section		Cross section	Nominal air flow rate	Max air flow rate
	G	Y			
	mm	mm	m²	CMH	CMH
PVS 3x6	620	350	0,22	1719	2734
PVS 4.5x6	620	465	0,29	2283	3633
PVS 6x6	620	620	0,38	3044	4843
PVS 6x9	930	620	0,58	4567	7265
PVS 6x12	1240	620	0,77	6089	9687
PVS 9x9	930	930	0,86	6850	10898
PVS 9x12	1240	930	1,15	9133	14530
PVS 9x15	1550	930	1,44	11417	18163
PVS 12x12	1240	1240	1,54	12178	19374
PVS 12x15	1550	1240	1,92	15222	24217
PVS 12x18	1860	1240	2,31	18267	29061
PVS 15x15	1550	1550	2,40	19028	30272
PVS 15x18	1860	1550	2,88	22833	36326
PVS 15x21	2170	1550	3,36	26639	42380
PVS 18x18	1860	1860	3,46	27400	43591
PVS 18x21	2170	1860	4,04	31967	50856
PVS 21x21	2170	2170	4,71	37294	59332
PVS 24x24	2480	2480	6,15	48711	77495
PVS 27x27	2790	2790	7,78	61650	98080
PVS 31x31	3100	3100	9,61	76111	121086
PVS 34x34	3410	3410	11,63	92095	146514
PVS 37x37	3720	3720	13,84	109600	174364
PVS 21x40	4030	2170	8,75	69261	110188
PVS 21x43	4340	2170	9,42	74589	118664
PVS 24x46	4650	2480	11,53	91333	145303

03

VENTUS PRO - PVS in hygienic execution

HYGIENIC AIR HANDLING UNIT

VTS Group hygienic air handling units are special devices designed to be used in hospital and clean room applications that require sensitive and sterile conditions. It can be used in operating theaters, clean rooms, pharmaceutical and chemical industry, food industry and special industrial applications where hygiene conditions are required. Hygienic air handling units are used in the health and food sector to prevent bacterias and viruses from entering the sterile environment, to create clean air that the environment needs, and to provide a positive and negative pressure balance suitable for the purpose of the sterile environment.

EN 1886 **VDI 6022** **VDI 3803** **DIN 1946** **EN 13053**

GENERAL FEATURES

- Devices delivered in Plug & Play standard. With built-in power and control circuit (MCC & DDC).
- All of the components are in a structure that does not allow the formation of a microbiological environment.
- All connections and dampers are leakproof and of a standard to prevent condensation.
- The panels are designed to minimize condensation (T2-TB2).
- Internal surfaces are designed with stainless (304SS & 316SS) antibacterial structure without any indentation or protrusion. It does not accumulate dirt and dust.
- It has a structure that prevents uninterrupted and water accumulation with the correct drainage design.
- It is produced in a way that the hygiene structure will not deteriorate during the transportation and commissioning phase.
- Hear recovery exchanger fins made of aluminium with epoxy coating
- Hygienic coated silencer
- Components are easy to access, clean, disinfect, and replace
- AC or EC fans with free-running, coated, hygienic impeller, completely accessible and easy to clean

TECHNICAL DATA

VENTUS PRO	Unit inner section		Cross section	Nominal air flow rate	Max air flow rate
	G	Y			
	mm	mm	m²	CMH	CMH
PVS 3x6	620	350	0,22	1719	2734
PVS 4.5x6	620	465	0,29	2283	3633
PVS 6x6	620	620	0,38	3044	4843
PVS 6x9	930	620	0,58	4567	7265
PVS 6x12	1240	620	0,77	6089	9687
PVS 9x9	930	930	0,86	6850	10898
PVS 9x12	1240	930	1,15	9133	14530
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PVS 15x21	2170	1550	3,36	26639	42380
PVS 18x18	1860	1860	3,46	27400	43591
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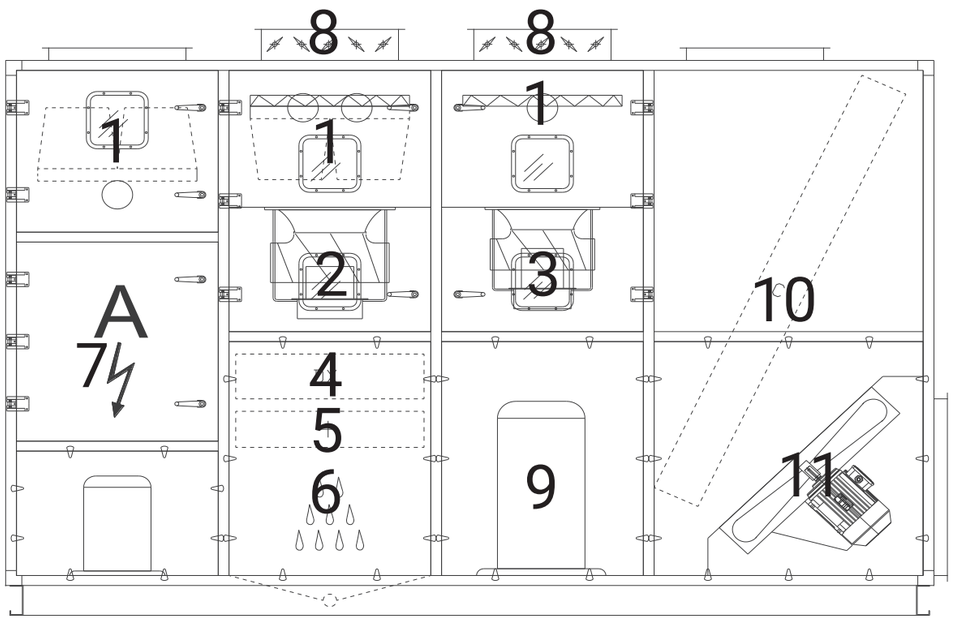
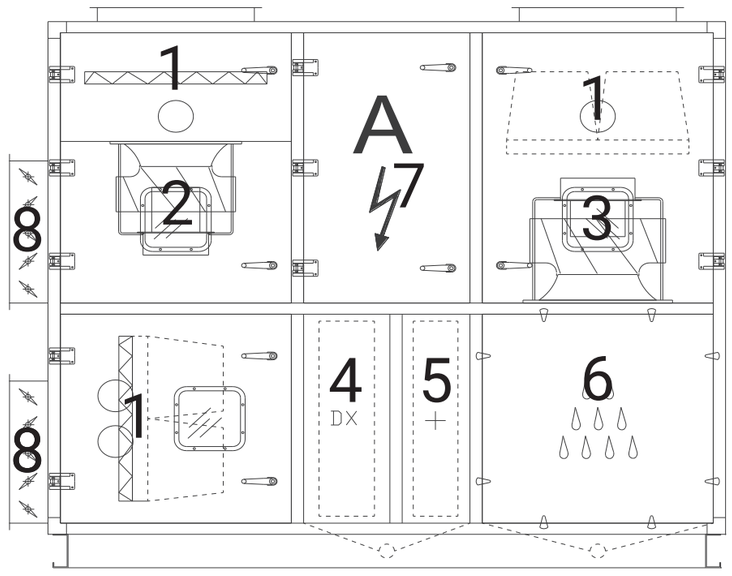
PVS 21x43	4340	2170	9,42	74589	118664
PVS 24x46	4650	2480	11,53	91333	145303

04

VENTUS PRO - PVS HY package hygienic air handling unit





1. Filter
2. Supply Fan
3. Exhaust Fan
4. Direct Expansion
5. Hot Water Coil
6. Steam Humidifier
7. Control Panel
8. Damper
9. Compressor
10. Condenser Coil
11. Condenser Fan

VENTUS PRO - PVS HY package hygienic air handling units are special devices designed to be used in hospital and clean room applications that require sensitive and sterile conditions. It can be used in operating theaters, clean rooms, pharmaceutical and chemical industry, food industry and special industrial applications where hygiene conditions are required. VENTUS PRO - PVS HY package hygienic air handling units are used in the health and food sector to prevent bacteria and viruses from entering the sterile environment, to create clean air that the environment needs, and to provide a positive and negative pressure balance in accordance with the purpose of the sterile environment. Packaged hygienic air handling units designed as modular compact are produced in 2 different types as standard, in the range of 2400 - 10.000 m³/h.

PVS HY		PVS HY 24	PVS HY 36	PVS HY 48	PVS HY 60	PVS HY 72	PVS HY 84	PVS HY 100
Air Flow	m³/h	2 400	3 600	4 800	6 000	7 200	8 400	10 000
Exhaust External Static Pressure	Pa	495	330	580	420	655	740	440
Supply External Static Pressure	Pa	1090	900	990	940	1270	1115	1030
Total Current	A	18	21	32	39	41	52	60
Total Power	kW	10	12	19	23	24	30	35
Power Supply	V / Hz / ~	380 / 50 / 3						
Cooling Capacity	kW	27,8	40,7	56,81	73,7	79,6	94,6	123,1
Hot Water Capacity (90 - 70°C)	kW	32,3	53,0	67,3	83,6	100,7	114,0	139,2
Humidifier Capacity	kg/h	15	30	40	50	60	75	90
Compressor Type	-	SCROLL						
Compressor Quantity	n	2						
Refrigerant	-	R410A						
Filters	-	G4 / F7 / F9						

Designed for summer: 37°C - 38.5% Rh / Winter: 0°C - 80% Rh conditions.

PVS HY C		PVS HY C 24	PVS HY C 36	PVS HY C 48	PVS HY C 60	PVS HY C 72	PVS HY C 84	PVS HY C 100
Air Flow	m³/h	2 400	3 600	4 800	6 000	7 200	8 400	10 000
Exhaust External Static Pressure	Pa	495	330	580	420	655	740	440
Supply External Static Pressure	Pa	1090	900	990	940	1270	1115	1030
Total Current	A	6	6	7	9	12	13	14
Total Power	kW	3	3	5	6	8	9	9
Power Supply	V / Hz / ~	380 / 50 / 3						
Cooling Capacity	kW	27,8	40,7	56,81	73,7	79,6	94,6	123,1
Hot Water Capacity (90 - 70°C)	kW	32,3	53,0	67,3	83,6	100,7	114,0	139,2
Humidifier Capacity	kg/h	15	30	40	50	60	75	90
Refrigerant	-	R410A						
Filters	-	G4 / F7 / F9						

Designed for summer: 37°C - 38.5% Rh / Winter: 0°C - 80% Rh conditions.

SPECIFICATIONS

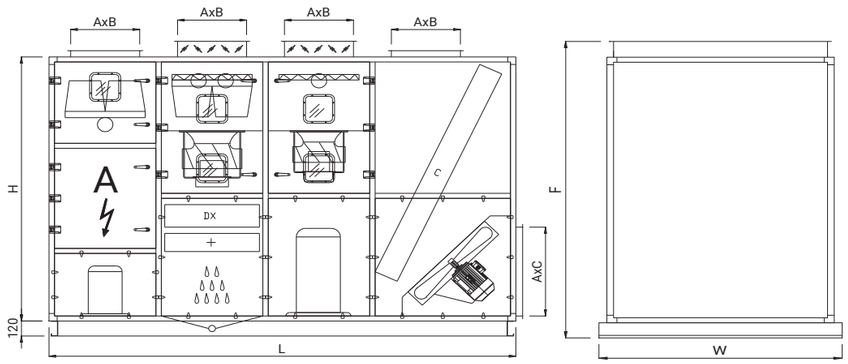
1. 7 different volume and capacity,
2. Low pressure and high efficient coil in copper tube / aluminum fin type,
3. High efficient EC plug fan,
4. Stainless inner surface,
5. 60 mm rock wool for heat and sound insulation,
6. Environmentally friendly R410A gas,
7. High efficient scroll compressor and condenser fans,
8. Plug & Play.

