Ecology Units For Kitchenhoods

Industrial & Commercial Kitchens

despel

Engineered Kitchen Ventilation Systems

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GENERAL DESCRIPTION

With an ever increasing environmental awareness and the common global goal to reduce emissions and pollutions, Despel has a responsibility of contributing through the filtration of cooking fumes arising from commercial kitchen applications. In order to effectively filter all the grease, gaseous and other particles, proper filtration of the extracted fumes from these commercial cooking appliances is required. A Despel ecology unit is meant as a second stage filtration system, when a proper kitchen hood suitable for the desired appliance comes in first. Ecology unit can be located on for instance rooftops, inside parking garages or above false ceilings. It shall be custom made according to the situation at hand.

The situation will be determined on variables such as; type of cooking (regular, charcoal grills, spicy food etc), kitchen hoods (existing or to be installed), location of the ecology unit, ducting etc. The required air capacity of the Despel Ecology Unit is to be based on the kitchen equipment that is, or has to be, installed in the specific connected kitchen area. The exhaust ductwork of multiple kitchens can be connected to a single Ecology Unit. A Despel ecology unit will be customized according o the desired situation or cooking appliance. Several optional filtration stages and components may be added, based on the requested specifications.

Exhaust Air Filtering Systems
for Commercial Kitchen Hoods

CHEF'S CHOICE
New age **HDM**
Series

STUDY PURPOSE

- Filtering oil particulates
- Smoke and soot filtration
- Filtering odor and chimnel gas

AS A RESULT

- Customer happiness
- Clean environment
- Clean kitchens
- Profitable business

List of Kitchens Generally Needed

- Commercial cafeterias
- Hotel kitchens
- Food factory kitchens
- Restaurants
- Dining areas in shopping centers

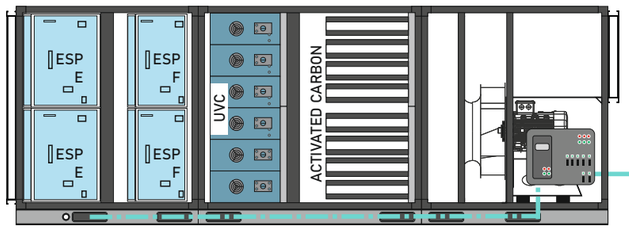
LONG MACHINE LIFE

Suitable for industrial construction and heavy duty

- **10 years parts warranty**
- **Max. Onsite service within 48 hours**
- **Continuous warranty with maintenance contract (>*)**
- **Filtering efficiency up to 99%**
- **Unit diversity according to cooking types**
- **Special construction for heavy oiled and intensive kitchens**
- **High efficiency and long life fan models**
- **Special filters with high odor retention**
- **Automation control system integrated with the unit**
- **Easy to maintain plate electrostatic filters**
- **Wide range with 8 kinds of standard flow rate**

- **Fire prevention systems**
- **Optional replacement fan / motor set unit options**
- **Plug or double inlet fan options according to usage area**
- **ISO 16890 standards test report**
- **Compatible with Modbus / Bacnet systems**

New age Series
CHEF's Choice
Engineered to Work
Built to Last



7" Multi-Touch Panel

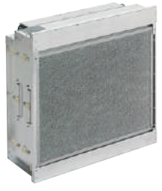
Ecology units are ventilation devices that eliminate oil and odor when exhausting. The most important criterion in the selection and design of an ecology unit is to determine the correct configuration according to the characteristics of the kitchen. Central type ecology units (HDM) are industrial machines specially designed for large volume kitchens and suitable for heavy working conditions.

It is indispensable especially for hotel kitchens, cafeterias and food facility kitchens with its wide flow range and flow sizes allowing many areas to be ventilated with a single device. It is also a model that should be used when density is used in large volume restaurant kitchens. Optimum exhaust and odor filtration is provided with different configurations consisting of electrostatic separator filter (ESP), activated carbon filter, UV-C lamp or Ion / Ozone filter modules according to kitchen and cooking type.

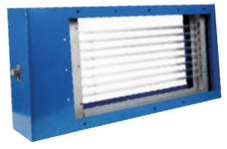
HDM series ecology units produced in the range of 2.500 - 40.000 m^3/h are plug-and-play models on the electrical panel and have advanced automation options for requirement-based kitchen ventilation.HDM series ecology units are the choice of many brands as a design that directs industrial kitchen ventilation specifications. Long before installation, our products undergo comprehensive testing. This includes structural integrity, erodynamic performance, sound levels, mechanical operation, vibration, environmental impact and more.

Electrostatic Filter (E series)

Electrostatic Filter (F series)



UV-C Ozon Filter



Activated Carbon Filter

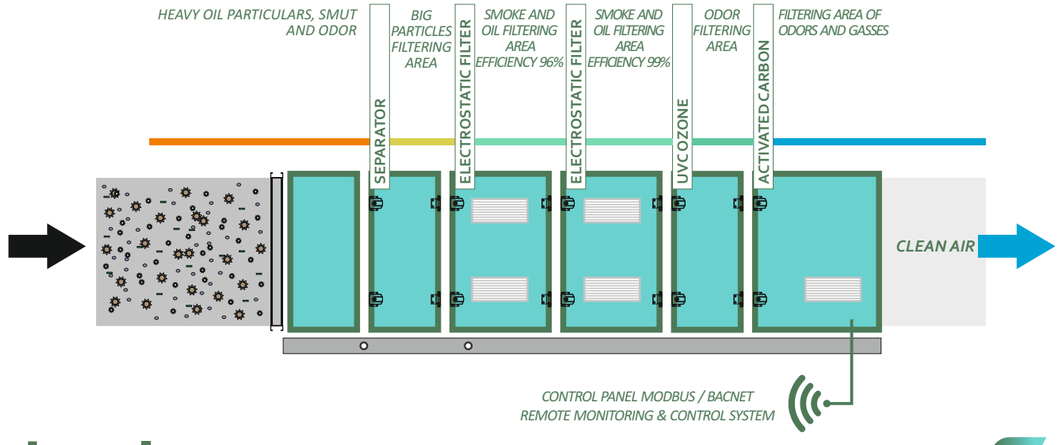
QUALITY
doesn't have to be complicated!

Don't need complexity. You need answers. At Despel, we do the hard work for you. Everything we do from engineering to aftermarket service is designed to make it easy for you to succeed.

The most problematic part of ecology units is cleaning and maintenance. Leave all maintenance work with our technical service maintenance contract, you focus on your business.

During cooking in industrial kitchens, unwanted factors such as steam, smoke, soot and bad odor that occur in cookers such as grills, ovens, barbecues and cookers may adversely affect the personnel working in our kitchens and cause disturbances in the surrounding areas and thus the formation of complaints. It serves. As a result of these complaints to the competent authorities, most businesses have to stop their activities. For this reason, ecology units are used in order to protect the environment, people and your business, and not to cause loss of prestige and money. You can simplify the most dirty and hard work in your business with our ecological filter systems.

Example of filter placement



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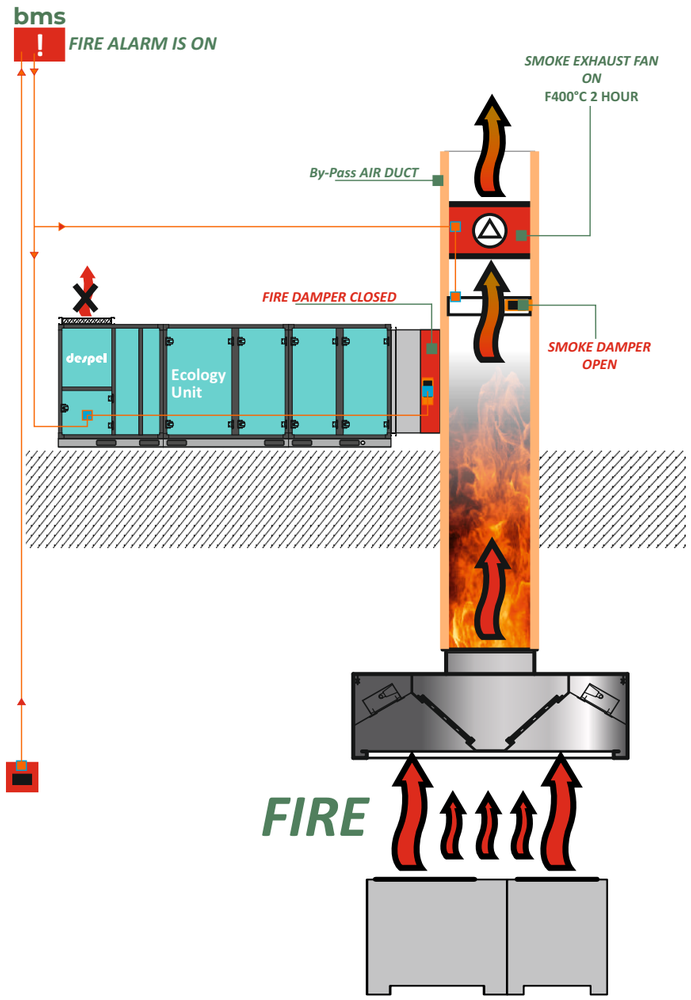
FIRE PROTECTION

In today's commercial kitchens, higher temperature cooking oils and high efficiency appliances (with a slow cooling down) such as deep-fat fryers have combined to make fire suppression more challenging than in the past.



