DUOVENT® MODULAR XLH/XLHL







Technické parametry

Cabinet

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Modular chambers are built out of 50 mm thick galvanized sheet metal panels finished with RAL9002 (gray-white) external coating. Individual panels are lined with acoustic and thermal non-flammable mineral wool insulation. For easy service access modular chambers are fitted with either hinged service door or with a fully removable panel. Bottom of each modular chamber is supported by 130 mm high galvanized steel profiles.

Unit's insulation lining meets CSN EN 1886:

- Structural strength factor of D1
- Thermal bridge factor of TB2
- Thermal permeability factor of T3
- Filter to frame air leakage < .5% (F9)
 Overall cabinet tightness rated as L1
- Overall cabinet tightness rated as

Individual chambers are connected together with M8×16 bolts and a special couplers. The bolts are not part of the delivery. Bolt connections for unit size up to XLH 20 is located on the outside, for unit size larger then XHL 20 bolt connection is on the inside.

Fans

3

Centrifugal backward-curve blades fans with impeller made out of composite materials. Each furnished fan is statically and dynamically balanced.

EC motors

EC motor is assembled directly on the fan impeller. The fan motor can be continuously controlled by an external signal 0 to 10V. The motor is equipped with its own built-in thermal protection. Motor efficiency class IE4, electric motor protection IP54.

AC motors

Base AC motor is assembled directly on the fan impeller. The fan motor can be continuously controlled by an external signal 0 to 10V by means of a frequency converter, which can be ordered as the unit accessory. The motor is equipped with its own built-in thermal protection. Motor efficiency class IE4, electric motor protection IP54.

Fixed plate heat exchanger

Aluminum built fixed plate or cross-flow heat exchanger separates fresh air stream from exhausted air. Fresh air inlet is equipped with a by-pass damper used when recuperation is not needed.

RW Heat exchanger

Rotating Wheel heat exchanger can transfer heat or heat and humidity simultaneously. It is designed for ambient temperatures running between -20 °C to +55 °C. Wheel is coiled from layers of aluminum foil with standard layer span of 1,6 mm. Wheel's casing is supported by galvanized profiles.

Brush seal provides a tight seal between rotor and its casing. Where needed, labyrinth seal with air leakage rate less than 1.5% can be used. The rotating wheel is driven by electric motor, worm transmission with pulley and belt. Power supply requirement: $1 \times 230 V/50 Hz$ or $3 \times 230 V/50 Hz$. 0 to 10 V continuous speed controller comes as an option.

Filters

Possible options are: pocket filters, panel filters, filters with active carbon or grease filters. G3 to F9 filter classification is available for pocket and panel filters. Additional option of HEPA/ULFA high efficiency filters is also available. Access to filters is provided through opening service access door.

Dampers

Fresh air intake opening and return air intake opening are both fitted with aluminum control dampers. The dampers meet class 2 tightness classification according to EN1751 and are ready for installation of power actuators. Air mixing or air circulation damper configuration are available upon request.

Heating and cooling provisions

Based on individual project requirements each unit can be fitted with a hot water coil or with an electric heat strip to provide for heating and with a chilled water coil or DX coil to provide for cooling. Heat pump system can provide both options, it provides primary source of heating and cooling with hot water coil or electric heat strip as a secondary source of heating. Coils are built out of copper tubes and aluminum sheets locked inside a solid galvanized frame. Where a higher level of protection is needed optional anti-corrosion coating is available. Electric heat strip comes equipped with a safety thermostat which activates at 60 °C and emergency thermostat with manual reset which is activated at 120 °C.

Steam humidifier

Duovent XHL Modular unit can be fitted with a separate chamber dedicated to a steam humidifier. Steam humidifier and its controls are not part of our delivery. This optional steam humidifier chamber comes pre-piped with condensate drain line fitted with a drain trap. Steam humidifier option cannot be controlled by Digireg[®], it needs to come with its own control system.

Noise silencers

The link noise silencers integrated within the unit are delivered in lengths of 600, 1000, 1200 and 1500 mm acc. to required noise reduction level.

Power supply

Either 1× 250V/50Hz or 3× 400V/50Hz, depends on the type uf unit. Control wires and power cables are installed running through plastic penetration inlets pre-drilled in panels and rubber penetration gromets with membrane running on the inside of unit. The unit delivery does not provide for unit's power breaker and power supply. Please note power connection schematics in the picture bellow.



Control system

As a standard configuration, Digireg® control system enclosure comes mounted to unit's mid panel with all internal wiring completed and with control board preprogrammed based on unit's configuration. For any other mounting location please notify our technical department, non standard Digireg location can be done per request. QC running test is performed before each unit leaves the manufacturing plant. StartPack unit commissioning must be done by authorised technician.