THE CONTROL SYSTEM CAN MANAGE THE FOLLOWING FUNCTIONS

1. Humidity control (humidity, enthalpy),
2. Heating and cooling control,
3. Increasing comfort or dehumidification control with the after heater,
4. To detect the pollution of all filters used separately and to generate alarm information,
5. Constant flow rate and pressure function,
6. Programming of seven days of the week (temperature, flow rate, on-off),
7. Blow temperature limit control (comfort temperature, condensation initial temperature),
8. It can be integrated into the Building Management System with all known communication languages (Modbus, BACnet, Lon-ECHELDN, LAN TCP / IP, SNMP) with an additional hardware.
9. With an additional hardware, the whole system can be connected to a central computer, managed, and accessible from the Internet,
10. It is possible to see and change all parameters with the terminal on it,
11. All similar devices can be communicated as a network,
12. Operation and configuration parameters can be encrypted,
13. Audible and visual alarm information is given,
14. Daily, weekly work-stop time can be adjusted,
15. When the device configuration changes, a new configuration can be easily defined parametrically (adding humidifier, valve-damper control changes, dehumidification, changing the fan control type, etc.),
16. Temperature control can be done parametrically, proportional, proportional + integral or proportional + integral + derivative.
17. All kind of alarms information are kept in memory (differential pressure switches, thermal, sensor, emergency stop, etc.).

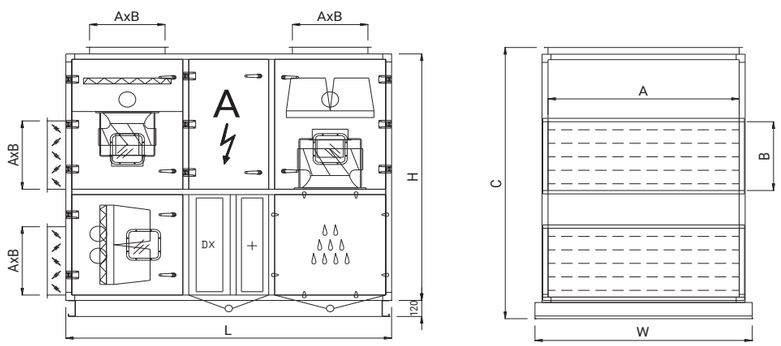
PVS HY C DIMENSIONS

PVS HY		L	W	H	A	B	C	F
24	mm	3000	835	2060	660	410	610	2310
36	mm	3000	1145	2060	970	410	610	2310
48	mm	3350	1455	2110	1280	510	710	2360
60	mm	3450	1455	2110	1280	510	710	2360
72	mm	3450	1765	2310	1590	510	710	2560
84	mm	3450	1765	2310	1590	510	710	2560
100	mm	4200	2075	2360	1900	710	710	2610



PVS HY DIMENSIONS

PVS HY C		L	W	H	A	B	C
24	mm	2000	835	1750	660	410	1920
36	mm	2000	1145	1750	970	410	1920
48	mm	2200	1455	1840	1280	510	2010
60	mm	2200	1455	1840	1280	510	2010
72	mm	2200	1765	1970	1590	510	2140
84	mm	2200	1765	1970	1590	510	2140
100	mm	2640	2075	2370	1900	710	2540



NOTEBOOK

05

Ventus PRO - PVS POOL dehumidification units

VENTUS PRO
- PVS POOL SERIES AIR HANDLING UNITS

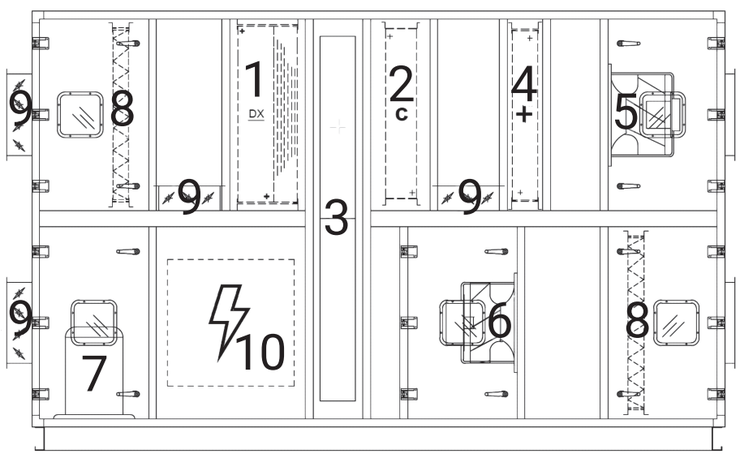
PVS POOL units are designed for indoor swimming pools and places where dehumidification is necessary. According to VDI 2089 standards the relative humidity inside the indoor pool spaces should be between 40% and 64%. This system effectively regulates indoor humidity and temperature while providing substantial reductions in operational expenses through genuine energy conservation. The incorporated blending capabilities guarantee that the system supplies only the precise amount of outdoor air required, thereby minimizing operating expenses.

14001 9001

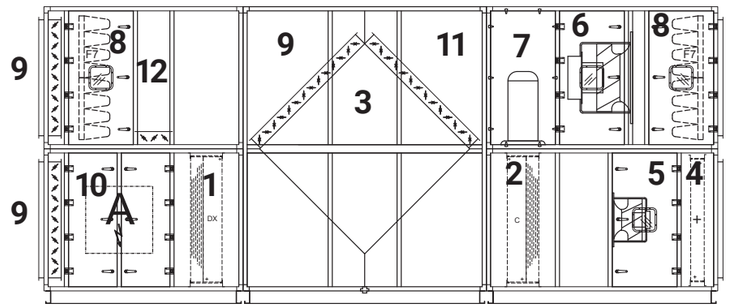
GENERAL FEATURES

- High efficient with diferrent operation scenarios depending on the outdoor and indoor air absolute humidity and temperature.
- Minimum energy consumption and operating cost.
- Fully automatic operation with internal automation system.
- Automatic adjustment of fresh air ratio according to need.
- High efficient heat pipe heat recovery system to minimize energy consumption and operating costs.
- When the absolute humidity is low, the amount of fresh air can be automatically adjusted by proportionally operated dampers and the dehumidification can be done automatically with fresh air without starting the compressors.
- Air flow adjustment and realtime constant air flow function with supply and exhaust plug fans.
- High efficient cooling circuit with scroll type hermetic compressors.
- Low pressure and high efficient coil in copper tube/ aluminum fin type.
- Epoxy coated interior surface and coils.

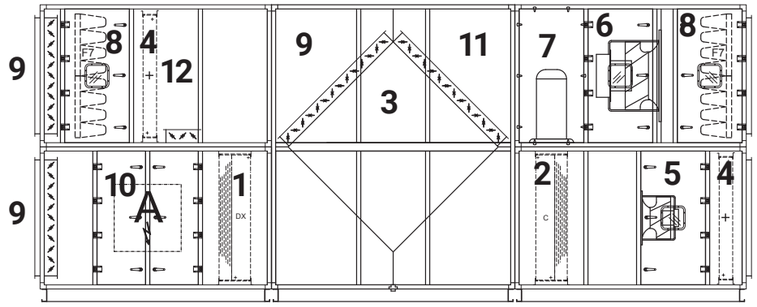
PVS PO unit



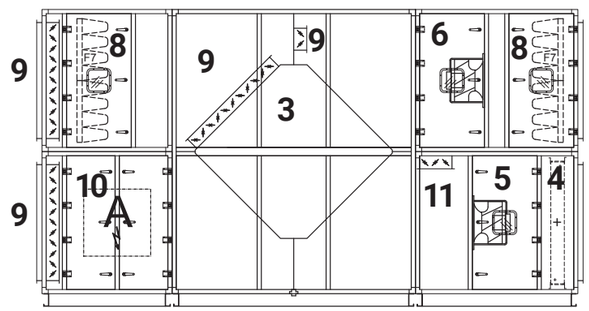
PVS PCR unit without preheater



PVS PCR unit with preheater



PVS HX unit



1. DX coil
2. Condanser
3. Heat recovery
4. Hot water coil
5. Supply Fan
6. Exhaust Fan
7. Compressor
8. Filter
9. Air damper
10. Control panel
11. Bypass damper
12. Mixing damper

PVS PO AC		PVS PO 25	PVS PO 30	PVS PO 36	PVS PO 50	PVS PO 60	PVS PO 70	PVS PO 80	PVS PO 100	PVS PO 120	PVS PO 150	PVS PO 180	PVS PO 200	PVS PO 230	PVS PO 250	PVS PO 300
Pool Surface Area	m²	61	73	88	122	146	171	195	244	293	366	439	488	562	610	732
Dehumidification Capacity	kg/h	18	21	25	35	42	50	57	71	85	106	127	142	163	177	212
Air Flow	m³/h	2500	3000	3600	5000	6000	7000	8000	10000	12000	15000	18000	20000	23000	25000	30000
Cooling Capacity	kW	12,7	14,5	17,5	25,1	30,0	31,0	37,5	49,2	54,2	73,8	89,6	93,9	109,5	137,3	167,3
Hot Water Capacity(90-70 °C)	kW	26	30	36	48	57	63	78	96	113	147	162	185	222	233	279
Compressor Type (R410A)		Scroll														
Compressor Power	kW	3,8	4,4	4,9	7,0	8,2	8,1	9,0	14,0	12,9	20,2	24,8	22,9	27,8	39,6	54,2
Supply Fan External Pressure	Pa	300														
Exhaust Fan External Pressure	Pa	300														
Supply Fan Motor Power	kW	1,1	1,1	1,5	2,2	3	3	3	5,5	5,5	7,5	11	11	11	15	15
Exhaust Fan Motor Power	kW	0,75	1,1	1,1	1,5	1,5	2,2	2,2	3	4	5,5	7,5	5,5	7,5	15	11

Pool Dehumidification Units;
- Designed for 30°C DB and 54% RH.
- Dehumidification capacity is calculated according to VDI 2089 standard.

PVS PO EC		PVS PO 25	PVS PO 30	PVS PO 36	PVS PO 50	PVS PO 60	PVS PO 70	PVS PO 80	PVS PO 100	PVS PO 120	PVS PO 150	PVS PO 180	PVS PO 200	PVS PO 230	PVS PO 250	PVS PO 300
Pool Surface Area	m²	61	73	88	122	146	171	195	244	293	366	439	488	562	610	732
Dehumidification Capacity	kg/h	18	21	25	35	42	50	57	71	85	106	127	142	163	177	212
Air Flow	m³/h	2500	3000	3600	5000	6000	7000	8000	10000	12000	15000	18000	20000	23000	25000	30000
Cooling Capacity	kW	12,8	14,5	17,5	25,1	30,0	31,0	37,5	49,2	54,2	73,8	89,6	93,9	109,5	137,3	167,3
Hot Water Capacity(90-70 °C)	kW	26	30	36	48	57	63	78	96	113	147	162	185	222	233	279
Compressor Type (R410A)		Scroll														
Compressor Power	kW	3,8	4,4	4,9	7,0	8,2	8,1	9,0	14,0	12,9	20,2	24,8	22,9	27,8	39,6	54,2
Supply Fan External Pressure	Pa	300														
Exhaust Fan External Pressure	Pa	300														
Supply Fan Motor Power	kW	1,05	1,20	1,20	2,95	2,50	2,50	2,90	3,40	3,30	5,00	6,90	6,90	6,60	11,40	10,00
Exhaust Fan Motor Power	kW	0,75	1,20	1,20	1,80	2,95	2,50	2,50	2,90	3,45	5,00	5,80	5,80	6,90	6,60	10,00

Pool Dehumidification Units;
- Designed for 30°C DB and 54% RH.
- Dehumidification capacity is calculated according to VDI 2089 standard.