All the more challenging because :

– Although the main identifiable risk is deep fat fryers, it is a little known fact that more kitchen fires start from stoves that are not equipped with heat safety switches.

– The cooking fires natural behaviour is to spread throughout the building via the kitchen exhaust ductwork. We recommend using by-pass lines to reduce these risks and protect ecology units. In this way, smoke is removed from the environment with a higher flow rate. Spreading is prevented. Ecology units can increase the amount of fire with the carbon filters they contain. We recommend that the fire is not exhausted on these devices.

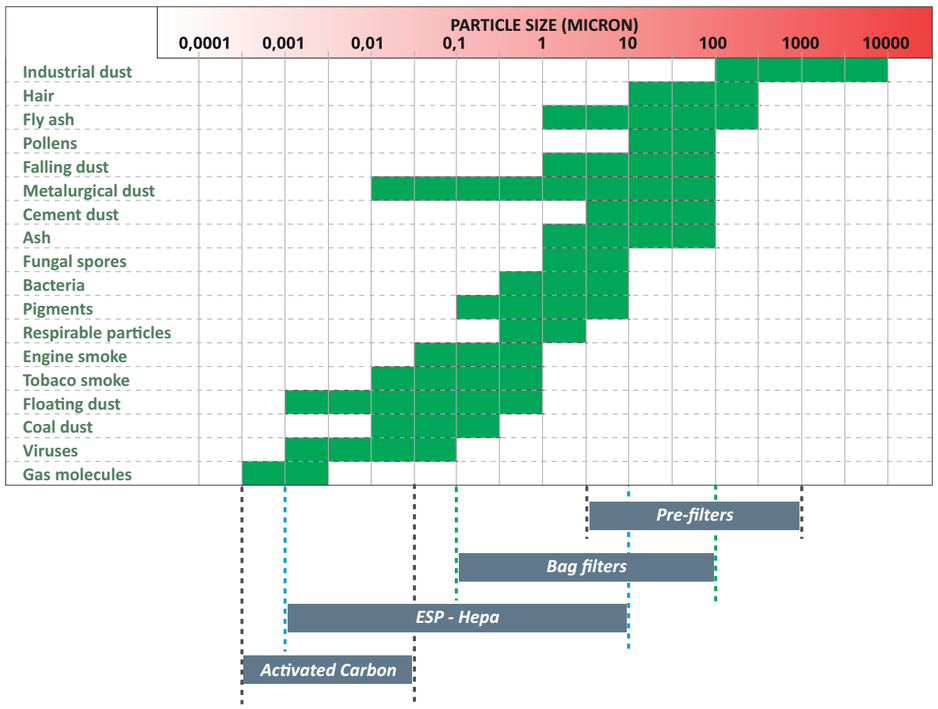
SELECTION

criterias of ecology units

Odour and grease characteristics arising from a range of commercial kitchens

ODOUR CONCENTRATION			GREASE CONTENT			
modarate	*high*	*very high*	*modarate*	*high*	*very high*	
✓			✓			Pizza Restaurant
✓			✓			Pita / Lahmacun
✓			✓			French
✓			✓			Italian
✓			✓			Most Pubs
✓				✓		Chinese
✓				✓		Japanese
	✓				✓	Kebab Houses
	✓				✓	Steakhouses
		✓			✓	Fried Chicken
		✓			✓	Fish
		✓			✓	Fast Food Burger

Filter selection table according to particle size



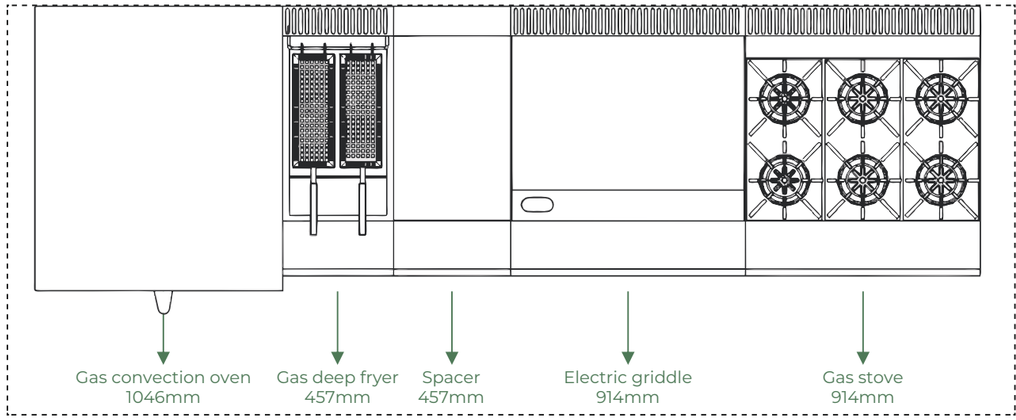
CALCULATION

of air volume to exhaust hood

According to NFPA 96, the air volume of the exhaust hood must be sufficient to collect and exhaust the grease-ladden vapours produced by the cooking appliances.

Cooking Appliances	Electrical cooking (m^3/h)	Gas cooking (m^3/h)
LIGHT		
Convection oven, regular oven	870	970
Combination oven	1000	1150
Pizza oven	970	1080
Food warmer, vegetable steamer, pasta cooker	810	900
Rotisserie, smoker	1020	1200
Tilting skillets	1000	1200
Salamander broiler	800	970
Spacer or non-cooking appliance	560	560
MEDIUM		
Countertop cooking surface	1080	1200
Stove	1370	1530
Deep fryer	1310	1480
Griddle	1420	1640
Boiling plate	1530	1820
Induction plate	1350	-
Braizing pan	1150	1300
HEAVY		
Radiant broiler	1820	2090
Charbroiler	2030	2380
Upright broiler	2090	2430
Wok	2090	2500
VERY HEAVY		
Infrared broiler	2500	2750
Chain broiler,Lava rock charbroiler	2550	2800
Wok	2100	2500

Correction factors according to the type of installation	K Factor
Single island hood	1,2
Double island hood	1,15
Heavy duty range at under a single island hood	1,2
Suspension height more than 2 meter	1,1



Details

- Hood: 4,112mm long x 1,371mm wide
- Wall-mounted hood (K Factor is 1)
- Hood installation height 1,980mm from floor
- Clearance (overhang): 152mm on each side and 304mm at the front between the cooking appliances and the hood

	Equipments L lenght [mm]		Airflow per meter [m^3/h]		Airflow result [m^3/h]
Clearance, left side	152	x	560	=	85
Gas convection oven	1046	x	970	=	1015
Gas deep fryer	457	x	1480	=	676
Spacer	457	x	560	=	256
Electric griddle	914	x	1420	=	1298
Gas stove	914	x	1530	=	1398
Clearance, right side	152	x	560	=	85

