EN

NEW GENERATION OF VENTILATION IN SCHOOLS

DUPLEX **Inter**

- suitable for classsrooms
- minimal noise
- automatic CO_2 control
- duct.free ventilation
- easy installation

ErP 2018

Atrea®

TECHNICAL DATA – DUPLEX INTER

TECHNICAL DESCRIPTION

DUPLEX 850 Inter

Indoor ventilation units DUPLEX 850 Inter are designed for balanced ventilation in school classrooms, open-plan offices, facilities, restaurants, shops and everywhere else where they are required to be built directly in residential areas requiring as low noise levels as possible.

The units are characteristic with their high heat recovery efficiency, very low noise levels and low power input.

Patented DUPLEX Inter units consist of two assembly sections, with flexibly mounted EC fans, a counter-flow heat exchanger, a slide-in supply air, a supply air bypass, self-draught shut-off damper and a controls compartment in the lower part.The drainless condensate pan is heated using a 200 W automatic electric heater. The top section houses slotted noise suppressors, adjustable ceiling slats for supply jet air, an exhaust air filter and an external CO_2 sensor.

Both casings are made of painted sheet metal in optional colour shades (RAL 9906, RAL 9001), with the bottom section being of sandwich design filled with heavy mineral insulation, with an openable front door.

Optionally, the units are supplied with 18 mm thick laminate panels in 3 optional veneer photo designs (as separate accessories – on-site installation)

Inlets and outlets are circular. The bottom of the unit has a spacer frame made of anti-vibration rubber.

An optional part of the delivery are duct passages and combined faucets of titaniumzinc for inlet and outlet port, and duct cover from 30 mm acoustic sandwich panels , or laminated board of standard or atypical size (tailor-made). Optionally, a transition fitting is provided on the outlet for alternative air connections of 280 mm diameter.

Entry openings through perimeter walls are 2x ø 300 in diameter, made by drilling through the core from the inside, with cooling by water and vacuuming (e.g. Hilti 230 V; 3,6 kW, 16 A).

RD5 CONTROLS

- Manual or automatic mode
- Infinitely variable fan speed control
- Automatic bypass damper control
- Freezing protection of the heat recovery exchanger
- External electrical heater switching
- Switching over to a selected performance level by external signal
- Optional automatic operation via sensors (CO_2, RH) with a 0–10V output signal
- An option to preset minimum and maximum speed
- Touch-screen graphic display
- Weekly program
- “Holiday” mode, automatically deactivating and activating operation in accordance with the date set
- Filter replacement notification

ADVATAGES OF DUPLEX INTER

- Very low noise levels to allow installation directly in occupancy areas of buildings (LpA below 30 dB(A))
- Completely independent operation of the unit controlled solely by CO_2 concentrations
- A duct-free system without any piping
- Perfect ventilation with air stream reaching as far as 10 metres
- Very easy to install, without the need for trade drawings or specialist HVAC and electric installation
- No need to deal with difficult condensate draining
- High heat recovery efficiency of up to 93 %
- The 100 % bypass simultaneously closes the inlet to the heat recovery exchanger
- Automatic freeze protection
- Optional reheating of supply air
- When the unit is set away from a perimeter wall with windows, duct noise suppressors for the façade can be installed
- Ecodesign 2018 and VDI 6022 compliant
- An-in-built CP digital control system
- Electrical connection is done with nothing else but a flexible line connected to existing power points (16 A)
- built-in electric preheater 900 W as standard

COMPLIANCE WITH EUROPEAN STANDARDS

- Casing characteristics in compliance with EN 1886
- EC motors compliant with ErP 2015
- SFP within 0.27 ÷ 0.37 $W/m^3/h$ in keeping with Passiv Haus requirements
- Hygienic requirements according to VDI 6022
- Commision regulation (EU) requirements No. 1253/2014 (Ecodesign)