PVS PCR AC		PVS PCR 25	PVS PCR 30	PVS PCR 36	PVS PCR 50	PVS PCR 60	PVS PCR 70	PVS PCR 80	PVS PCR 100	PVS PCR 120	PVS PCR 150	PVS PCR 180	PVS PCR 200	PVS PCR 230	PVS PCR 250	PVS PCR 300
Pool Surface Area	m²	61	73	88	122	146	171	195	244	293	366	439	488	562	610	732
Dehumidification Capacity	kg/h	28	37	43	44	62	75	94	100	112	146	175	190	284	287	312
Air Flow	m³/h	2500	3000	3600	5000	6000	7000	8000	10000	12000	15000	18000	20000	23000	25000	30000
Cooling Capacity	kW	7,7	9,8	9,8	12,3	12,9	19,1	18,8	26,6	32,1	39,9	45,3	58,7	63,8	64,4	80,5
Hot Water Capacity (90-70C)	kW	26	30	36	48	57	63	78	96	113	147	162	185	222	233	279
Pre Hot Water Capacity (90-70C)	kW	48	56	70	92	107	116	146	180	213	279	309	348	419	439	525
Compressor Type (R410A)		Scroll														
Compressor Power (Winter)	kW	3	3,1	3	4,3	3,3	3,2	5,6	10,4	11,4	13	13,2	16,2	21,3	21,3	24,9
Supply Fan External Pressure	Pa	300														
Exhaust Fan External Pressure	Pa	300														
Supply Fan Motor Power	kW	0,75	1,1	1,5	2,2	2,2	3	3	4	5,5	5,5	7,5	7,5	11	11	15
Exhaust Fan Motor Power	kW	0,75	1,1	1,5	2,2	2,2	3	3	4	5,5	5,5	7,5	7,5	11	11	15

Pool Dehumidification Units;
- Designed for 30°C DB and 54% RH comfort.
- Dehumidification capacity is calculated according to VDI 2089 standard.

PVS PCR EC		PVS PCR 25	PVS PCR 30	PVS PCR 36	PVS PCR 50	PVS PCR 60	PVS PCR 70	PVS PCR 80	PVS PCR 100	PVS PCR 120	PVS PCR 150	PVS PCR 180	PVS PCR 200	PVS PCR 230	PVS PCR 250	PVS PCR 300
Pool Surface Area	m²	61	73	88	122	146	171	195	244	293	366	439	488	562	610	732
Dehumidification Capacity	kg/h	28	37	43	44	62	75	94	100	112	146	175	190	284	287	312
Air Flow	m³/h	2500	3000	3600	5000	6000	7000	8000	10000	12000	15000	18000	20000	23000	25000	30000
Cooling Capacity	kW	7,7	9,8	9,8	12,3	12,9	19,1	18,8	26,6	32,1	39,9	45,3	58,7	63,8	64,4	80,5
Hot Water Capacity (90-70C)	kW	26	30	36	48	57	63	78	96	113	147	162	185	222	233	279
Pre Hot Water Capacity (90-70C)	kW	48	56	70	92	107	116	146	180	213	279	309	348	419	439	525
Compressor Type (R410A)		Scroll														
Compressor Power (Winter)	kW	3	3,1	3	4,3	3,3	3,2	5,6	10,4	11,4	13	13,2	16,2	21,3	21,3	24,9
Supply Fan External Pressure	Pa	300														
Exhaust Fan External Pressure	Pa	300														
Supply Fan Motor Power	kW	1,05	1,2	1,2	2,95	2,5	2,5	2,9	3,4	5	5,8	6,9	6,9	10	10	17,1
Exhaust Fan Motor Power	kW	1,05	1,2	1,2	2,95	2,5	2,5	2,9	3,4	5	5,8	6,9	6,9	10	10	17,1

Pool Dehumidification Units;
- Designed for 30°C DB and 54% RH comfort.
- Dehumidification capacity is calculated according to VDI 2089 standard.

PVS HX AC		PVS HX 25	PVS HX 30	PVS HX 36	PVS HX 50	PVS HX 60	PVS HX 70	PVS HX 80	PVS HX 100	PVS HX 120	PVS HX 150	PVS HX 180	PVS HX 200	PVS HX 230	PVS HX 250	PVS HX 300
Pool Surface Area	m²	61	73	88	122	146	171	195	244	293	366	439	488	562	610	732
Dehumidification Capacity	kg/h	28	37	43	44	62	75	94	100	112	146	175	190	284	287	312
Air Flow	m³/h	2500	3000	3600	5000	6000	7000	8000	10000	12000	15000	18000	20000	23000	25000	30000
Heat Recovery Capacity	kW	13,3	16	19,3	24,4	32,1	37,4	39,7	52,2	62,7	77,3	91,1	101,7	115,8	128,1	153,3
Supply Fan External Pressure	Pa								300							
Exhaust Fan External Pressure	Pa								300							
Supply Fan Motor Power	kW	0,75	1,1	1,5	2,2	3	2,2	3	3	4	5,5	5,5	5,5	8	8	11
Exhaust Fan Motor Power	kW	0,75	1,1	1,5	2,2	3	2,2	3	3	4	5,5	5,5	5,5	8	8	11

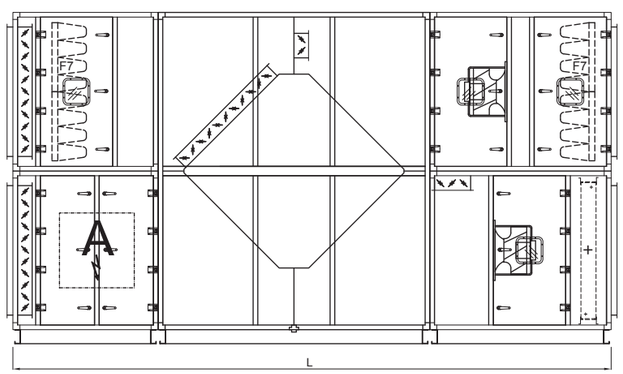
Pool Dehumidification Units;
- Designed for 30°C DB and 54% RH comfort.
- Dehumidification capacity is calculated according to VDI 2089 standard.

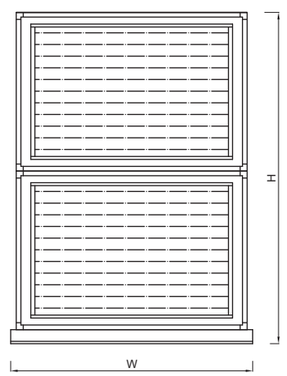
PVS HX EC		PVS HX 25	PVS HX 30	PVS HX 36	PVS HX 50	PVS HX 60	PVS HX 70	PVS HX 80	PVS HX 100	PVS HX 120	PVS HX 150	PVS HX 180	PVS HX 200	PVS HX 230	PVS HX 250	PVS HX 300
Pool Surface Area	m²	61	73	88	122	146	171	195	244	293	366	439	488	562	610	732
Dehumidification Capacity	kg/h	28	37	43	44	62	75	94	100	112	146	175	190	284	287	312
Air Flow	m³/h	2500	3000	3600	5000	6000	7000	8000	10000	12000	15000	18000	20000	23000	25000	30000
Heat Recovery Capacity	kW	13,3	16	19,3	24,4	32,1	37,4	39,7	52,2	62,7	77,3	91,1	101,7	115,8	128,1	153,3
Supply Fan External Pressure	Pa								300							
Exhaust Fan External Pressure	Pa								300							
Supply Fan Motor Power	kW	1,05	1,2	1,2	2,95	2,5	2,5	2,9	3,4	3,3	5	6,9	6,9	6,6	11,4	10
Exhaust Fan Motor Power	kW	1,05	1,2	1,2	2,95	2,5	2,5	2,9	3,4	3,3	5	6,9	6,9	6,6	11,4	10

Pool Dehumidification Units;
- Designed for 30°C DB and 54% RH comfort.
- Dehumidification capacity is calculated according to VDI 2089 standard.

VENTUS PRO - PVS HX DEVICE DIMENSIONS

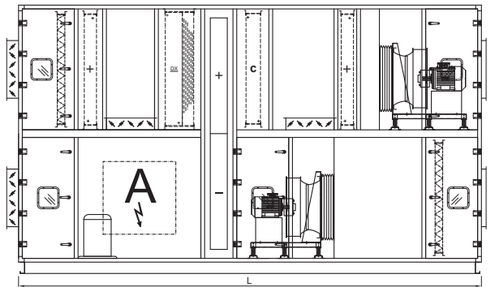
PVS HX AC/EC		L (EC/AC)	W	H
PVS HX 25	mm	3810	1145	1600
PVS HX 30	mm	4160	1145	1600
PVS HX 36	mm	4160	1145	2220
PVS HX 50	mm	4470	1145	2220
PVS HX 60	mm	4470/4625	1455	2220
PVS HX 70	mm	4470/4625	1455	2220
PVS HX 80	mm	4470/4625	1765	2220
PVS HX 100	mm	4470/4625	1765	2220
PVS HX 120	mm	4780/4935	2075	2220
PVS HX 150	mm	5130/5440	2075	2840
PVS HX 180	mm	5285/5595	2075	2840
PVS HX 200	mm	5285/5595	2385	2840
PVS HX 230	mm	5170/5675	2385	3460
PVS HX 250	mm	5170/5675	2385	3460
PVS HX 300	mm	5170/5830	2695	3460

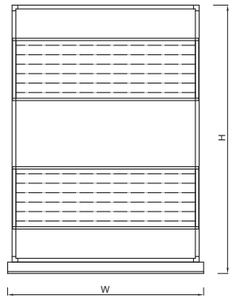




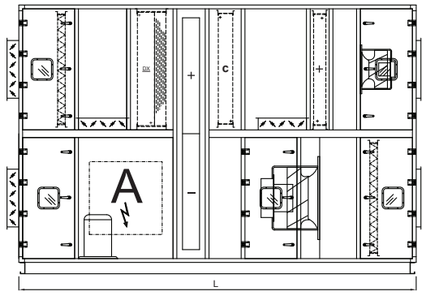
DIMENSIONS

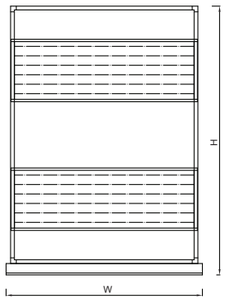
PVS PO dehumidification unit with preheater



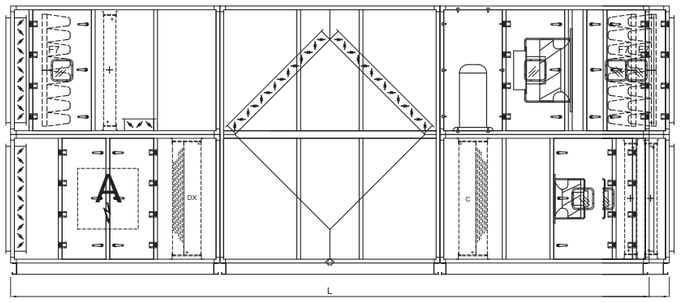


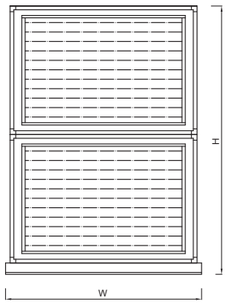
PVS PO dehumidification unit without preheater



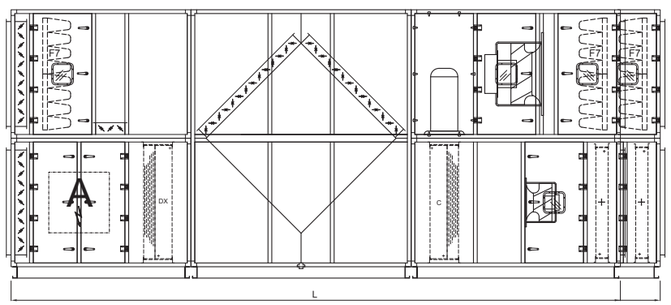


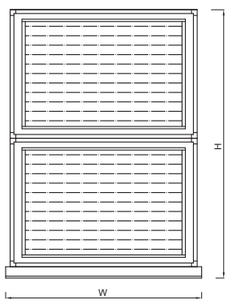
PVS PCR dehumidification unit with preheater





PVS PCR dehumidification unit without preheater





PVS PO PH AC/EC		W	L (EC)	L (AC)	H
PVS PO 25	mm	1145	4080	4080	1600
PVS PO 30	mm	1145	4080	4080	1600
PVS PO 36	mm	1145	4275	4275	2220
PVS PO 50	mm	1145	4275	4275	2220
PVS PO 60	mm	1455	4275	4275	2220
PVS PO 70	mm	1455	4275	4275	2220
PVS PO 80	mm	1765	4275	4275	2220
PVS PO 100	mm	1765	4430	4430	2220
PVS PO 120	mm	2075	4430	4430	2220
PVS PO 150	mm	2075	5170	5325	2840
PVS PO 180	mm	2075	5015	5325	2840
PVS PO 200	mm	2385	5015	5325	2840
PVS PO 230	mm	2385	5170	5480	3460
PVS PO 250	mm	2385	5170	5480	3460
PVS PO 300	mm	2695	5170	5480	3460