Total Result : 4813 x 1 (K Factor) = 4813 m^3/h

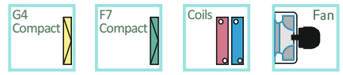
LAYOUT SCHEME

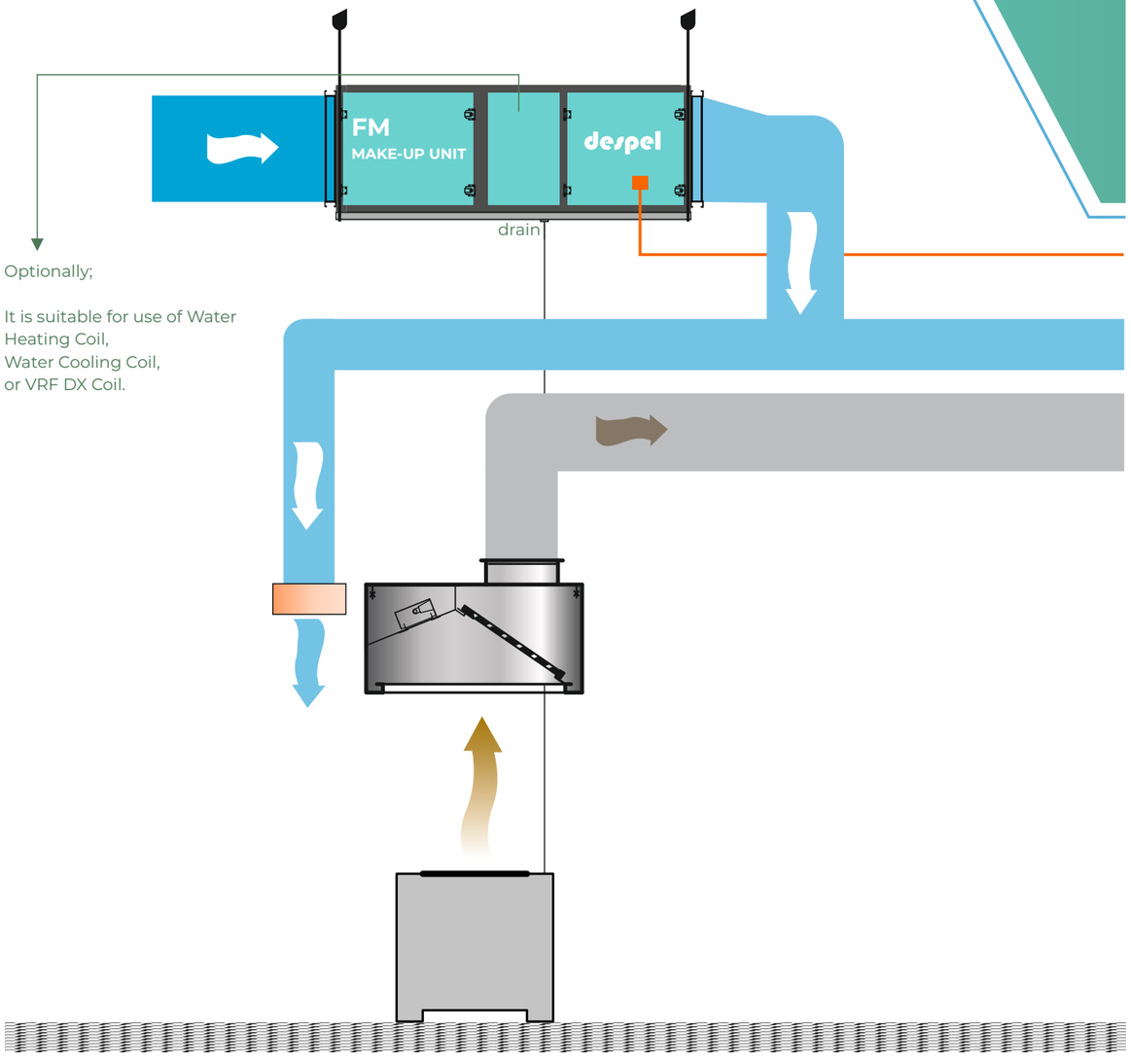
of ceiling type ecology unit

Ceiling type ecology units are designed in standard models that are easy to install and easy to service. In addition, the fresh air unit is produced as standard models in capacities and sizes suitable for each model.

The control panel embedded on the ecology unit performs control of both units through the wall-type touch panel at the location. The optional remote monitoring feature is installed inside the panel and you can monitor the filter / fan / temperature conditions in each of your restaurant chains from your central branches through our desktop or telephone applications and intervene immediately in alarm situations.

HDM FM

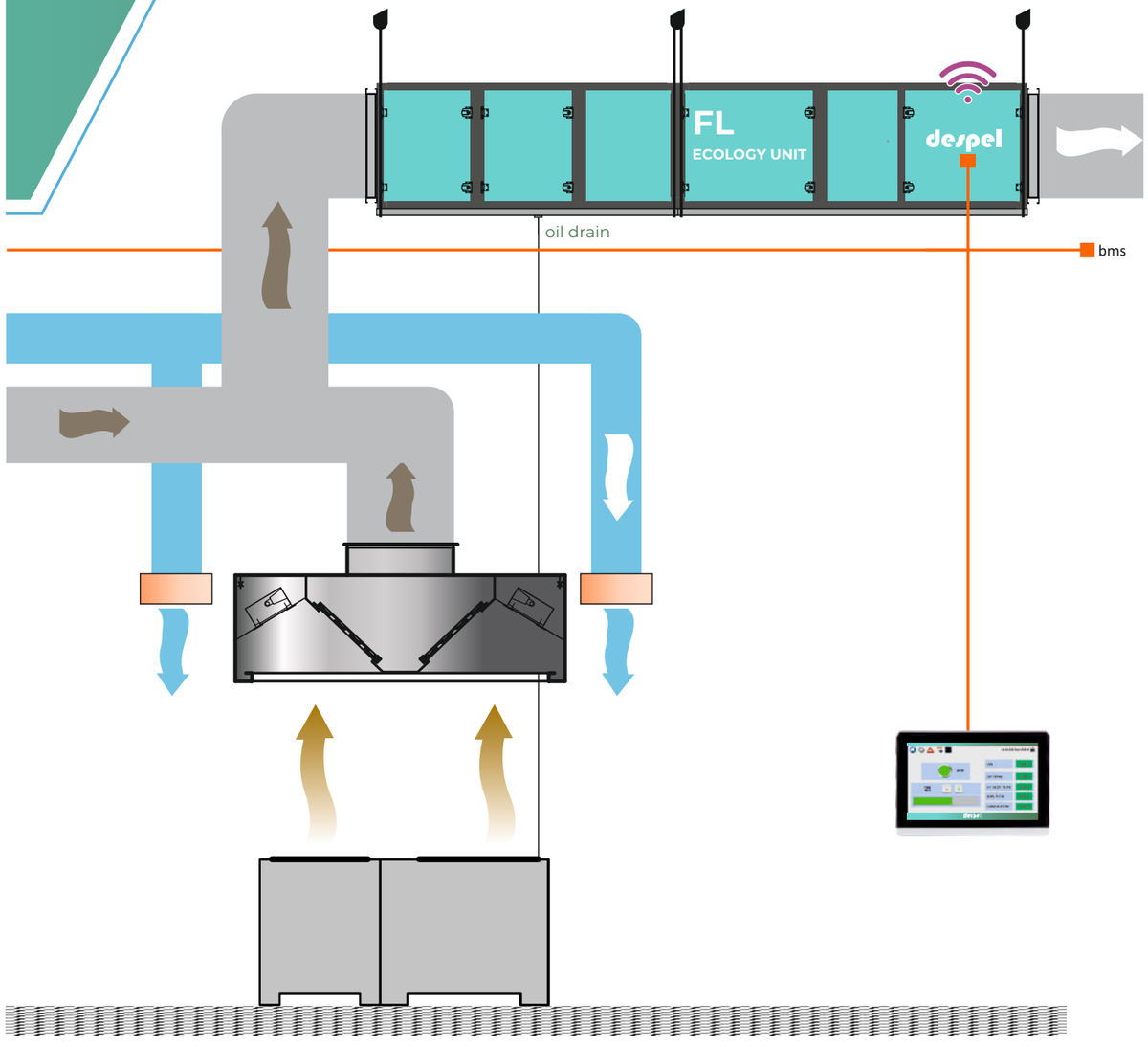




Optionally;

It is suitable for use of Water Heating Coil,
Water Cooling Coil,
or VRF DX Coil.

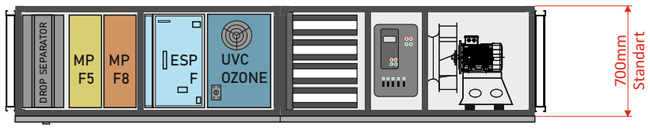
HDM FL



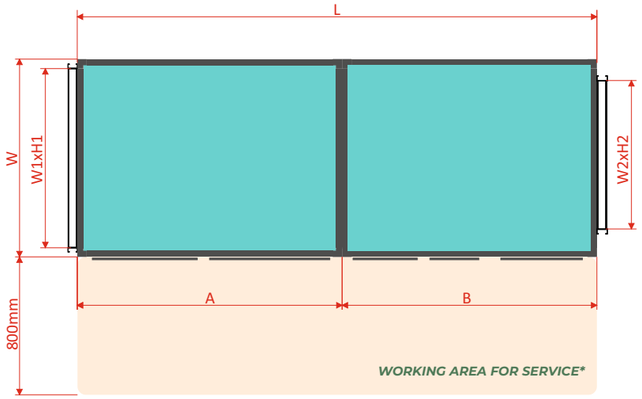
HDM FL

Ceiling Type - Cooking Appliances : HEAVY

FRONT VIEW



TOP VIEW



MPF 5 : ISO ePM10 55% Micro glass fiber filter ISO16890
ESP-F : 99% Efficiency electrostatic filter ISO16890
UVC-P : Ultraviolet lamps that produce very intense ozone
Activated Carbon : 400mm cylindrical cartridges made of high efficiency 4mm pellet carbon coals
Control Board : Fan speed control, filter dirty status, unit on / off operations, optional macu-up unit control are performed with touch panel
Fan : Plug-type fan with backward curved blades

Model	Airflow rate (m³/h)	Static Pressure (Pa)	Fan Power (380V) (kW)
FL 25	2500	400	1,5
FL 50	5000	500	3
FL 75	7500	500	5,5

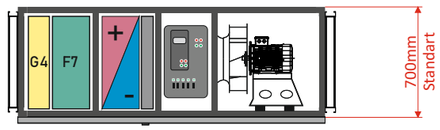
Total Efficiency

Model	Dimensions (mm) W	L	H	A	B	W1xH1	W2xH2	Weight (kg)
FL 25	780	2950	700	1500	1450	750x600	750x600	510
FL 50	1380	3200	700	1600	1600	1280x600	1280x600	680
FL 75	1980	3200	700	1600	1600	1820x600	1820x600	870

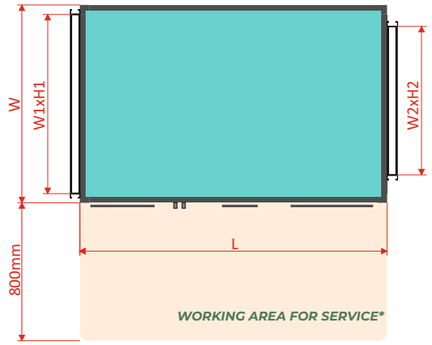
HDM FM

Ceiling Type Make-Up Unit

FRONT VIEW



TOP VIEW



G4 : Fiber cassette filter for coarse dust particles filtration
F7 : Compact type filter for fine dust particles filtration
Climate Box : Empty cell reserved for optional coils placement, with drainage pan infrastructure
Control Board : Infrastructure has been created to connect and operate the fan speed control, filter dirty status, all of the unit's on / off operations, the control panel on the ecology unit. Frequency inverter is standart
Fan : Plug-type fan with backward curved blades

Model	Airflow rate (m³/h)	Static Pressure (Pa)	Fan Power (380V) (kW)
FM 25	2500	400	1,1
FM 50	5000	400	2,2
FM 75	7500	450	3