PERFORMANCE GRAPHS

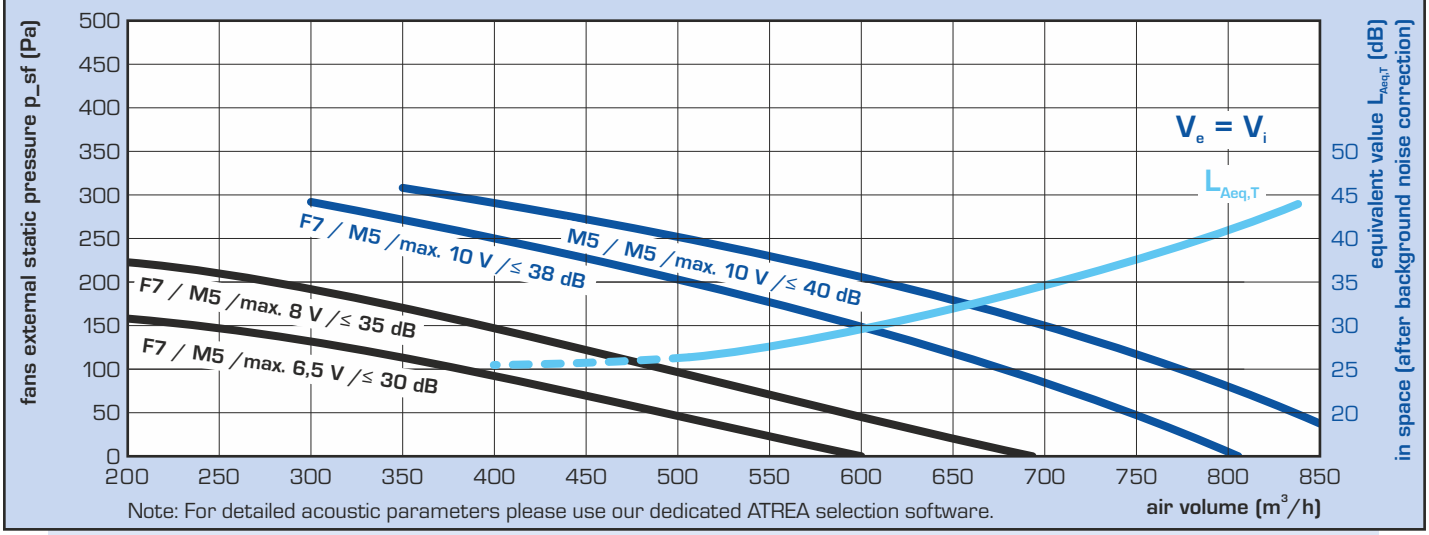
TECHNICAL PARAMETERS

DUPLEX Inter		850
Supply air – max. [1]	m^3h^{-1}	680 / 850
Exhaust air – max. [1]	m^3h^{-1}	680 / 850
Heat recovery efficiency [2]	%	Up to 93 %
Power input – fans.	W	see graph
Electric preheater	W	900
Voltage	V	230
Frequency	Hz	50
Speed – max.	min^{-1}	1 910
Filter class	–	F7 / M5, M5 / M5
Reheating - electric	W	On request
In-built control system – automatic	–	CO_2
Bypass (100 %)	–	Standard
Air stream reach (0.15 m/s)	m	8–10