Unit Installation

Installed in vertical position sitting on floor or vertical position sitting on building's roof. Unit's inlet and outlet openings must be considered when installing the unit. Service access must be sufficient in order to open service door in order to replace filters. Digireg must be accessible for any future service work. Adequate space below the unit must be maintained in order to connect to condensate drain needs to slope at 1degree towards the condensate discharge. Refrigeration lines are to be connected to perfabricated square neck mounted in panel. Flexible pipe connections and flexible duct connections are recommended in order to eliminate any vibrations coming from the unit.

Noise

Noise data as listed in acoustic tables represent acoustic output levels at individual inlets/ outlets, including tolerance for weight filter A. The table includes acoustic noise level incorporating casing of the unit and reads noise level when measured 1 m from the service side of the unit, in open field Q=2.The acoustic readings come within ± 3 dB tolerance.

Unit configuration

Unit's individual configuration and its accessories are identified by a specific code number which is part of model number. Any non-typical, custom unit configuration needs to be consulted prior to ordering unit.

Additional Information

Commercial series DUOVENT Modular XLH and XLHL units were designed for continuous operation and provide airflow range between 2,000 to 100,000 m³/h. Both, indoor and outdoor installation options are available. XHL series feature square channel unit sections, XLHL series feature a rectangular channel sections Modular units can be delivered as individual chambers, or in larger blocks. Unit design, coming from ELEKTRODESIGN s.r.o. will offer best unit configuration as fits for transportation. Mechanical connection of individual chambers or connection of blocks is part of the actual installation process and all unit connecting hardware is part of the delivery. Duovent units configurations are selected by special software which also provides complete data sheet for each unit selection. Complete unit specifications and unit submittals come from ELEKTRODESIGN's technical support team.

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Warranty terms

DUOVENT® MODULAR RV equipment, incl. its DVAV, DCAV, DCOP and MVAV systems, must be commissioned by a factory authorized service technician. Failure to provide factory authorized commissioning will lead to termination of rights of the Buyer and will void the unit's warranty.

Model number abbreviation list

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1	2	3	4	5	6	7	8	9	10	11	12	13

- 1 unit's structural design: **DUO-MOD-XLH** – square channel chamber section **DUO-MOD-XLHL** – rectangular channel chamber section
- 2 type of heat recovery module:
 DV fixed plates, cross-flow heat exchanger
 RV - rotating wheel heat exchanger
 BV - without heat exchanger
- Commission from the contract of the second angle of the secon
- 4 unit size: see table below.
- 5 heating provision:
 - DI electric strip heat DCA – hot water coil

- 6 cooling provisions: DCC – chilled water coil
 - DX direct evaporator

(DX coil selection must be accompanied with a type of condensing unit used, type of refrigerant used and total refrigerant capacity)

DXr – evaporator designated for heat pumpoperation. Provides both, heating and cooling

7 - MX - mixed air damper without actuator (when DIGIREG control system is selected actuators become part of the delivery)

C – circulation air damper, without power actuator (when DIGIREG control system is selected actuators become part of the delivery)

- 8 KL fresh air intake and return air dampers, without power actuators (when DIGIREG control system is selected actuators become part of the delivery)
- 9 **FP** unit is equipped with either single--stage or multi-stage SA filter **FO** – unit is equipped with either single--stage or multi-stage RA filter

- 10 type of control system: **DVAV** - Digireg[®] with variable air flow **DCAV** - Digireg[®] with constant air flow **DCOP** - Digireg[®] with constant operation pressure flow
- 11 modular unit configuration:
 LV vertical left (air chambers are stacked)

LP – floor mounted left (air chambers are side by side)

PV – vertical right (air chambers are stocked)

PP – floor mounted right (air chambers are side by side)

12 - PRV - unit arrangement for process ventilation (PROCESS) - for applications excluded from applicability of EC regulation no. 1253/2014, further for applications and markets beyond applicability of EC regulation no. 1253/2014.

E18 – nit arrangement complying with EC regulation no. 1253/2014- Ecodesign 2018.

13 - HRU220-20 - internal no. of ELEKTRODESIGN ventilátory, s.r.o. The internal number is unique for each unit arrangement/variant.

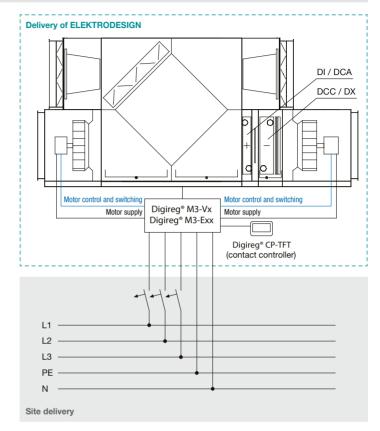


Supplementing figures

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I/C power supply logic schemes

Variant for A/C units Modular XLH/XLHL of motor max. power to 2× 6kW (6kW – unit inlet section, 6kW – unit outlet section). Max. power of electric heater in unit 72kW (3× 400 V/50 Hz).