Equipments

Model	Dimensions (mm) W	L	H	W1xH1	W2xH2	Weight (kg)
FM 25	800	1640	700	750x600	750x600	280
FM 50	800	1740	700	980x600	980x600	370
FM 75	1100	1940	700	1220x600	1220x600	460

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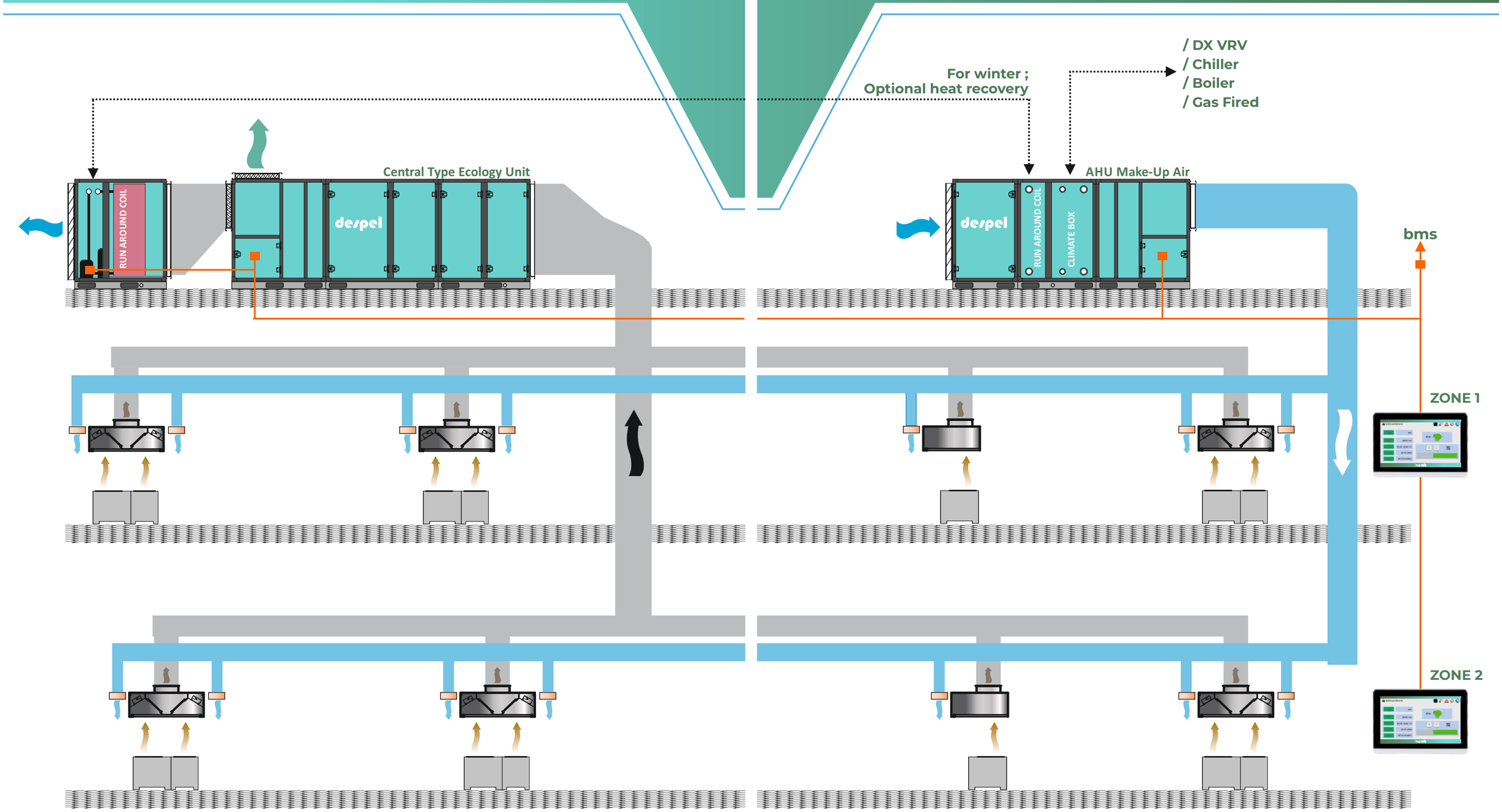
LAYOUT SCHEME

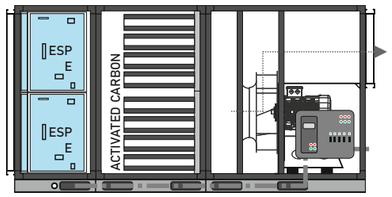
of central type ecology unit



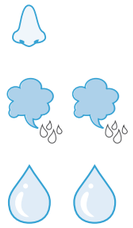
Models
of Central Type Ecology Units

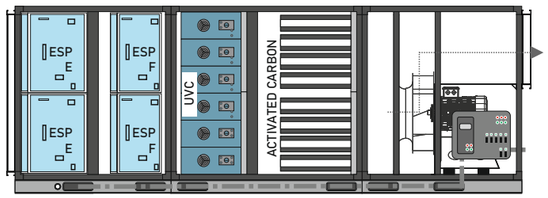
Central type ecology units are used in hotel kitchens, medium and large capacity restaurants, central fast food areas in shopping malls, corporate dining halls and food / food production facilities. Models with standardized capacities; It is produced in 5000m³/h, 10000m³/h, 15000m³/h , 22500m³/h (Optionally 30000m³/h and 40000m³/h) air flow rates.

Odours Smoke Fat

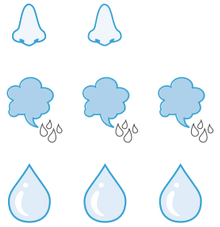


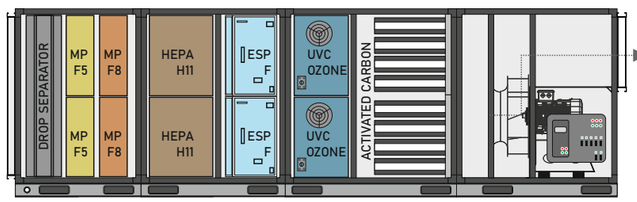
HDM-VE



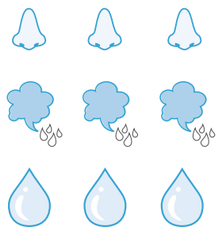


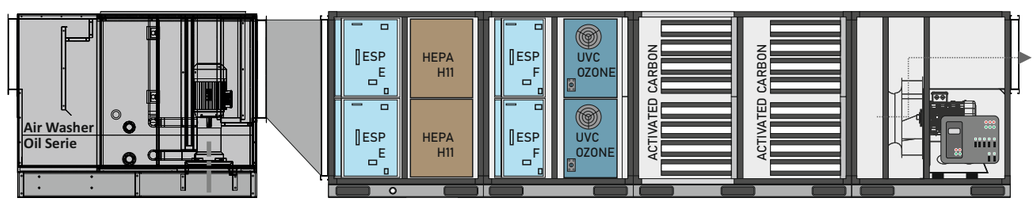
HDM-VM



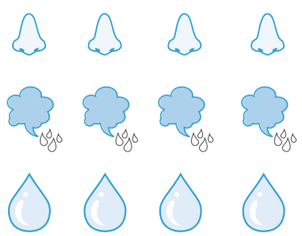


HDM-VH





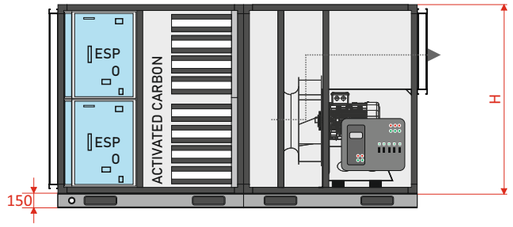
HDM-VP



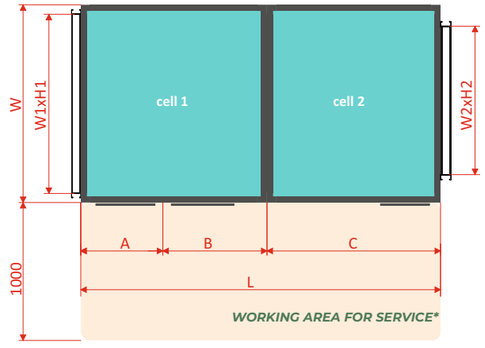
HDM VE

Cooking Appliances : LIGHT

FRONT VIEW



TOP VIEW



ESP-E : 96% (@3µm) Efficiency electrostatic filter Ashrae Test
Activated Carbon : 400mm cylindrical cartridges made of high efficiency 4mm pellet carbon coals
Control Board : Fan speed control, filter dirty status, unit on/off operations, optional make-up unit control are performed with touch panel
Fan : Plug-type fan with backward curved blades

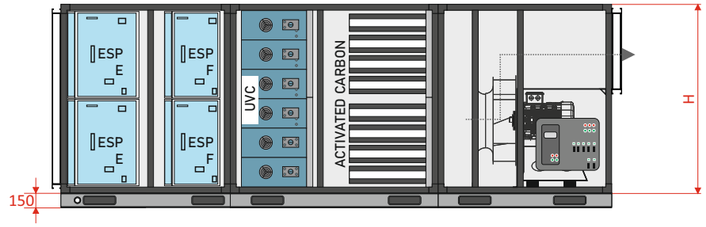
Model	Airflow rate (m^3/h)	Static Pressure (Pa)	Fan Power (380V) (kW)	Total Efficiency
VE 050	5000	400	2,2	Fat -96% / smoke -96% / Odours -65%
VE 100	10000	500	4	
VE 150	15000	500	7,5	
VE 225	22500	500	11	