PVS PO AC/EC		W	L (EC)	L (AC)	H
PVS PO 25	mm	1145	3730	3730	1600
PVS PO 30	mm	1145	3730	3730	1600
PVS PO 36	mm	1145	3925	3925	2220
PVS PO 50	mm	1145	3925	3925	2220
PVS PO 60	mm	1455	3925	3925	2220
PVS PO 70	mm	1455	3925	3925	2220
PVS PO 80	mm	1765	3925	3925	2220
PVS PO 100	mm	1765	4080	4080	2220
PVS PO 120	mm	2075	4080	4080	2220
PVS PO 150	mm	2075	4820	4975	2840
PVS PO 180	mm	2075	4665	4975	2840
PVS PO 200	mm	2385	4665	4975	2840
PVS PO 230	mm	2385	4820	5130	3460
PVS PO 250	mm	2385	4820	5130	3460
PVS PO 300	mm	2695	4820	5130	3460

PVS PCR PH AC/EC		W	L (EC)	L (AC)	H
PVS PCR 25	mm	1145	5130	5130	1600
PVS PCR 30	mm	1145	5285	5285	1600
PVS PCR 36	mm	1145	5285	5285	2220
PVS PCR 50	mm	1145	5790	5790	2220
PVS PCR 60	mm	1455	5790	5945	2220
PVS PCR 70	mm	1455	5790	5945	2220
PVS PCR 80	mm	1765	5790	5945	2220
PVS PCR 100	mm	1765	5790	5945	2220
PVS PCR 120	mm	2075	6100	6255	2220
PVS PCR 150	mm	2075	6100	6410	2840
PVS PCR 180	mm	2075	6450	6760	2840
PVS PCR 200	mm	2385	6450	6760	2840
PVS PCR 230	mm	2385	6450	6955	3460
PVS PCR 250	mm	2385	6450	6955	3460
PVS PCR 300	mm	2695	6450	7150	3460

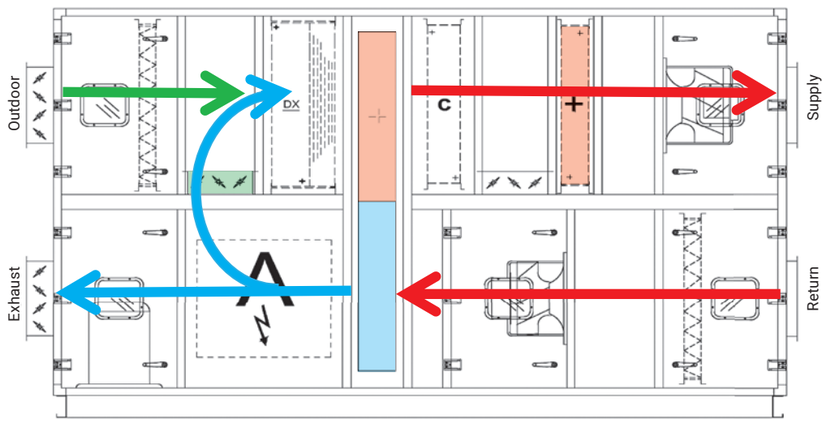
PVS PCR AC/EC		W	L (EC)	L (AC)	H
PVS PCR 25	mm	1145	4820	4820	1600
PVS PCR 30	mm	1145	4975	4975	1600
PVS PCR 36	mm	1145	4975	4975	2220
PVS PCR 50	mm	1145	5480	5480	2220
PVS PCR 60	mm	1455	5480	5635	2220
PVS PCR 70	mm	1455	5480	5635	2220
PVS PCR 80	mm	1765	5480	5635	2220
PVS PCR 100	mm	1765	5480	5635	2220
PVS PCR 120	mm	2075	5790	5945	2220
PVS PCR 150	mm	2075	6140	6100	2840
PVS PCR 180	mm	2075	6140	6450	2840
PVS PCR 200	mm	2385	6140	6450	2840
PVS PCR 230	mm	2385	6140	6645	3460
PVS PCR 250	mm	2385	6140	6645	3460
PVS PCR 300	mm	2695	6140	6840	3460

WORKING MODES

PVS POOL dehumidification units

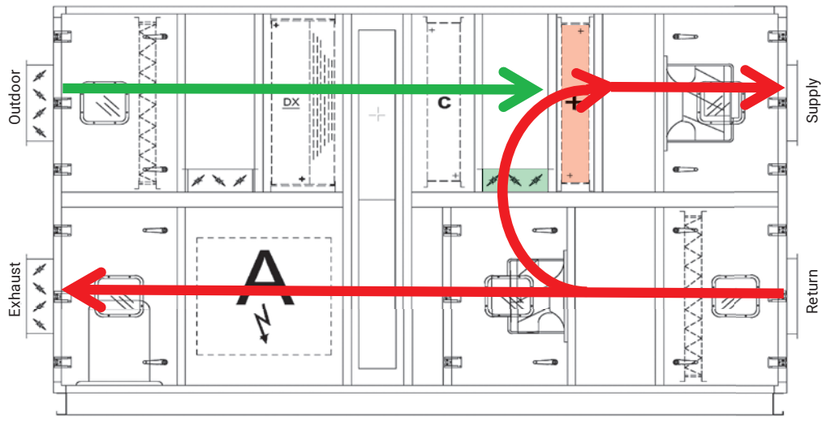
1- VERY LOW OUTDOOR AIR TEMPERATURE AND LOW OUTDOOR ABSOLUTE HUMIDITY

- Absolute humidity of the outside air less than 13.3 g/kg
- Outside air dry bulb temperature less than 10˚C
- 1st operation mode is active
- Bypass damper is active
- Compressor is disabled
- Dehumidification is done by mixture with fresh air
- Heating operation is carried out with a heat pipe and, if necessary, a hot water heater



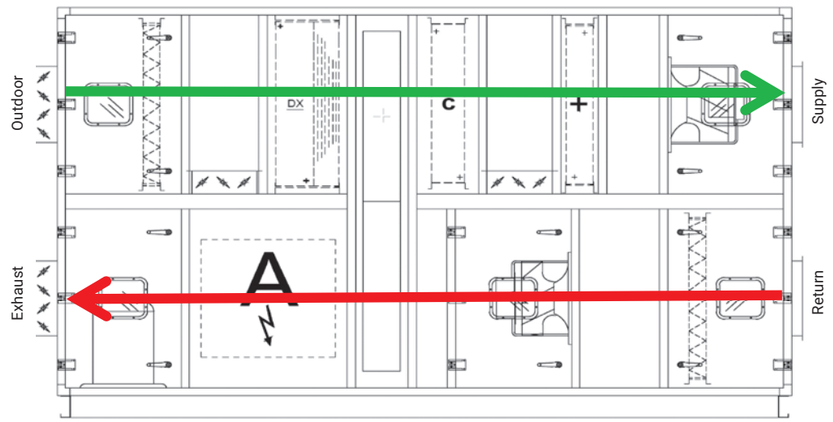
2- LOW OUTDOOR AIR TEMPERATURE AND LOW OUTDOOR ABSOLUTE HUMIDITY

- Absolute humidity of the outside air is lower than 13.3 g/kg
- Outside air dry bulb temperature less than 30˚C
- 2nd operation mode is active
- Bypass damper disabled, Mixture damper engaged, Fresh air and exhaust damper minimum on
- Compressor is disabled
- Dehumidification is done by mixture with fresh air
- Heating operation is carried out with a hot water heater



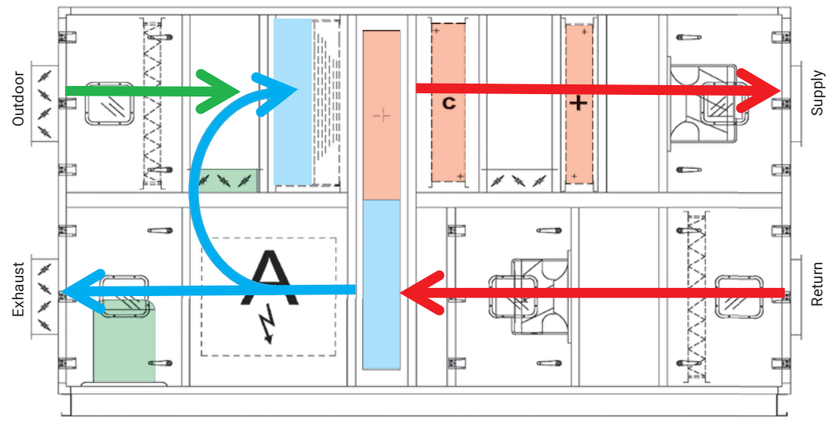
3- HIGH OUTDOOR AIR TEMPERATURE AND LOW OUTDOOR ABSOLUTE HUMIDITY

- Absolute humidity of the outside air is lower than 13.3 g/kg
- Outside air dry bulb temperature higher than 30˚C
- 3rd operation mode is active
- Bypass and mixing dampers are disabled
- Compressor is disabled
- Dehumidification is done by fresh air



4- LOW OUTDOOR AIR TEMPERATURE LOW AND HIGH OUTDOOR ABSOLUTE HUMIDITY

- Absolute humidity of the outside air greater than 13.3 g/kg
- Outside air dry bulb temperature less than 30˚C
- 4th operation mode is active
- Bypass damper disabled, Mixture damper engaged, Fresh air and exhaust damper minimum on
- Compressor is on
- Dehumidification is done by cooling and condensing the fresh air mixture
- Operation is carried out with a heat pipe and, if necessary, a hot water heater

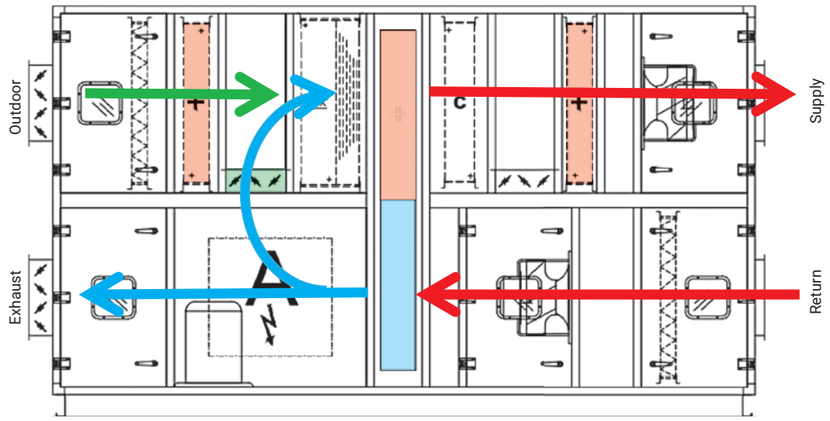


WORKING MODES

PVS POOL dehumidification units with preheater

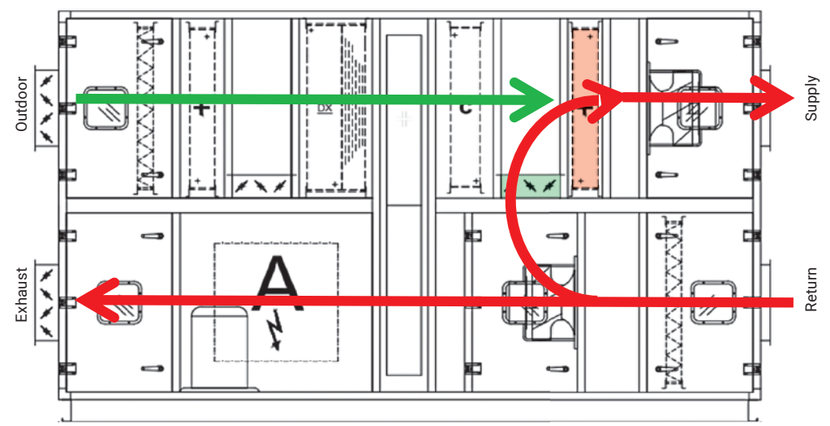
1- VERY LOW OUTDOOR AIR TEMPERATURE AND LOW OUTDOOR ABSOLUTE HUMIDITYY

- Absolute humidity of the outside air less than 13.3 g/kg
- Outside air dry bulb temperature less than 10˚C
- 1st operation mode is active
- Bypass damper is active
- Compressor is disabled
- Dehumidification is done by mixture with fresh air
- Heating operation is carried out with a heat pipe and, if necessary, a hot water heater