[1] Maximum flow rate through the unit at zero external pressure

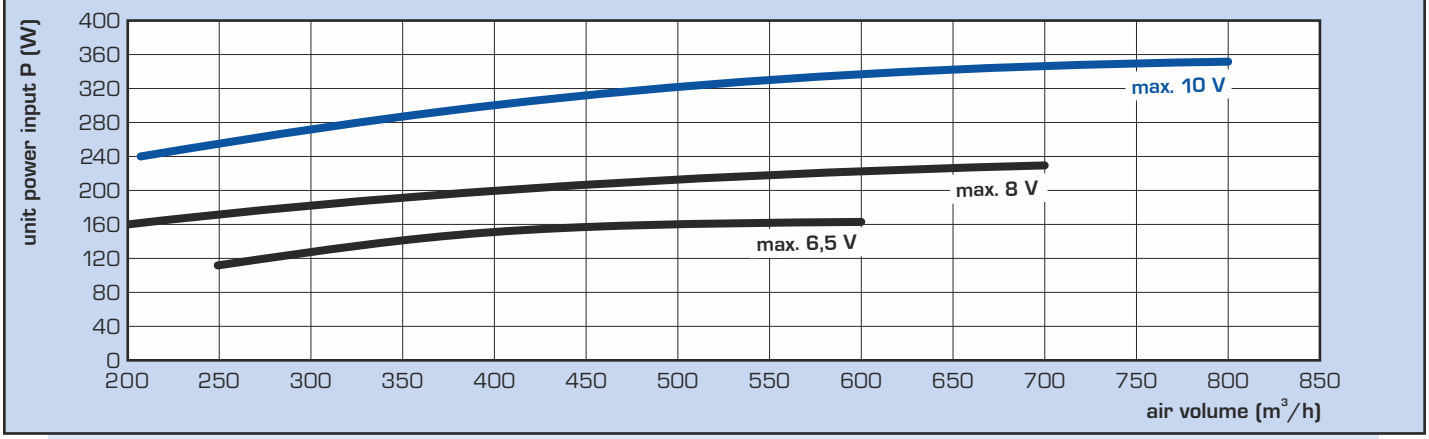
[2] According to volumetric flow rates

PERFORMANCE AND ACOUSTIC GRAPHS

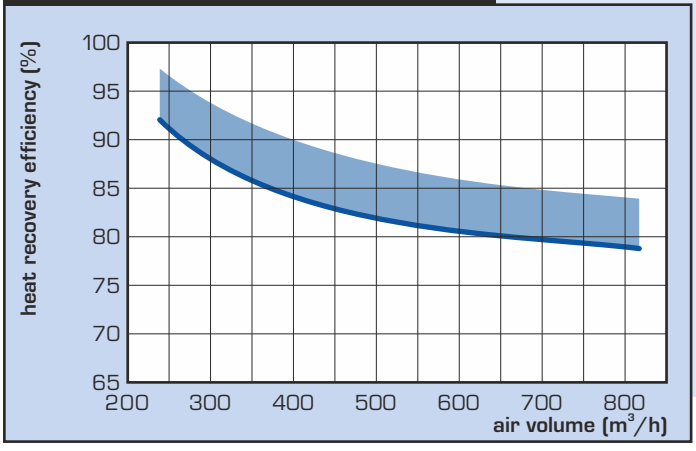


Note: For detailed acoustic parameters please use our dedicated ATREA selection software.