Model	Dimensions (mm) W	L	H	A	B	C	D	W1xH1	W2xH2	Weight (kg)
VE 050	1340	2760	800	880	880	1000	1000	1240x700	1240x250	600
VE 100	1340	2960	1500	880	880	1200	1200	1240x1400	1240x500	900
VE 150	1680	3060	1500	880	880	1300	1400	1580x1400	1580x500	1200
VE 225	1680	3260	2200	880	880	1500	1600	1580x2100	1580x800	1600

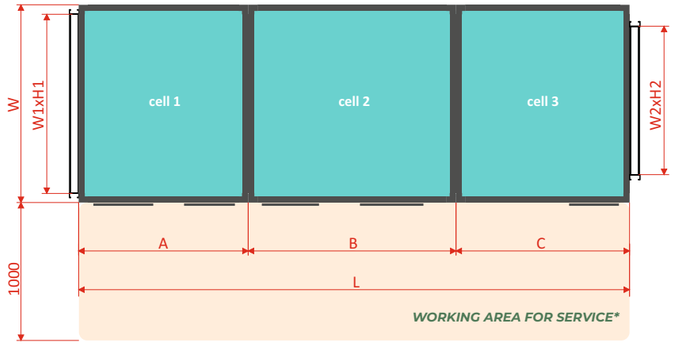
HDM VM

Cooking Appliances : MEDIUM

FRONT VIEW



TOP VIEW



ESP-E : 96% (@3µm) Efficiency electrostatic filter Ashrae Test
ESP-F : 99% Efficiency electrostatic filter ISO16890
UVC-P : Ultraviolet lamps that produce very intense ozone
Activated Carbon : 600mm cylindrical cartridges made of high efficiency 4mm pellet carbon coals
Control Board : Fan speed control, filter dirty status, unit on/off operations, optional make-up unit control are performed with touch panel
Fan : Plug-type fan with backward curved blades

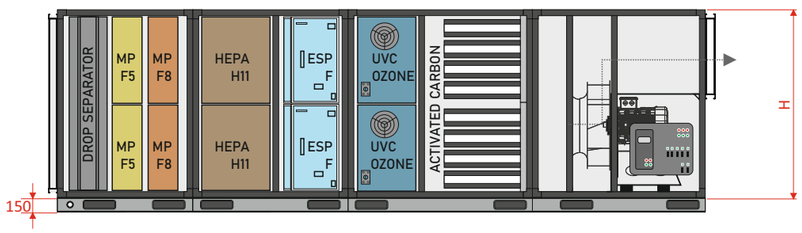
Model	Airflow rate (m^3/h)	Static Pressure (Pa)	Fan Power (380V) (kW)	Total Efficiency
VM 050	5000	400	2,2	Fat -99% / smoke -99% / Odours -85%
VM 100	10000	500	4	
VM 150	15000	500	7,5	
VM 225	22500	500	11	

Model	Dimensions (mm) W	L	H	A	B	C	W1xH1	W2xH2	Weight (kg)
VM 050	1300	3960	800	1200	1760	1000	1270x620	1270x250	860
VM 100	1300	4160	1500	1200	1760	1200	1270x1220	1270x450	1200
VM 150	1900	4260	1500	1200	1760	1300	1820x1220	1820x450	1500
VM 225	2300	4460	2200	1200	1760	1500	1820x1650	1820x560	2000

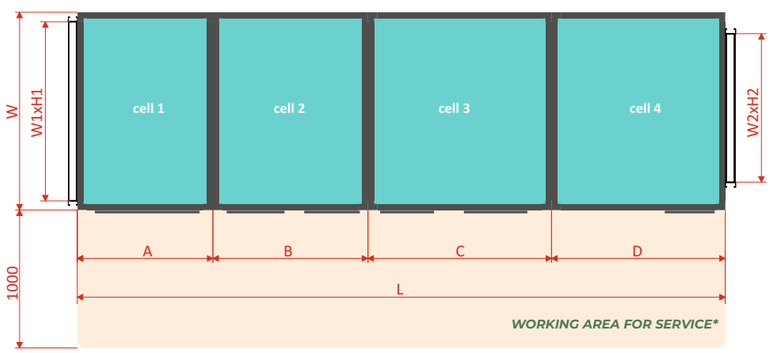
HDM VH

Cooking Appliances : HEAVY

FRONT VIEW



TOP VIEW



Separator : Filters oil and vapor droplets, prevents embers / spark jumping
MPF 5 : ISO ePM10 55% , MPF 8 : ISO ePM1 65% ISO16890
HEPA H11 : H11 class high efficiency hepa filter
ESP-F : 99% Efficiency electrostatic filter ISO16890
UVC-P : Ultraviolet lamps that produce very intense ozone
Activated Carbon : 600mm cylindrical cartridges made of high efficiency 4mm pellet carbon coals
Control Board : Fan speed control, filter dirty status, unit on / off operations, optional macu-up unit control are performed with touch panel
Fan : Plug-type fan with backward curved blades

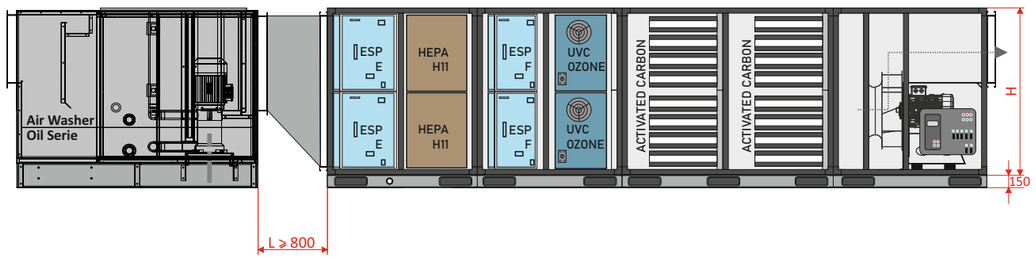
Model	Airflow rate (m³/h)	Static Pressure (Pa)	Fan Power (380V) (kW)	Total Efficiency
VH 050	5000	400	3	Fat -99% / smoke -99% / Odours -95%
VH 100	10000	500	7,5	
VH 150	15000	500	11	
VH 225	22500	500	15	

Model	Dimensions (mm) W	L	H	A	B	C	D	W1xH1	W2xH2	Weight (kg)
VH 050	1300	4560	700	700	700	1760	1000	1270x620	1270x250	1250
VH 100	1300	4760	1300	700	700	1760	1200	1270x1220	1270x450	1750
VH 150	1900	4960	1300	700	700	1760	1400	1820x1220	1820x450	2200
VH 225	1900	5160	1900	700	700	1760	1600	1820x1650	1820x560	2700

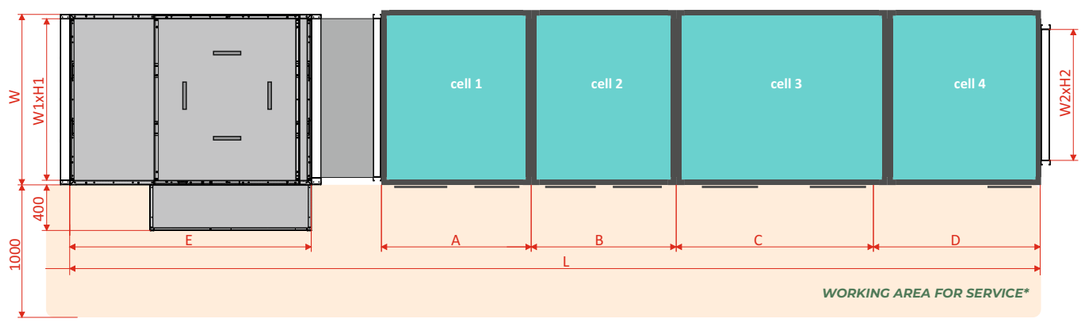
HDM VP

Cooking Appliances : VERY HEAVY

FRONT VIEW



TOP VIEW



Air Washer : In the 1st stage, the soot and coarse grains are filtered with the water wall, and the metal filters are sprayed with high pressure water as the 2nd stage and the fine grain is washed.
ESP-E : 96% (@3µm) Efficiency electrostatic filter Ashrae Test
HEPA H11 : H11 class high efficiency hepa filter
ESP-F : 99% Efficiency electrostatic filter ISO16890
UVC-P : Ultraviolet lamps that produce very intense ozone
Activated Carbon : 600mm cylindrical cartridges made of high efficiency 4mm pellet carbon coals
Control Board : Fan speed control, filter dirty status, unit on/off operations, optional make-up unit control are performed with touch panel
Fan : Plug-type fan with backward curved blades

Model	Airflow rate (m³/h)	Static Pressure (Pa)	Fan Power (380V) (kW)	Pump Power (380V) (kW)
VP 050	5000	500	4	2,2
VP 100	10000	550	7,5	2,2
VP 150	15000	600	11	3
VP 225	22500	650	15	5,5

Fat -100% / smoke -100% / Odours -99%

Model	Dimensions (mm) W	L	H	A	B	C	D	E	W1xH1	W2xH2	Weight (kg)
VP 050	1300	8400	800	1600	1400	1800	1200	1600	1270x620	1270x250	1500
VP 100	1300	8600	1500	1600	1400	1800	1400	1600	1270x1220	1270x450	2150
VP 150	1900	8900	1500	1600	1400	1800	1500	1800	1820x1220	1820x450	2710
VP 225	2300	9100	2200	1600	1400	1800	1700	1800	1820x1650	1820x560	3380