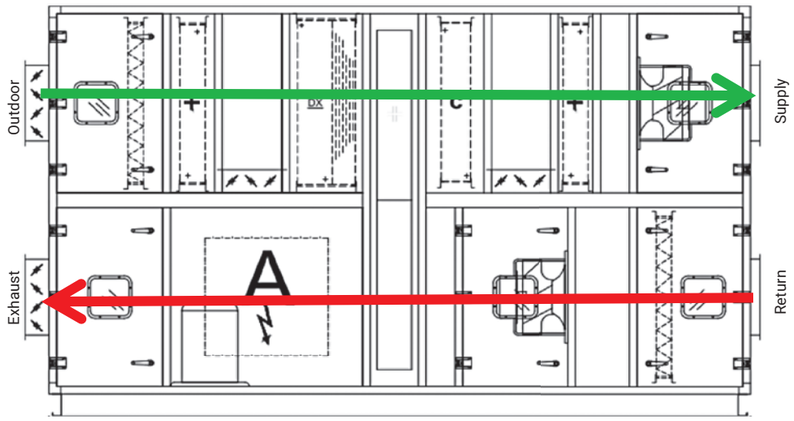
2- LOW OUTDOOR AIR TEMPERATURE AND LOW OUTDOOR ABSOLUTE HUMIDITY

- Absolute humidity of the outside air is lower than 13.3 g/kg
- Outside air dry bulb temperature less than 30˚C
- 2nd operation mode is active
- Bypass damper disabled, Mixture damper engaged, Fresh air and exhaust damper minimum on
- Compressor is disabled
- Dehumidification is done by mixture with fresh air
- Heating operation is carried out with a hot water heater



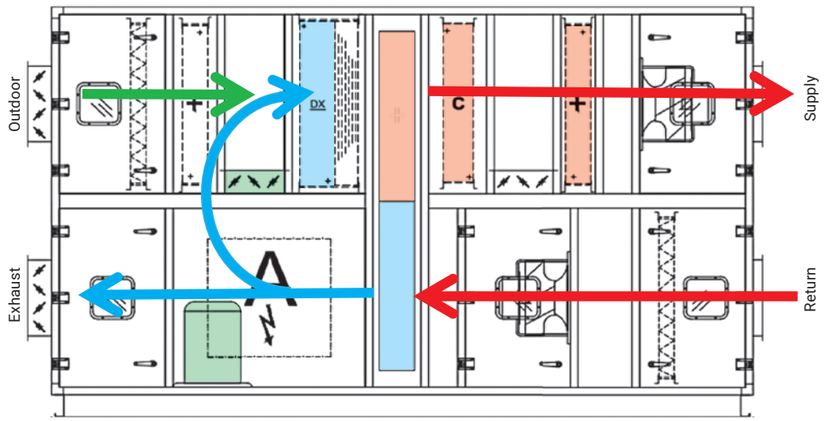
3- HIGH OUTDOOR AIR TEMPERATURE AND LOW OUTDOOR ABSOLUTE HUMIDITY

- Absolute humidity of the outside air is lower than 13.3 g/kg
- Outside air dry bulb temperature higher than 30˚C
- 3rd operation mode is active
- Bypass and mixing dampers are disabled
- Compressor is disabled
- Dehumidification is done by fresh air

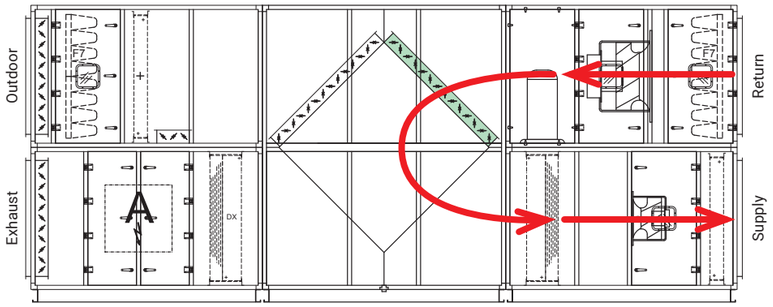


4- LOW OUTDOOR AIR TEMPERATURE LOW AND HIGH OUTDOOR ABSOLUTE HUMIDITY

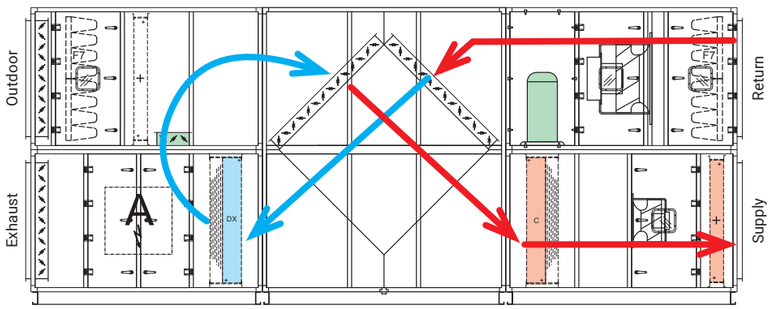
- Absolute humidity of the outside air greater than 13.3 g/kg
- Outside air dry bulb temperature less than 30˚C
- 4th operation mode is active
- Bypass damper disabled, Mixture damper engaged, Fresh air and exhaust damper minimum on
- Compressor is on
- Dehumidification is done by cooling and condensing the fresh air mixture
- Operation is carried out with a heat pipe and, if necessary, a hot water heater



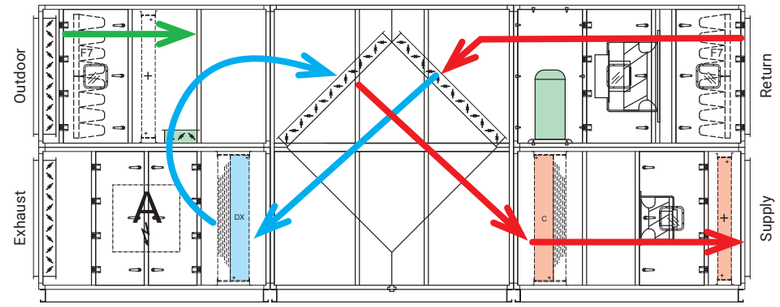
PVS PCR dehumidification units



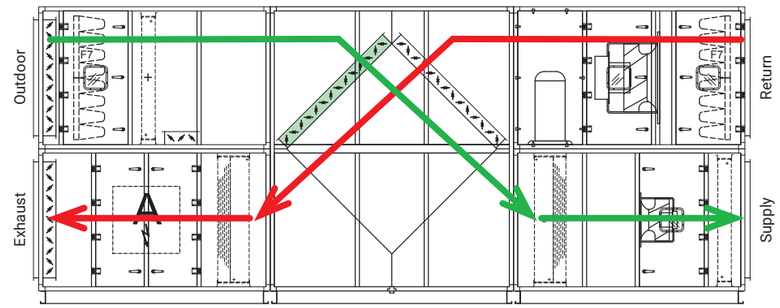
The unit operates as a heating system with the option to switch to a ventilation and dehumidification cycle when humidity increases. The fans run at reduced power, minimizing operating costs. The air extracted from the pool hall is entirely redirected and sent through a bypass of the cross heat exchanger (with the bypass closed and the recirculation damper open) to the peak water heater to be heated to the appropriate temperature before being directed back into the pool hall.



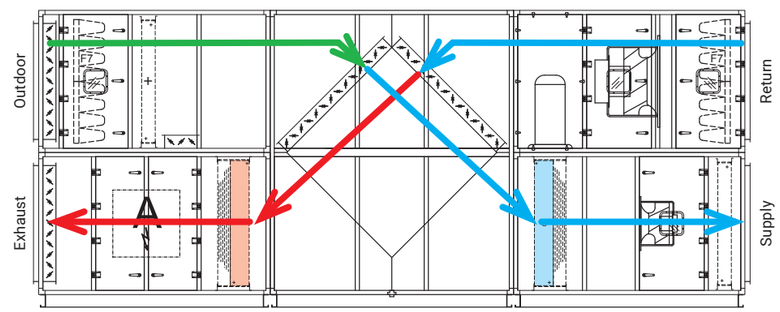
In this operating cycle, the air extracted from the pool hall is entirely flows through the cross heat exchanger and directly reaches the evaporator of the heat pump. When the humid air comes into contact with the cold surface of the evaporator, it cools down, leading to moisture condensation. The cooled and dehumidified air is then completely redirected through the open recirculation dampers and sent back to the cross heat exchanger, where it is reheated. This reheated air is directed to the heat pump's condenser, where it is further heated to a temperature not lower than the one prevailing in the pool hall. There is also an option to transfer excess heat to heat the pool water using the water condenser. If additional heat losses occur due to heat transfer through the pool hall partitions, the air can be additionally reheated by the peak water heater.



The air extracted from the pool hall is entirely sent through the cross heat exchanger. Part of the air behind the heat pump's evaporator is expelled outside through partially opened exhaust air dampers. The remaining dehumidified air is redirected to the mixing chamber and, after supplying the appropriate amount of fresh air, directed to the cross heat exchanger. The minimum amount of fresh air is determined by hygiene considerations. There is also an option to transfer excess heat to heat the pool or domestic water using the water condenser.

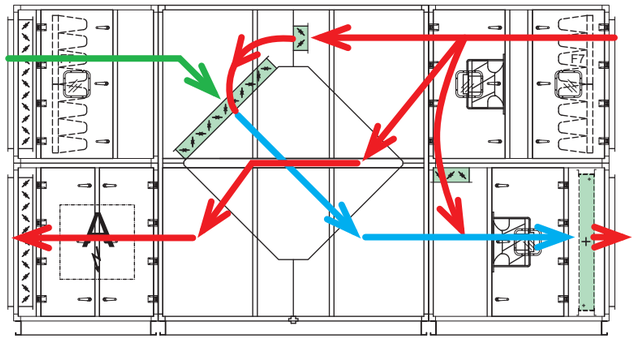


In cases where the outdoor air conditions are similar to those inside the pool hall, the ventilation of the pool hall is carried out using outdoor air without any pre-treatment. The fresh air flows entirely through the bypass of the cross heat exchanger. The unit operates as a standard ventilation system in this scenario.

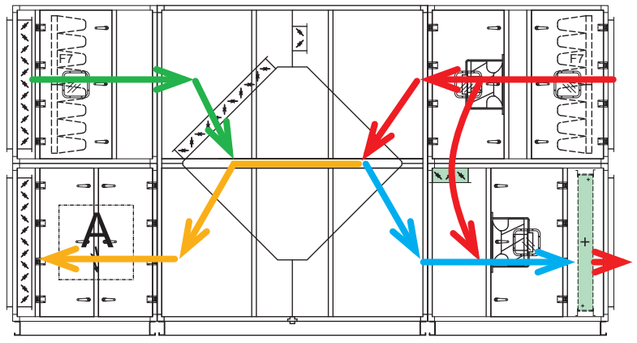


Dehumidification occurs by supplying 100% fresh air to the pool hall. Additionally, when there are significant heat gains in the swimming pool area, the automatic control system automatically switches the heat pump to the cooling mode. The fresh air enters the evaporator, where it is cooled to the required supply air temperature.