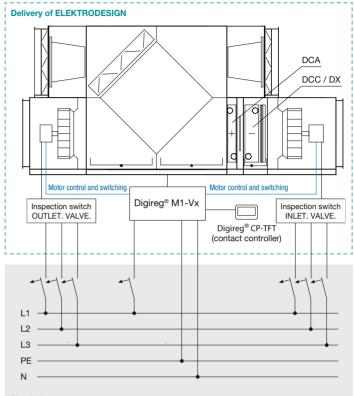


Note: Design of the main breaker and inlet cable to the Digireg[®] I/C system is part of electric project (the project is not within supply scope of ELEKTRODESIGN ventilátory, s.r.o.). Information on total electric inlet power of A/C unit is part of the unit technical specification.



I/C power supply logic schemes

Variant for A/C units Modular XLH/XLHL with motor power above 2× 6kW (6 kW and more – unit inlet section, 6 kW and more – unit outlet section). The diagram applies only to water heating units (not electric heating).



Site delivery

Note: Design of the main breaker and inlet cable to the Digireg[®] I/C system is part of electric project (the project is not within supply scope of ELEKTRODESIGN ventilátory, s.r.o.). Information on total electric inlet power of A/C unit is part of the unit technical specification.

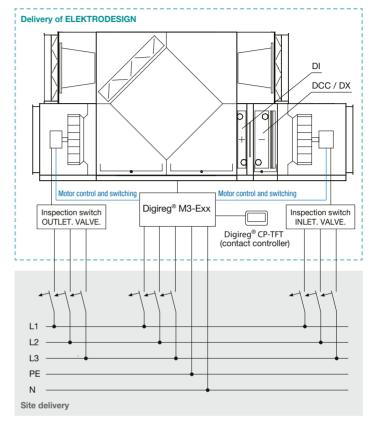
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I/C power supply logic schemes

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Variant for A/C units Modular XLH/XLHL with motor power above 2× 6kW (6 kW and more – unit inlet section, 6 kW and more – unit outlet section). The variant applies only for units with electric heating of max. power 72 kW.



Note: Design of the main breaker and inlet cable to the Digireg[®] I/C system is part of electric project (the project is not within supply scope of ELEKTRODESIGN ventilátory, s.r.o.). Information on total electric ilet power of A/C unit is part of the unit technical specification.



Supplementing figures

Basic components of the unit

1 Supply air and return air damper

- 2 Supply air and return air filter rack designed for type G3 to F9 filter efficiency and HEPA filter.
- Heat recovery module. Cross-flow or rotating wheel type of heat exchanger.
- Supply air and exhaust air motors. EC motors or AC motors with frequency drive.
- 6 Hot water coil with a capilary tube for freeze protection/ Electric heat strip
- 6 Chill water coil or DX coil with water droplets eliminator and condensation pan.



Performance tables of units DUOVENT[®] MODULAR XLH/XLHL

Model	Nominal volumetric air flow [m³/h]					
XLH 2, XLHL 2	2,000					
XLH 2.5, XLHL 2.5	2,500					
XLH 3.15, XLHL 3.15	3,150					
XLH 4, XLHL 4	4,000					
XLH 5, XLHL 5	5,000					
XLH 6.3, XLHL 6.3	6,300					
XLH 8, XLHL 8	8,000					
XLH 10, XLHL 10	10,000					
XLH 12.5, XLHL 12.5	12,500					
XLH 16, XLHL 16	16,000					
XLH 20, XLHL 20	20,000					
XLH 25, XLHL 25	25,000					
XLH 31.5, XLHL 31.5	31,500					
XLH 40, XLHL 40	40,000					
XLH 50, XLHL 50	50,000					
XLH 63, XLHL 63	63,000					
XLH 80, XLHL 80	80,000					
XLH 100, XLHL 100	100,000					

Minimum service space of units DUOVENT® MODULAR XLH/XLHL

Before the final unit assembly, it is necessary to assure that all unit access clearances are met and the unit's service doors are accessible.

- At the fan chamber min. 0,7times of chamber part width, but minimum 600 mm to enable sliding the aggregate out.
- At the filter chamber min. 600 mm for removal of filtering cassettes.
- At the exchanger chamber (heaters or coolers) min. 1,15times width of the chamber part to slide the exchanger o ut.
- At the eliminator chamber min 1 ,15times width of the chamber part to s lide the exchanger out.
- At chamber with plate recuperation e xchanger min. 1.15times of chamber part width to slide the plate exchanger out.
- At chambers fitted with doors min. 600 mm for maintenance access.
- Distance of combustible objects min. 200 mm from the unit.

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