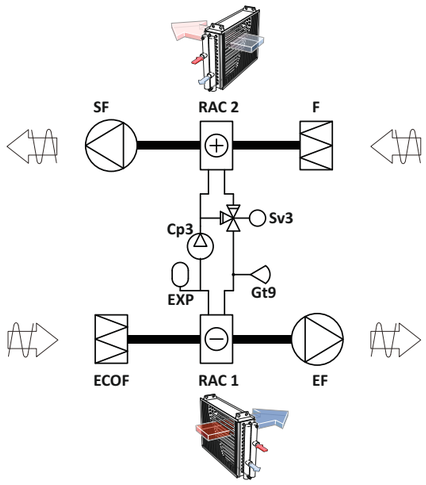
HDM REC

Ecology Package Unit : with Heat Recovery and Make-Up Air

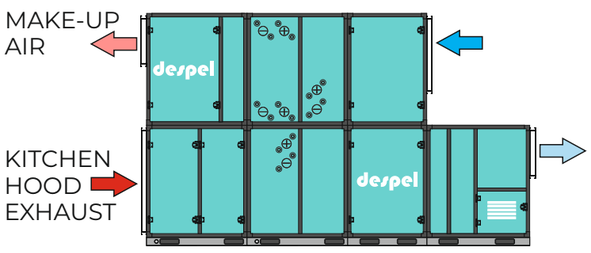
Package Ecology Unit with Heat Recovery HDM REC is a recovery unit according to the coil recovery principle, especially designed to withstand corrosive environments. HDM REC is constructed and supplied as a complete recovery unit comprising coils for supply air and extract air, including pipe joint with speed controlled pump.

The run-around coil unit is used to recover heat from the extract air and transfer this heat to the supply air for reduced energy use. The run-around coil unit consists of the extract air coil with drip tray and the supply air coil (heating coil) mounted in the casing.

Moisture precipitation in the extract air's heat recovery coil entails a risk of freezing and possibly frost/ice forming. This freezing is counteracted by installing and connecting a freezing sensor that controls the valve actuator (liquid flow) in the extract air coil. Ecological filters have been added as in all our kitchen systems to prevent dust/oil layer on the coil surfaces.



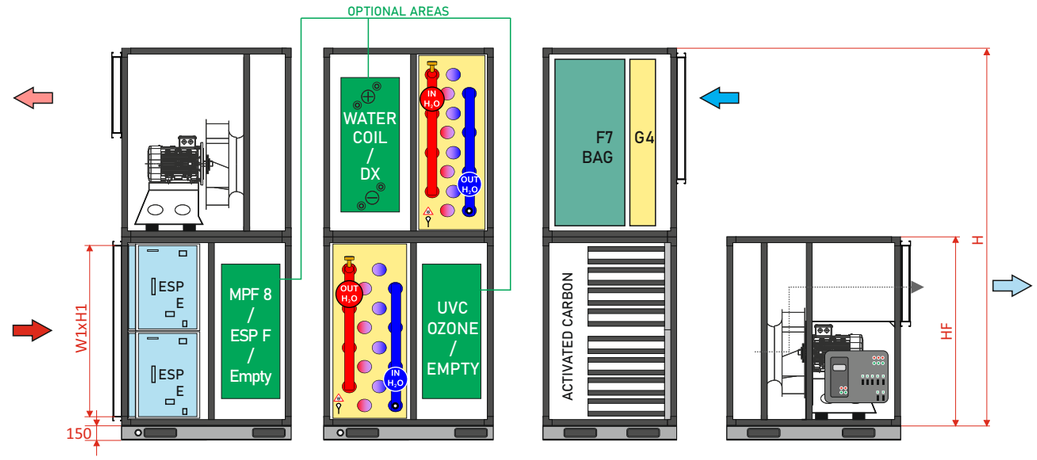
SF Supply air fan
EF Extract air fan
Cp3 Circulation pump energy recovery circuit
Sv3 Valve actuator energy recovery circuit
Gt9 Freezing sensor
F Fresh air filters
ECOF Ecological filters
RAC Run around coils



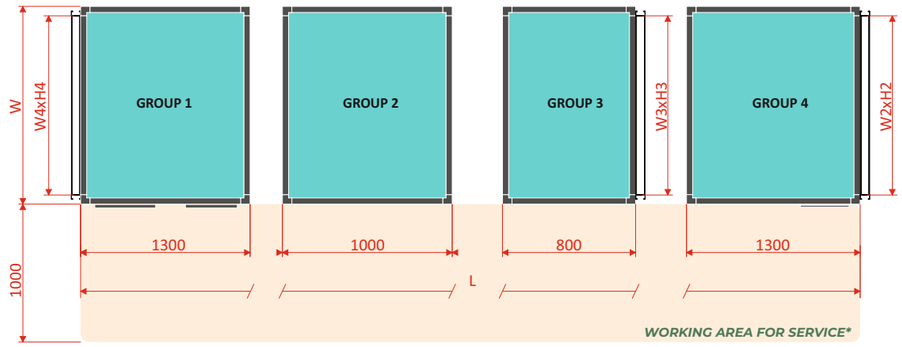
EXHAUST SIDE / *VANTILATOR SIDE*

Model	Max. Airflow Rate (m³/h)	Static Pressure (Pa)	Fan Power (380V) (kW)	Max. Airflow Rate (m³/h)	Static Pressure (Pa)	Fan Power (380V) (kW)	Pump Power (230V) (W/A)	Cooling 7/12°C (kW)	Heating 90/70°C (kW)	Winter Heat Recovery (kW)
REC 50	5000	400	3	6000	350	2,2	750 / 2,2	38	34	19,8
REC 100	10000	500	5,5	12000	400	5,5	750 / 2,2	81	72	37,3
REC 150	15000	500	11	18000	450	7,5	750 / 2,2	126	102	56,4

FRONT VIEW



TOP VIEW



G4 : Fiber cassette filter for coarse dust particles filtration
F7 : Compact type filter for fine dust particles filtration
Heat Recovery : Heat recovery with run-around coils
Heating/Cooling Coil : Optionally, hidronic coil or DX coil product can be selected.
Fan : Plug-type fan with backward curved blades

ESP-E : 96% (@3µm) Efficiency electrostatic filter Ashrae Test
OPTIONS : [ESP-F : 99% Efficiency electrostatic filter ISO16890] / [MPF 8 : ISO ePM1 65% ISO16890]
Heat Recovery : Heat recovery with run-around coils
OPTIONS : [UVC-P : Optionally, ultraviolet lamps that produce very intense ozone] / [Boş Empty]
Activated Carbon : 400mm cylindrical cartridges made of high efficiency 4mm pellet carbon coals
Fan : Plug-type fan with backward curved blades
Control Board : Fan speed control, filter dirty status, unit on/off operations, make-up unit control are performed with the 7 "touch panel supplied as standard

ECO FRIENDLY

Model	Dimensions (mm) W	L	H	HF	W1xH1	W2xH2	W3xH3	W4xH4	Weight (kg) G1	G2	G3	G4
REC 50	1300	4400	1600	800	1200x700	1200x300	1200x500	1200x300	280	350	210	140
REC 100	1300	4400	3000	1500	1400x1400	1400x400	1400x800	1400x500	510	605	370	255
REC 150	1900	4400	3000	1500	1800x1400	1800x500	1800x800	1800x600	780	980	575	390

Electrostatic Filters

Electrostatic filters (ESP) pass the oil particles contained in the exhaust air through the high-voltage ionizer into negative charged ions,through which they pass through the collector cell consisting of positive and negative row plates and these oil particles are retained by positively charged plates. Thus, exhaust hood exhaust air is discharged to the environment at a rate of approximately 99% (in double pass) to the nature free of cooking oil, smoke and soot.

E Series

F Series

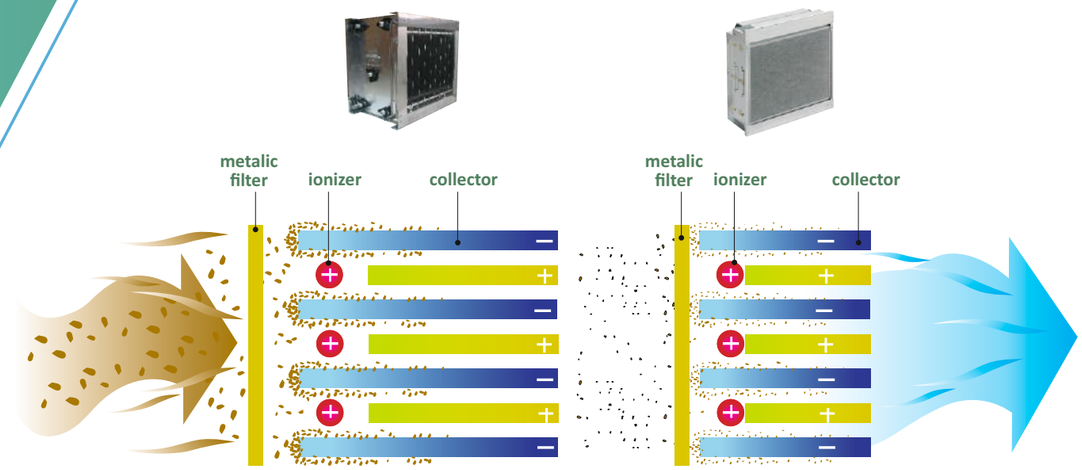
- Eliminates up to 99% of smoke, oil and grease particles
- Filters particles down to sub-micron levels
- Produces Ozone to help reduce malodours
- Designed with an integral sump
- Modular in design
- Specifically designed for commercial kitchen application
- Energy efficient: – uses no more than 50W
- Greatly reduces grease build-up within the duct run

In the active electrostatic filter F series, the initial pressure drop increases slowly while the filter gets dirty. This characteristic, combined to an extraordinary capacity of pollutants accumulation, allows the filter to have a long operation time between maintenance and the other one.