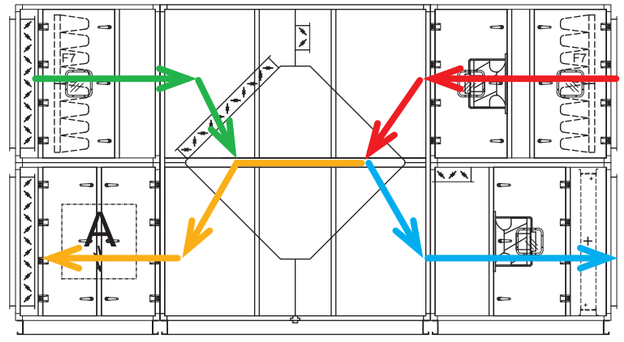
PVS HX dehumidification units



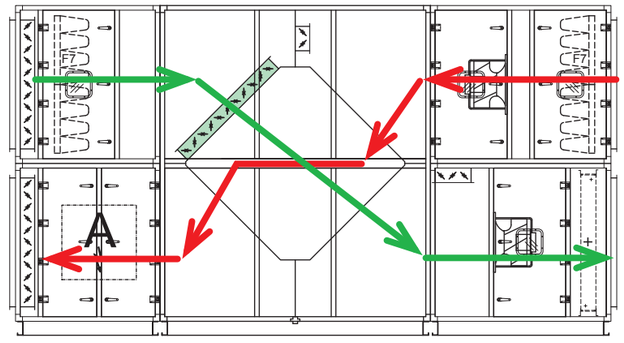
The unit operates as a heating system with the capability to transition into a ventilating and dehumidifying cycle when humidity increases. The fans operate with reduced power, thereby minimizing operational costs. Air extracted from the pool hall passes through a recirculation damper and an anti-freezing damper, reducing internal flow resistance. Subsequently, the air passes through the water heater to be heated to the appropriate temperature and then directed back to the pool hall.



The unit operates with the minimum amount of outside air required for hygiene reasons in the pool hall, in a ventilating and dehumidifying cycle. To maintain a low pressure drop, only a portion of the humid pool air passes through the counterflow heat exchanger. The remaining air is directly recirculated through the recirculation damper and heated by the heater. If the dehumidification capacity is insufficient, the quantity of dry outside air supplied after the recovery process automatically increases.



The unit operates in a ventilating and dehumidifying cycle. When the humidity of the outside air increases, the recirculation damper smoothly closes. If the outside air becomes highly humid, the ventilation and dehumidification of the pool hall occur with 100% outside air passing through a counterflow heat exchanger. If there is a higher demand for heat, the heating takes place using the heater.



In case that the outdoor air parameters are similar to those in the pool hall, ventilation perform by using outdoor air, without any preliminary treatment. The fresh air flows entirely through the bypass of the counterflow heat exchanger. The unit operates like a regular ventilation system.

CONTROL PANEL

- Automatic switching between fresh air and dehumidification functions
- On/off function with external signal
- Constant pressure or constant flow control
- Switching between automatic or manual modes
- Night mode operation function
- Supply air temperature upper-lower limit function
- Filter contamination information function
- Calendar function
- Communication: ModBus or BacNet
- Audible and visual alarm function

VENTUS PRO - PVS PO – POOL DEHUMIDIFICATION UNIT

NOTEBOOK

06

FVS
Fancoil Units

FVS SERIES FANCOIL UNITS

FVS FCU is designed as a ceiling concealed hydronic water duct fan coil unit. It has modern appearance, compact structure, low noise and large cooling (and optionally heating) capacity. A fan coil unit (FCU) contains a fan which draws the air in a space into the unit then blows it over a cold or hot coil. The air comes out of the FCU either chilled or warmer than before. Air filters at the FCU inlet catch contamination form drawn air. The FCU is not designed to handle fresh air. They are used in buildings where multiple small spaces require individual control. Usually they are applicable in hospitals, business centers, hotels, residences, shopping centres. Concealed ceiling type fan coils are produced in 2 types as standard and high pressure.

FVS - C series is designed for standard ESP fancoil

» FVS - C is produced in 13 models with 2 pipes (cooler and heater) and 4 pipes (cooler and heater)

FVS - HP series is designed for high pressure fancoil

» FVS - HP is produced in 5 models with 2 pipes (cooler and heater) and 4 pipes (cooler and heater)

FVS - EC series EC Fancoils

» FVS - EC is produced in 7 models with 2 pipes (cooler and heater) and 4 pipes (cooler and heater)

FVS - DC series Disctict Cooling Fancoils

» FVS - DC is produced in 5 models with 2 pipes (cooler and heater) and 4 pipes (cooler and heater)

MODERN AND ENERGY SAVING DESING

» Low energy consumption
» High comfort of use
» Low noise level
» Compact and original design
» Easy assembly
» Electronic control option

TECHNICAL SPECIFICATIONS

CASE

A galvanized steel sheet is used in fan coil units of the FVS FCU series. The case structure is designed in such a way as to be very durable and resistant to deformation, and prevent the occurrence of vibrations.

The condensation tray is used in all 2-pipe and 4-pipe models. PE insulation is used in the condensation tray and on the outer surface of the main housing after the cooler to prevent condensation. The applied insulation also reduces the level of sound generated by the fan, what ensures quiet operation of the whole device.

FANS

FVS-C, FVS-HP series - apply radial fans with static and dynamic balance, maximum efficiency and optimum sound level with 3-speed directly coupled motors are used.

FVS-EC, FVS-DC series - apply apply radial fans with static and dynamic balance, maximum efficiency and optimum sound level and directly coupled motors are used. Fans are driven by high efficiency EC motors..

COIL

Copper pipe - aluminum fins and brass collector battery with low pressure losses are used as standard. In addition, the battery is positioned at an angle of 45° to the blowing direction in order to obtain maximum efficiency from the device.

FILTER

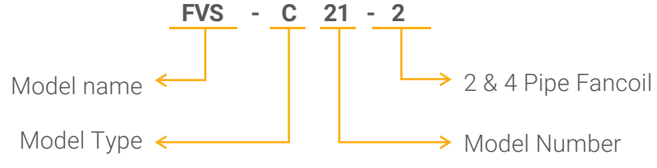
Through to specially designed slides, anti-bacterial filters are used, which can be removed and installed and can also be washed.

ACCESSORIES

Heating coil for 4-pipe fancoil. Wall mounted analog thermostat. Wall mounted digital thermostat.

FVS-C, FVS-HP

FVS-EC, FVS-DC



TECHNICIAL SPECIFICATIONS

FANCOIL UNITS FVS-C, FVS-HP, 2 pipes

Model	7-12°C Capacity [kW]	90-70°C Capacity [kW]	Air Flow [m³/h]	Water Inlet/Outlet [Inc]	Drain [Inc]	Absolute Motor Power [W]	Max. Current [A]	Weight [kg]	Quantities of per container -
FVS-C21-2	2,26	6,39	500	3/4"-3/4"	3/4"	53	0,26	14,1	336
FVS-C23-2	2,6	7,86	510	3/4"-3/4"	3/4"	59	0,27	14,1	336
FVS-C26-2	2,78	8,44	560	3/4"-3/4"	3/4"	57	0,26	14,7	336
FVS-C29-2	3	9,03	550	3/4"-3/4"	3/4"	68	0,35	15,1	336
FVS-C37-2	3,98	11,26	930	3/4"-3/4"	3/4"	66	0,3	20,7	240
FVS-C42-2	4,23	12,01	1020	3/4"-3/4"	3/4"	70	0,32	20,7	240
FVS-C49-2	4,73	13,44	1100	3/4"-3/4"	3/4"	90	0,41	21,1	240
FVS-C51-2	4,85	13,83	1140	3/4"-3/4"	3/4"	97	0,42	21,1	240
FVS-C58-2	6,27	18,34	1130	3/4"-3/4"	3/4"	99	0,45	21,9	240
FVS-C65-2	7,59	22,23	1560	3/4"-3/4"	3/4"	129	0,71	32,8	168
FVS-C76-2	8,32	24,53	1800	3/4"-3/4"	3/4"	156	0,71	33,8	168
FVS-C89-2	10,01	29,89	2000	3/4"-3/4"	3/4"	141	0,64	39,4	120
FVS-C102-2	10,79	32,38	2240	3/4"-3/4"	3/4"	184	0,84	40,2	120
FVS-HP42	7,12	22,29	1457	1"-1"	3/4"	251	1,67	28	188
FVS-HP52	10,31	35,71	2591	1"-1"	3/4"	589	3,34	40	144
FVS-HP62	12,98	42,02	2849	1"-1"	3/4"	632	3,34	44	120
FVS-HP72	14,72	45,36	2876	1"-1"	3/4"	643	3,34	48	100
FVS-HP82	20,73	63,04	4216	1"-1"	3/4"	785	5,01	52	88

All values in the capacity table are calculated according to the High Fan speed.

FANCOIL UNITS FVS-C, FVS-HP, 4 pipes

Model	7-12°C Capacity [kW]	90-70°C Capacity [kW]	Air Flow [m³/h]	Cooling Water Inlet/ Outlet [Inc]	Heating Water Inlet/ Outlet [Inc]	Drain [W]	Absolute Motor Power [A]	Max. Current [kg]	Weight -	Quantities of per container -
FVS-C21-4	2,49	3,11	480	3/4"-3/4"	1/2"-1/2"	3/4"	57	0,26	15,9	336
FVS-C23-4	2,51	3,13	485	3/4"-3/4"	1/2"-1/2"	3/4"	59	0,27	15,9	336
FVS-C26-4	2,69	3,34	535	3/4"-3/4"	1/2"-1/2"	3/4"	57	0,26	16,5	336
FVS-C29-4	2,91	3,75	525	3/4"-3/4"	1/2"-1/2"	3/4"	68	0,31	17	336
FVS-C37-4	4,36	5,31	890	3/4"-3/4"	1/2"-1/2"	3/4"	66	0,35	23,3	240
FVS-C42-4	4,64	5,6	975	3/4"-3/4"	1/2"-1/2"	3/4"	70	0,35	23,3	240
FVS-C49-4	5,19	6,38	1050	3/4"-3/4"	1/2"-1/2"	3/4"	86	0,5	23,8	240
FVS-C51-4	5,32	6,56	1090	3/4"-3/4"	1/2"-1/2"	3/4"	90	0,5	23,8	240
FVS-C58-4	6,08	7,76	1080	3/4"-3/4"	1/2"-1/2"	3/4"	92	0,5	24,8	240
FVS-C65-4	7,36	8,84	1490	3/4"-3/4"	1/2"-1/2"	3/4"	123	0,63	36,5	168
FVS-C76-4	8,1	9,6	1725	3/4"-3/4"	1/2"-1/2"	3/4"	128	0,85	37,5	168
FVS-C89-4	9,74	12,44	1920	3/4"-3/4"	1/2"-1/2"	3/4"	132	0,7	43,2	120
FVS-C102-4	10,5	12,92	2150	3/4"-3/4"	1/2"-1/2"	3/4"	170	1	44	120
FVS-HP44	6,86	9,21	1378	1"-1"	1/2"-1/2"	3/4"	251	1,67	29	188
FVS-HP54	9,93	14,99	2449	1"-1"	1/2"-1/2"	3/4"	589	3,34	41	144
FVS-HP64	13,39	18,14	2992	1"-1"	1/2"-1/2"	3/4"	632	3,34	45	120
FVS-HP74	15,2	20,2	3020	1"-1"	1/2"-1/2"	3/4"	643	3,34	50	100
FVS-HP84	21,39	27,18	4427	1"-1"	1/2"-1/2"	3/4"	785	5,01	54	88

All values in the capacity table are calculated according to the High Fan speed, 0Pa external static pressure for FVS-C serie, 50Pa external static pressure for FVS-HP serie and 27°C %50RH in cooling & 20°C %50RH in heating air entering conditions.

SOUND PARAMETERS

FANCOIL UNITS FVS-C, FVS-HP, 2 pipes

Model	Low Fan speed step		Medium Fan speed step		High Fan speed step	
	Sound Power Level Lw [dbA]	Sound Pressure Level L [dbA]	Sound Power Level Lw [dbA]	Sound Pressure Level L [dbA]	Sound Power Level Lw [dbA]	Sound Pressure Level L [dbA]
FVS-C21-2	40	32	48	39	56	45
FVS-C23-2	40	32	50	41	56	45
FVS-C26-2	43	35	51	42	57	46
FVS-C29-2	45	37	53	44	57	46
FVS-C37-2	47	39	53	44	58	47
FVS-C42-2	50	42	54	45	58	47
FVS-C49-2	51	43	55	46	60	49
FVS-C51-2	53	45	60	51	61	50
FVS-C58-2	53	45	60	51	61	50
FVS-C65-2	55	47	61	52	63	52
FVS-C76-2	56	48	61	52	64	53
FVS-C89-2	58	50	62	53	64	53
FVS-C102-2	60	52	64	55	65	54
FVS-HP42	55	47	60	51	64	53
FVS-HP52	55	47	60	51	64	53
FVS-HP62	59	51	63	54	68	57
FVS-HP72	61	53	66	57	71	60
FVS-HP82	63	55	68	59	74	63

Sound pressure level according to ISO 3741 at 1 meter from the unit.