Fat

Smoke

ESP is used in the collection of wet and dry particulates like dust, oil mist, cooking fumes and various pollutants. Dirty air is drawn by the motor blower through a washable pre-filter which traps large dust particles. The remaining particles, some as small as 0,01 microns, pass into a strong electrical field (ionizing section) where the particulate receives an electrical charge. The charged particles then pass into a collector plate section made up of a series of equally spaced parallel plates. The particles are held in these plates.



EFFICIENCY SINGLE PASS >0,01µ **96%**

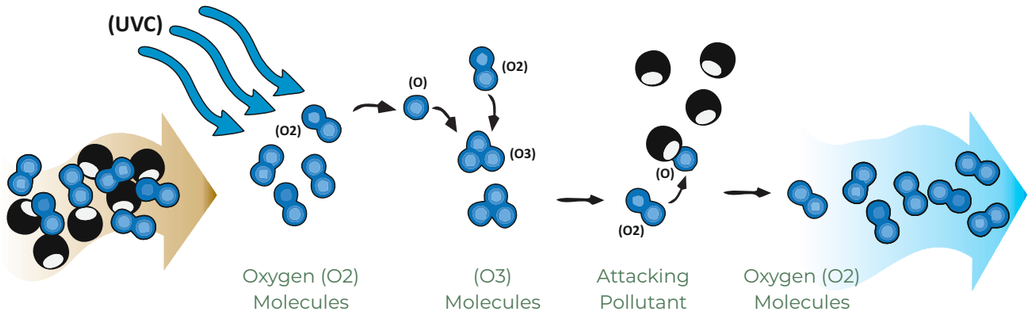
EFFICIENCY DOUBLE PASS >0,01µ **99%**

- Leading Electrostic Technology for highly effective grease and smoke filtration from kitchen ventilation extract systems
- Inline filtration system for the removal of grease and smoke as part of the DEFRA Guidance pollution control requirements
- Single Pass Option – Up to 96% Efficient Grease and Smoke Removal
- Double Pass Option – Up to 99% Efficient Grease and Smoke Removal
- Low Resistance / pressure drop
- Includes a grease drain point in the base of the unit
- Requires periodic maintenance to keep system effective and efficient
- Excellent for high volume / high grease catering establishments

UV-C Ozone Chamber

The units feature high output UV-C lamps which produce ozone. Grease and odours from the cooking process are attacked first by UV-c light in a process known as photolysis. Ozone then continues to act as the exhaust air moves through the ductwork by a process known as ozonolysis.

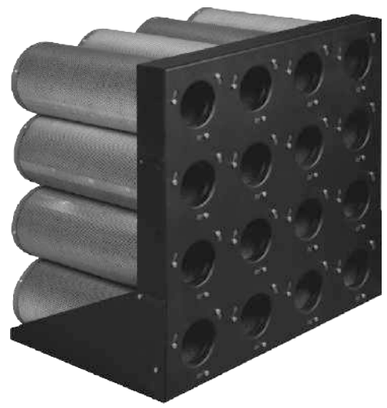
- Perfectly matched power supplies with long-life lamps
- High-density UV-C and ozone technology
- Eliminates oil and gas odors
- Low cost and limited maintenance requirements
- Extends the life of carbon filters and increases their efficiency



Units also known as ‘odour neutralisers’. Ozone breaks down odour molecules. It does not mask smells, it eliminates them. When independently tested ozone (as used in our ecology units) successfully removes up to 90% of odours. [European Standard EN13725:2003]

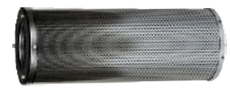
Activated Carbon Filter

Activated carbon filters are well known for their use in controlling gaseous odours. Traditionally, they are used as a sponge, absorbing gaseous odours as air passes through. The downside is that they quickly get saturated, and so need regular replacement. Newer ozone-based (ozonolysis) technologies are proving to be an increasingly popular and effective alternative for gaseous odour control.

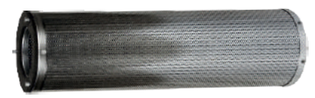


Iodine : 900 mg/g (AWWA B 600-78)
Specified Surface Area : 1000 m²/g
Density : 550kg/m³ (ASTM D 2854)
CCI Adsorbtion : 50 % (ASTM D3467)

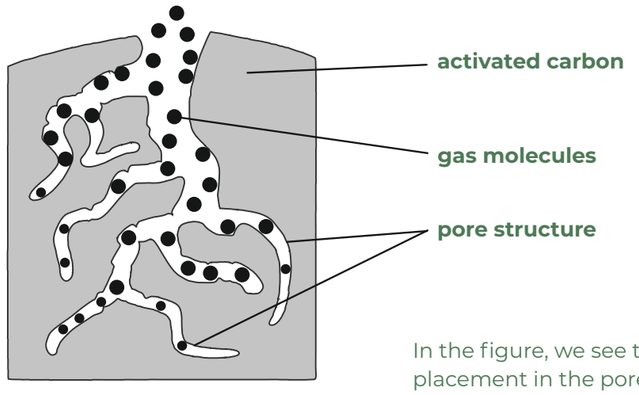
400mm



600mm



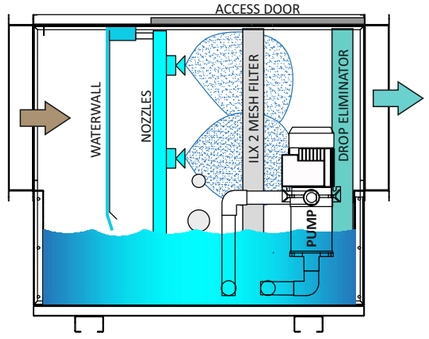
However, recent research is showing that activated carbon is very good at removing ozone from air – making activated carbon filters a useful complement to ozone-based systems. Used in this way, carbon filters last longer, as ozone acts to remove odours in the gas phase and further oxidises any residual odour molecules which become trapped on the activated carbon surface.



In the figure, we see the absorption of gas molecules and their placement in the pores in activated carbon.

Water Scrubber

Water filtering system for smoke and grease. The system is based on water, the most simple and efficient element in nature. A combination of fresh and recycled water from a tank, runs through a recirculation pump, and uses nozzles to spray water under high pressure to wash the gasses. It then filtrates and purifies the smoke, eliminating grease particles produced by cooking and combustion.

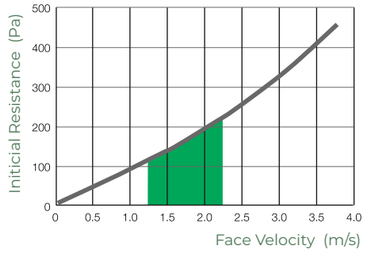


The unit is equipped with stainless steel mechanical filters which, when hit by the jet of water caused by the nozzles, distribute the air over the entire surface. A further barrier of mesh stainless steel filters is used to filter the particles that may have escaped the first filtration. Then, a water separator filter, also made of aliminium, has the purpose of reducing as much as possible the humidity produced by washing.

- The cabinet construction is formed by stainless steel panels
- Water curtain system is manufactured from stainless steel sheet panels and is articulate
- This allows easy access to the air washing system for maintenance
- Water reservoir is manufactured from stainless steel sheets with seamless welding
- Pipes and valves with proper diameters and dismountable washing nozzles are used in order to avoid obstructions
- Service valves are winged type
- Dismountable water filters are placed in front of water inlet valve, overflow pipe and pump suction
- Exhaust fan and water circulation pump are centrifuge type
- Armatures with batten type fluorescent lamps are used
- Power panel is placed on the cabinet and the internal cable network is ready to use
- The particles conveyed by the exhaust air are hold ideally thanks to the water curtain and air washing systems
- The eliminator-separator system placed in the air washing system holds the water drops carrying oil particles, conveyed by the exhaust air; and prevents pollution
- Water-curtain paints are suitable for both manual and continuous applications

Hepa Filter

Absolute filters are classified E11 according to EN1822:2009. They are the ideal solution for upgrading an existing non-HEPA HVAC installation into a HEPA installation.
The recessed mini-pleat media pack means that absolute filters are easy to handle and install, while high-quality MDF cell sides ensure a smooth non-shedding construction.



This filter can be installed with the pleats in either the vertical or horizontal position. Absolute filters offer low media resistance, which results in low energy consumption and long service life. A one-piece gasket around the perimeter of the filter ensures leaktight installation. This filter is made of fully incinerable materials, and the temperature limit is 70°C.