FANCOIL UNITS FVS-C, FVS-HP, 4 pipes

Model	Low Fan speed step		Medium Fan speed step		High Fan speed step	
	Sound Power Level Lw [dbA]	Sound Pressure Level L [dbA]	Sound Power Level Lw [dbA]	Sound Pressure Level L [dbA]	Sound Power Level Lw [dbA]	Sound Pressure Level L [dbA]
FVS-C21-4	40	32	48	39	56	45
FVS-C23-4	40	32	50	41	56	45
FVS-C26-4	43	35	51	42	57	46
FVS-C29-4	45	37	53	44	57	46
FVS-C37-4	47	39	53	44	58	47
FVS-C42-4	50	42	54	45	58	47
FVS-C49-4	51	43	55	46	60	49
FVS-C51-4	53	45	60	51	61	50
FVS-C58-4	53	45	60	51	61	50
FVS-C65-4	55	47	61	52	63	52
FVS-C76-4	56	48	61	52	64	53
FVS-C89-4	58	50	62	53	64	53
FVS-C102-4	60	52	64	55	65	54
FVS-HP44	55	47	60	51	64	53
FVS-HP54	55	47	60	51	64	53
FVS-HP64	59	51	63	54	68	57
FVS-HP74	61	53	66	57	71	60
FVS-HP84	63	55	68	59	74	63

Sound pressure level according to ISO 3741 at 1 meter from the unit.

TECHNICIAL SPECIFICATIONS

FANCOIL UNITS FVS-DC, 2 pipes

Model	5.5-14.5°C Capacity [kW]	90-70°C Capacity [kW]	Air Flow [m³/h]	Water Inlet/Outlet [Inc]	Drain [Inc]	Absolute Motor Power [W]	Max. Current [A]	Weight [kg]	Quantities of per container -
FVS-DC-HP42	8,68	27,31	1503	1"-1"	3/4"	251	1,67	28	188
FVS-DC-HP52	14,14	46,38	2730	1"-1"	3/4"	589	3,34	40	144
FVS-DC-HP62	16,94	52,32	2925	1"-1"	3/4"	632	3,34	44	120
FVS-DC-HP72	17,92	55,33	2980	1"-1"	3/4"	643	3,34	48	100
FVS-DC-HP82	23,07	76,36	4350	1"-1"	3/4"	785	5,01	52	88

FANCOIL UNITS FVS-EC, 2 pipes

Model	7-12°C Capacity [kW]	90-70°C Capacity [kW]	Air Flow [m³/h]	Water Inlet/Outlet [Inc]	Drain [Inc]	Absolute Motor Power [W]	Max. Current [A]	Weight [kg]	Quantities of per container -
FVS-EC-C23-2	3	9,14	630	3/4"-3/4	3/4"	93	0,35	14,1	336
FVS-EC-C29-2	3,37	10,22	651	3/4"-3/4	3/4"	93	0,35	15,1	336
FVS-EC-C42-2	5,17	14,87	1399	3/4"-3/4	3/4"	97	0,36	20,7	240
FVS-EC-C51-2	5,67	16,35	1456	3/4"-3/4	3/4"	103	0,39	21,1	240
FVS-EC-C58-2	7,88	23,5	1594	3/4"-3/4	3/4"	174	0,65	21,9	240
FVS-EC-C89-2	10,71	32,12	2214	3/4"-3/4	3/4"	185	0,69	39,4	120
FVS-EC-C102-2	13,51	41,17	3188	3/4"-3/4	3/4"	349	1,3	40,2	120

FANCOIL UNITS FVS-EC, 4 pipes

Model	7-12°C Capacity [kW]	90-70°C Capacity [kW]	Air Flow [m³/h]	Cooling Water Inlet/ Outlet [Inc]	Heating Water Inlet/ Outlet [Inc]	Drain [W]	Absolute Motor Power [A]	Max. Current [kg]	Weight -	Quantities of per container -
FVS-EC-C23-4	2,89	3,53	597	3/4"-3/4	1/2"-1/2"	3/4"	93	0,35	15,9	336
FVS-EC-C29-4	3,17	4,04	596	3/4"-3/4	1/2"-1/2"	3/4"	93	0,35	17	336
FVS-EC-C42-4	5,32	6,31	1206	3/4"-3/4	1/2"-1/2"	3/4"	97	0,36	23,3	240
FVS-EC-C51-4	4,98	6,2	986	3/4"-3/4	1/2"-1/2"	3/4"	103	0,39	23,8	240
FVS-EC-C58-4	7,25	9,04	1404	3/4"-3/4	1/2"-1/2"	3/4"	174	0,65	24,8	240
FVS-EC-C89-4	11,87	14,77	2592	3/4"-3/4	1/2"-1/2"	3/4"	185	0,69	43,2	120
FVS-EC-C102-4	12,48	15,01	2808	3/4"-3/4	1/2"-1/2"	3/4"	349	1,3	44	120

DIMENSIONS

				A [m]	B [m]	C [m]	D [m]	E [m]
FVS-C21-2	**FVS-C21-4**			480	530	642	672	505
FVS-C23-2	**FVS-C23-4**	**FVS-EC-C23-2**	**FVS-EC-C23-4**	480	530	642	672	505
FVS-C26-2	**FVS-C26-4**			480	530	642	672	505
FVS-C29-2	**FVS-C29-4**	**FVS-EC-C29-2**	**FVS-EC-C29-4**	480	530	642	672	505
FVS-C37-2	**FVS-C37-4**			830	880	992	1022	855
FVS-C42-2	**FVS-C42-4**	**FVS-EC-C42-2**	**FVS-EC-C42-4**	830	880	992	1022	855
FVS-C49-2	**FVS-C49-4**			830	880	992	1022	855
FVS-C51-2	**FVS-C51-4**	**FVS-EC-C51-2**	**FVS-EC-C51-4**	830	880	992	1022	855
FVS-C58-2	**FVS-C58-4**	**FVS-EC-C58-2**	**FVS-EC-C58-4**	910	960	1072	1102	935
FVS-C65-2	**FVS-C65-4**			1310	1360	1472	1502	1335
FVS-C76-2	**FVS-C76-4**			1310	1360	1472	1502	1335
FVS-C89-2	**FVS-C89-4**	**FVS-EC-C89-2**	**FVS-EC-C89-4**	1660	1710	1822	1852	1685
FVS-C102-2	**FVS-C102-4**	**FVS-EC-C102-2**	**FVS-EC-C102-4**	1660	1710	1822	1852	1685
FVS-HP42	**FVS-HP44**	**FVS-DC-HP42**		510	560	672	702	535
FVS-HP52	**FVS-HP54**	**FVS-DC-HP52**		710	760	872	902	735
FVS-HP62	**FVS-HP64**	**FVS-DC-HP62**		910	960	1072	1102	935
FVS-HP72	**FVS-HP74**	**FVS-DC-HP72**		1110	1160	1272	1302	1135
FVS-HP82	**FVS-HP84**	**FVS-DC-HP82**		1310	1360	1472	1502	1335

SOUND PARAMETERS

FANCOIL UNITS FVS-DC, 2 pipes

Model	Low Fan speed step		Medium Fan speed step		High Fan speed step	
	Sound Power Level Lw [dbA]	Sound Pressure Level L [dbA]	Sound Power Level Lw [dbA]	Sound Pressure Level L [dbA]	Sound Power Level Lw [dbA]	Sound Pressure Level L [dbA]
FVS-DC-HP42	55	47	60	51	64	53
FVS-DC-HP52	55	47	60	51	64	53
FVS-DC-HP62	59	51	63	54	68	57
FVS-DC-HP72	61	53	66	57	71	60
FVS-DC-HP82	63	55	68	59	74	63

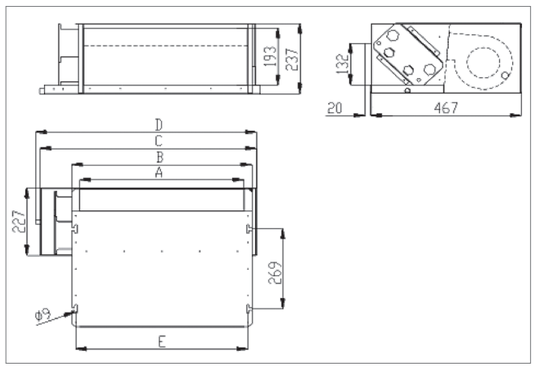
FANCOIL UNITS FVS-EC, 2 pipes

Model	Low Fan speed step		Medium Fan speed step		High Fan speed step	
	Sound Power Level Lw [dbA]	Sound Pressure Level L [dbA]	Sound Power Level Lw [dbA]	Sound Pressure Level L [dbA]	Sound Power Level Lw [dbA]	Sound Pressure Level L [dbA]
FVS-EC-C23-2	39	31	48	39	54	43
FVS-EC-C29-2	43	35	51	42	55	44
FVS-EC-C42-2	49	41	53	44	56	45
FVS-EC-C51-2	51	43	58	49	60	49
FVS-EC-C58-2	51	43	58	49	60	49
FVS-EC-C89-2	57	49	61	52	62	51
FVS-EC-C102-2	58	50	62	53	64	53

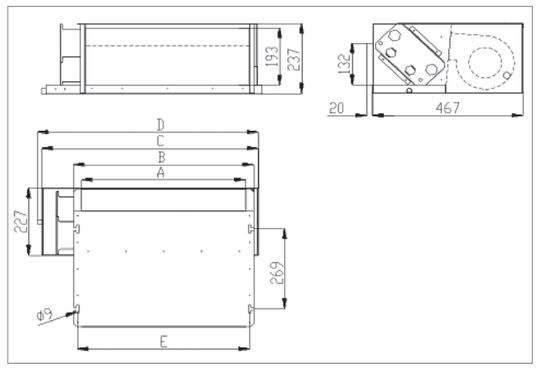
FANCOIL UNITS FVS-EC, 4 pipes

Model	Low Fan speed step		Medium Fan speed step		High Fan speed step	
	Sound Power Level Lw [dbA]	Sound Pressure Level L [dbA]	Sound Power Level Lw [dbA]	Sound Pressure Level L [dbA]	Sound Power Level Lw [dbA]	Sound Pressure Level L [dbA]
FVS-EC-C23-4	39	31	48	39	54	43
FVS-EC-C29-4	43	35	51	42	55	44
FVS-EC-C42-4	49	41	53	44	56	45
FVS-EC-C51-4	51	43	58	49	60	49
FVS-EC-C58-4	51	43	58	49	60	49
FVS-EC-C89-4	57	49	61	52	62	51
FVS-EC-C102-4	58	50	62	53	64	53

Sound pressure level according to ISO 3741 at 1 meter from the unit.



FVS-C21 ... FVS-C102



FVS-HP42 ... FVS-HP82
FVS-HP44 ... FVS-HP84

07

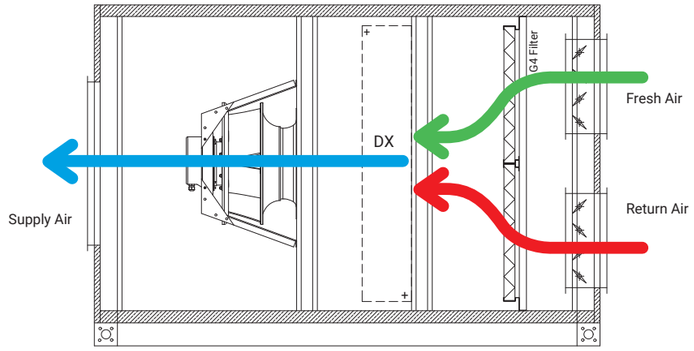
ROOF TOP
PVS RO

GENERAL DESCRIPTION

PVS RO is able to carry out the cooling function in the temperature range of 15°C / 50°C and the heating function in the range of -20°C / 25°C with the direct expansion heat pump system. In winter, defrost scenario is managed with a simultaneous defrosting algorithm to ensure that the device will continue to operate even during defrost during severe winter conditions.

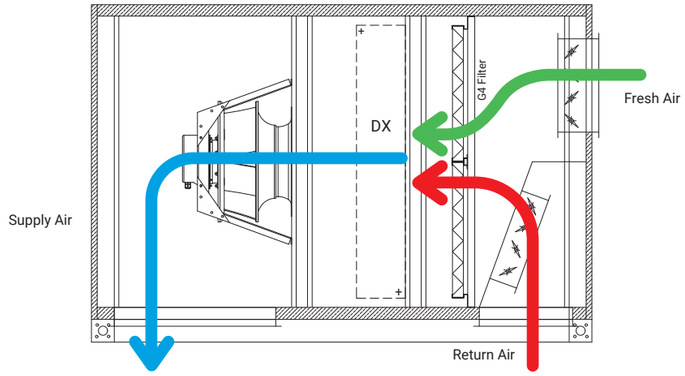
TECHNICAL SPECIFICATION

- Double skin 25mm pannels are filled with rockwool for heat and acoustic insulation.
- The inner and outer walls are made of corrosionresistant galvanized steel.
- Stainless steel and insulated condensation pan.
- Electrostatic powder pain coating
- G4(EU4) quality panel filter is used as standard, optional M5(EU5)-F7(EU7)-F9(EU9) filter can be preferred.
- Electronically Commutated (EC) fan is used on the supply air side. These fans have high energy efficiency and low noise level.
- Coils are aluminium finned, copper pipe coil which is well performance/energy consumption optimised and able to operate in wide temperature range. The coil designed for air velocity below 2,5m/s in order to ensure high energy efficiency and proper drain of condensated water.
- High efficiency scroll compressors use environmentally conscious R410A refrigetant, which does not damage the ozone layer. Condensation and evaporation temperatures have been determined to allow the device to operate in a wide range of climatic conditions and to keep energy efficiency at the highest level.



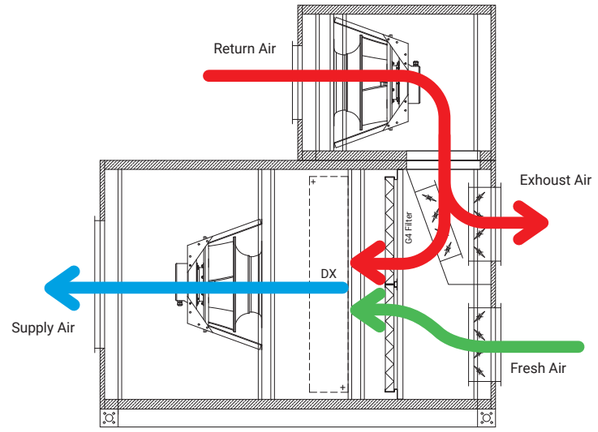
TYPE 1 – SINGLE FAN, AIR DIRECTION ON SIDES

Fresh Air and Return Air passing through proportional air dampers mix at the desired rate. Mixed air pass. Filter and DX coil and supplied into the room by Supply fan.



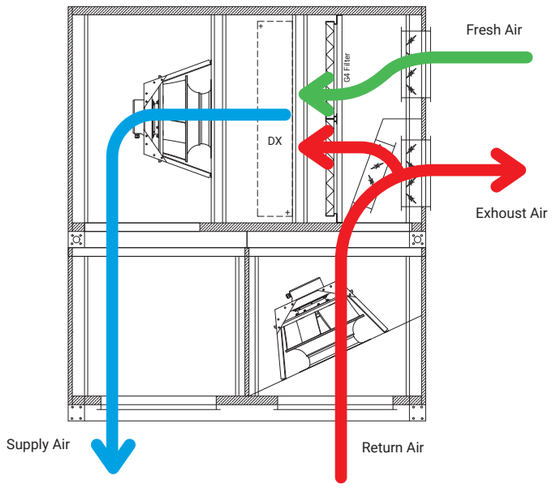
TYPE 2 – SINGLE FAN, AIR DIRECTION ON DOWNSIDE

Fresh Air and Return Air passing through proportional air dampers mix at the desired rate. Mixed air pass. Filter and DX coil and supplied into the room by Supply fan.



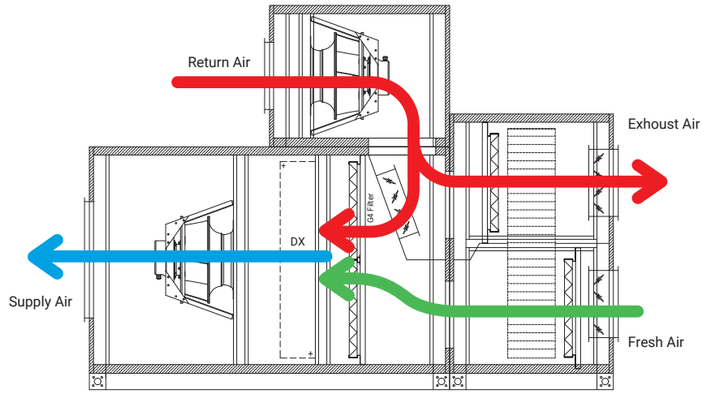
TYPE-3 – DOUBLE FANS, AIR DIRECTION ON SIDES

There are two fan groups as ventilator and aspirator. The room air which extracted by the aspirator is mixed with the fresh air at the desired rate through the economizer. The fresh air and mixed air pass through the filters and conditioned supplied to the room via ventilator.



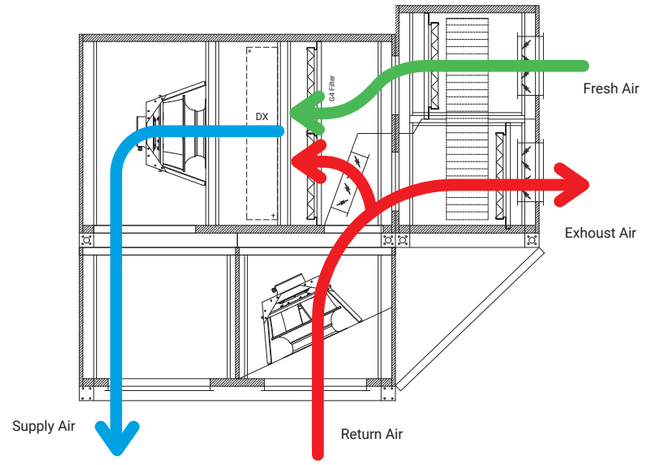
TYPE-4 – DOUBLE FANS, AIR DIRECTION ON DOWNSIDE

There are two fan groups as ventilator and aspirator. The room air which extracted by the aspirator is mixed with the fresh air at the desired rate through the economizer. The fresh air and mixed air pass through the filters and conditioned supplied to the room via ventilator.



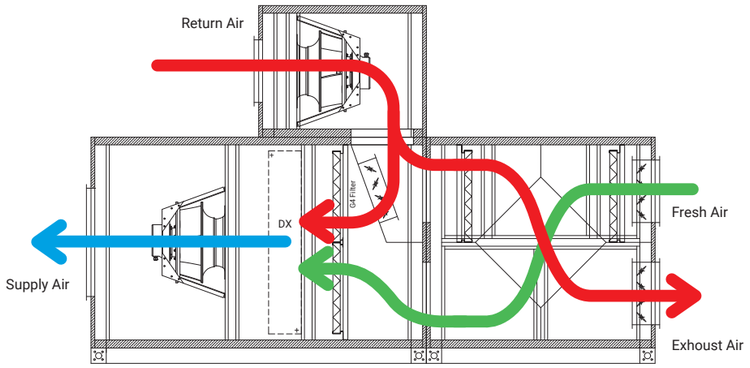
TYPE-5 – ROTARY HEAT RECOVERY, AIR DIRECTION ON SIDES

Air circulation provided with ventilator and aspirator fans and the waste energy of the exhaust air is recovered and transferred to the supply air thanks to the high efficiency rotory heat recovery. The heat recovery rotor can be prefered with the feature of latent heat-humidity transfer.



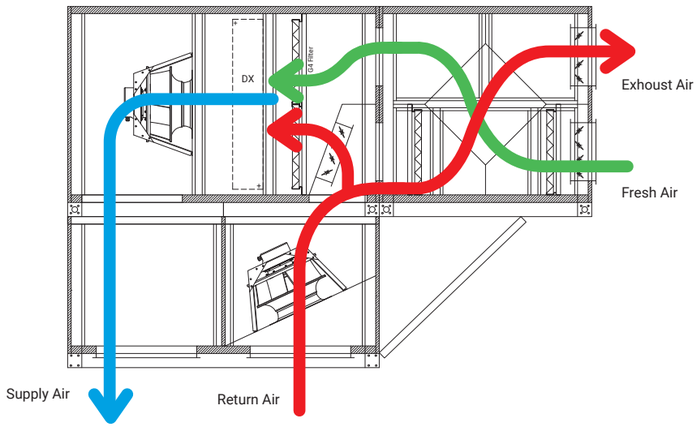
TYPE-6 – ROTARY HEAT RECOVERY, AIR DIRECTION ON DOWNSIDE

Air circulation provided with ventilator and aspirator fans and the waste energy of the exhaust air is recovered and transferred to the supply air thanks to the high efficiency rotory heat recovery. The heat recovery rotor can be prefered with the feature of latent heat-humidity transfer.



TYPE-7 – PLATE HEAT RECOVERY, AIR DIRECTION ON SIDES

Air circulation provided with ventilator and aspirator fans and the waste energy of the exhaust air is recovered and transferred to the supply air thanks to the high efficiency plate heat recovery heat exchanger.



TYPE-8 – PLATE HEAT RECOVERY, AIR DIRECTION ON DOWNSIDE

Air circulation provided with ventilator and aspirator fans and the waste energy of the exhaust air is recovered and transferred to the supply air thanks to the high efficiency plate heat recovery heat exchanger.

PVS RO		12	22	32	38	46	55	64	70	80	94	121	151	198
COOLING														
Nominal Cooling Capacity	kW	10,75	21,20	31,60	37,90	46,00	54,20	63,20	69,60	79,20	93,20	120,80	150,60	197,40
*EER	-	2,91	2,96	3,02	2,96	3,01	3,02	3,08	3,12	2,98	3,14	3,11	3,09	3,18
HEATING														
Nominal Heating Capacity	kW	10,29	20,47	30,45	36,48	44,50	52,28	60,90	67,22	76,96	90,32	115,70	146,40	189,50
*COP	-	3,12	3,12	3,18	3,14	3,16	3,16	3,27	3,28	3,14	3,31	3,28	3,29	3,32
COMPRESSOR														
Compressor Type	--	SCROLL												
Number of Circuits	-	1	1	1	1	1 / 2	1 / 2	1 / 2	1 / 2	1 / 2	1 / 2	1 / 2	1 / 2	1 / 2
Refrigerant	-	R410A												
FAN														
Nominal Air Flow	m³/h	2750	4500	5800	6300	8500	9500	10500	12500	15700	19000	23000	25700	32000
Nominal External Static Pressure	Pa	450	450	450	450	450	450	450	450	450	450	450	450	450
Fan Type	-	EC / PLUG												
Casing	-	DOUBLE SKIN 25MM ROCK WOOL												

*According to EN 14511 standards

UAB “VTS Vilnius”
Rygos g. 6-34
LT-05270 **Vilnius, Lithuania**
Phone +370 (5) 263 61 52
Fax +370 (5) 263 61 56
vilnius@vtsgroup.com

VTS Latvia SIA
Bieķensalas iela 21, B218
Rīga, LV-1004, **Latvia**
Phone + 371 67382530
latvia@vtsgroup.com

VTS Clima OÜ
Teaduspargi 6/1
12618 **Tallinn, Eesti**
Phone +372 622 9010
estonia@vtsgroup.com