Purpose: Removal of ultra-fine smokes and particles

- Efficiency > 98% (efficient for 0,3 µm)
- Classified E11 according to EN1822:2009
- Recessed pack ensures easy handling
- One-piece gasket provides leak-tight seal

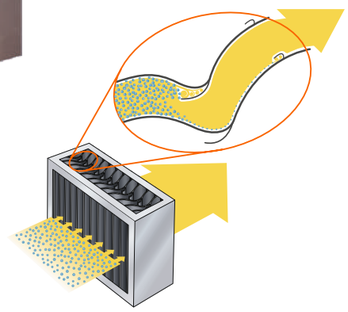
	Airflow Rate m³/h			Efficiency	
Dimensions (mm)	@ 1,25m/s	@ 1,5m/s	@ 2,25m/s	@ 0,3µm	EN1822:2009
610x305x292	830	1000	1500	98%	E11 95%
610x610x292	1700	2000	3000		

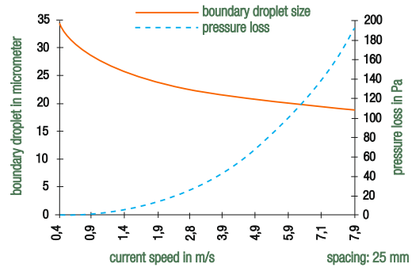
Pre-Filters

Pre-filters are a element that keeps the coarse particles in the exhaust air and allows them to filter into the lower pan. It prevents the entry of embers and coarse particles of igniting substances, which are formed and rise especially with high temperature, into the unit. These filters guarantee a further decrease of greases and oily residual, constituting an excellent solution in fire prevention.

Droplet Separator

The streamlined separator deflects the droplet laden gas stream, as a result the momentum of the droplets causes them to impinge onto the profile surface. The droplets coalesce together and form a liquid film, the influence of gravity causes the liquid to drain to the bottom of the profiles. Specially shaped separation chambers improve performance by enhancing the separation of finer droplets and ensuring problem free discharge of liquid.





MPF 5 M5 ISO ePM10 55%
MPF8 F8 ISO ePM1 65%

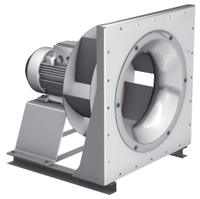
Media : Micro Glass Fibre
Operating Temperature : 80°C

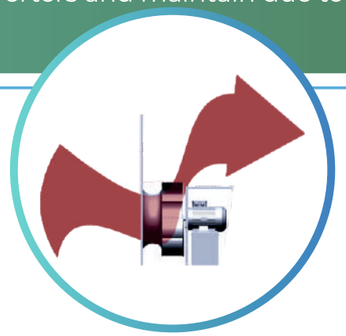
- Compact and rigid
- Low energy use
- High surface area
- Metal free
- MPF range fully meets VDI 6022 requirements.

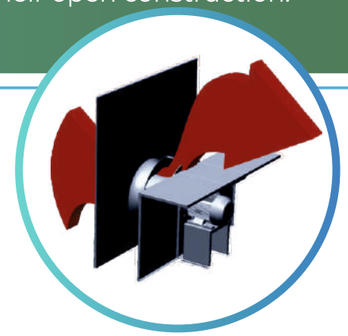
The high quality glass fibre media used in MPF filter supply optimum performance with suitable pleat height. The water resistant frame provides extra assurance in high-humidity applications.

Fans and Motors

Kitchen ventilation systems often have relatively high resistance against which a fan has to operate. Therefore, fans need to be sized to cope with a design pressure of a minimum additional 10% pressure margin. Backward curved centrifugal plug impellers are preferred as they are less prone to imbalance and are easier to clean,more efficient operation with frequency inverters and maintain due to their open construction.







The new generation efficient plug series in our fan range and the actual versions of impeller technology are used in our units.. The result: More efficiency and reduced turbulent conditions. And that is highly effective as the plug series ensures:

Alower energy consumption / Alower costs / Alower noise levels

When placing the plug fans in the unit, the motor is taken out of the air stream considering the longer working life as a design. Plug fan electric motors fully enclosed, fan cooled (TEFC) squirrel cage type,"F" insulation at 40°C ambient temperature as continuous operating conditions. Motor selections were made with a voltage tolerance of 10% and a frequency tolerance of 5% . Plug fans that we use in ecology units are directly coupled, ie the motor and fan run on the same shaft at the same speed. The implants are made of epoxy / electrostatic painted steel and the base carrier frame is made of galvanized steel AISI316.

The fan and motor are mounted on a common carrier frame and are isolated from the housing by vibration dampers and flexible connections. The impeller section is free of intervention covers. It is only accessible by panel dismantling. Since the engine part is outside the airflow, service can be carried out from the intervention cover even during operation.

Automation Control Board

Our engineers designs all controls systems entirely in-house, this advantage ensures that the most efficient, lowest cost and highest quality packages are available. Offering a unique combination of controls features and flexibility, tailored to an infinite variety of HVAC applications, software engineers are some of the best in the industry utilising the latest methods for energy management, sensor response, together with a range of building automation interfaces, all are standard features from units controls.

7" Multi-Touch Panel

Frequency Convertor

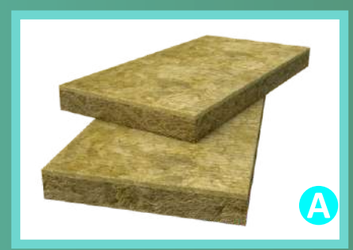
PLC Controller

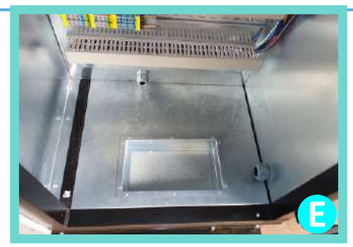
Quick change plug connectors between unit sections and electrical components can also be ordered. This service reduces onsite installation, giving the installer peace of mind from a complete ventilation package. Optionally, fan speed control can be provided by communicating with sensors according to filter pollution.

Our company provides a number of communicating protocols including BACnet® or Modbus®, allowing fast and simple integration of the HVAC controls onsite, no matter what the building automation and control system is. Information supplied by the automation packages can form an integral part of the intelligent building and automation system and can help reduce energy consumption of buildings.

The post-installation commissioning by a our controls specialist provides an essential service to ensure efficient operation of the equipment. This results in significant value to all parties by delivering a system that performs as specified, intended and paid for.

Casing Specifications

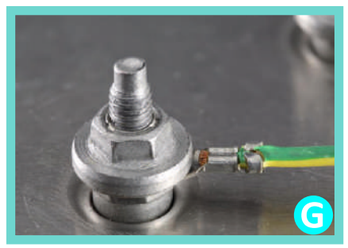




The casing is built out of a aluminium framework (optional: galvanized steel or welded stainless steel AISI316L) holding double walled panels and, if required, provided with inspection doors. The thickness of the framework is at least 1mm, depending on size and application. The double walled panels are made of galvanized steel (optional: stainless steel AISI316) and insulated with 50mm thermal and acoustic insulation (A), Rock- wool type 70kg/m3, other insulation are possible on request. Sheet thicknesses are available from 1mm up to 2mm. Air handling units outdoors are provided with pitched roof plates and 50mm overhanging eaves.

The inspection doors are fitted with aluminum casting locks (C) and hinges (D) which are mounted on the outside of the panels to avoid thermal bridges. Doors that close overpressure sections are provided with a safeguard to prevent dangerous situations. Not self- adhesive EPDM rubbers are used to prevent air leakage.

A special ventilation grille (F) is designed on the panels in order to cool the filter systems containing electronic cards. These outdoor ventilation grills are also equipped with a Pol 20 filter against outdoor dust. The carrier chassis of the modules are made of special electrostatic powder coated galvanized sheet with a wall thickness of 2mm to 4mm according to the model sizes. A special cable tray design (B) is available on the inside of the chassis for ease of wiring between modules. These cable ducts are controlled from the intervention covers opened on the front of the chassis and are also connected to the equipment to be connected by cable passages (E) opened on the bottom panel. Grounding all components are provided with 16mm2 earth-bonding (G).



Some References

McDonald's
BURGER KING
RIXOS HOTELS
PIDEKO
Mr.Gürkan STEAKHOUSE
OLIVE TREE HOTEL
MERİT Crystal Cove
hillside BEACH CLUB
elite world HOTELS
USTA PIDECI
PIDEM
susesi LUXURY RESORT
ALVA DONNA HOTELS
simit sarayı
AMARA DOLCE VITA LUXURY
1905 HD İSKENDER
OMMER HOTEL
FAME RESIDENCE LARA · KEMER · GOYNUK
DO&CO RESTAURANTS HOTEL LOUNGES CATERING
BODRUM MANTI&CAFE
HuQQabaz
BORSA RESTAURANT
SULTANS MANGALBAŞI | RESTAURANT
HATAY MEDENİYETLER SOFRASI
GÜNAYDIN RESTAURANT
PREP RESTAURANT
BLUEBAKE RESTAURANT
beeves burger
ALİBEY RESORT SOĞUCAK
DG dönergene
Tavuk Dünyası
döner CO
TADI DÖNER
KFC
ÇÖPÇÜ
MEVLANA PİDE
1960 görgülü PASTANELERİ
brasserie patanes
SALOON BURGER
KARAFIRIN
ALAÇATI MUHALLEBİCİSİ
MICKEY'S
BURGER HOUSE
elite world asia
American Ribeye Angus VIRGINIA ANGUS Grille & Beef Market
MERİT Park Hotel & Casino
çilekli et restoran
CROWNE PLAZA HOTELS & RESORTS
yeni meşe's
ÇENGELKÖY BALIKÇISI
MASA RESTAURANT

Notes