POWER INPUT CHARACTERISTICS

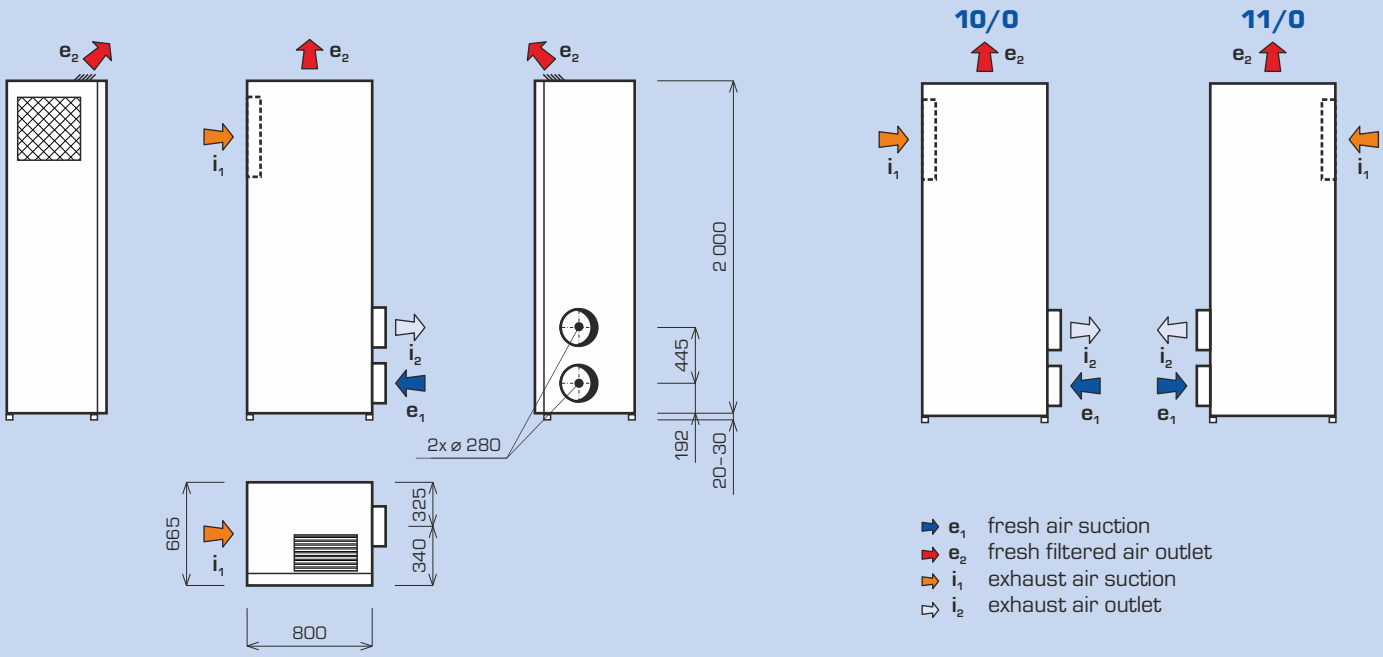


HEAT RECOVERY EFFICIENCY

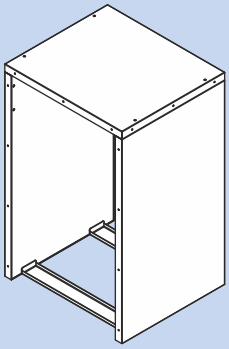


TECHNICAL DATA – DUPLEX INTER

BASIC DIMENSIONS

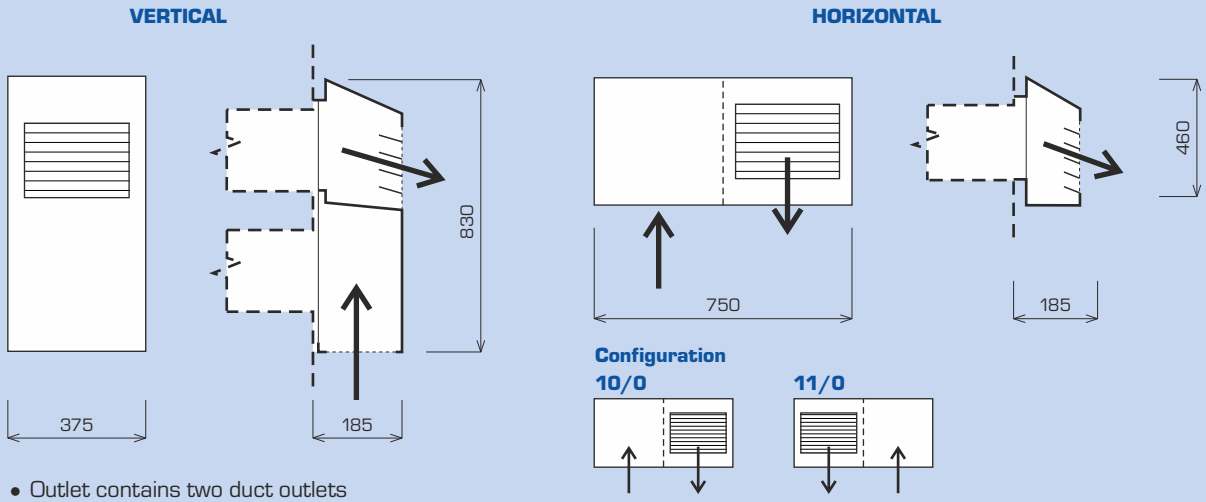


OPTIONAL ACCESSORIES – DUCT CONNECTION COVER



- Stable, freestanding element to cover the ducts to facade outlets of 500 mm length
- Same color design as unit, incl. wooden lamino covers
- No need to be fixed to a wall or floor – just by gap between the wall and the unit
- On-site installation, intended for vertical faucet

OPTIONAL ACCESSORIES – COMBINED FACADE OUTLETS



- Outlet contains two duct outlets
- Installation is done by hanging on the pipe passages by screwing one bolt into the facade of the building (not included)
- The basic design is without surface treatment, before laying it is necessary to surface the outlet

OPTIONAL ACCESSORIES – LAMINATE TILING

Laminate panelling

The optional component is divided into two parts – separate panelling for the unit and for the duct. Each is made of laminated panels 18mm thick, configured for mounting on the unit and the duct cover. All fixtures and fitting for installation are included, complete with edge cover strips for the unit.

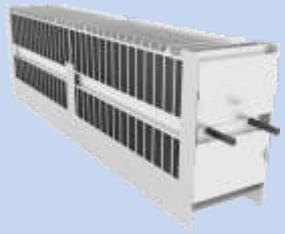
There three basic versions of the decor finish to choose from.

Oak natural

Beech natural

Oak Bardolino

BUILT-IN ELECTRIC PREHEATERS / RE-HEATERS EDO-PTC



- Designed for **integration in the unit** as an optional accessory to be installed at the set position inside the unit including the mounting frame
- The heater is designed for supply air preheating or reheating depending on its performance and designation; not to be changed:
  EDO.INT 0,6 RD5 – 0.6 kW heaters – optional
  EDO.INT 0,9 RD5 – 0.9 kW preheaters – standard
- Operating temperature is controlled by the unit's control system
- The component is prepared for easy installation in the unit including cabling
- The heater has an interference-free SSR switch
- Max. supply air temperature depends on the power of EDO5 (e.g. power input of 100 W increases the temperature of supply air volume of 100 m^3/h by up to 3 °C)

RD5 CONTROL SYSTEM – A TOP-OF-THE-RANGE DIGITAL CONTROL SYSTEM

Basic General description

The digital control module RD5 is the latest method of unit control.
It provides all basic functions while it also contains a range of other inputs and outputs for connecting it to optional sensors (e.g. CO_2 and relative humidity) and signals from the room for increasing ventilation power and also has a web-based server for connecting to the Internet as a standard feature. All optional components including the power supply connect to the switchboard on the top of the unit. As standard the unit also includes a smoke detector to switch the unit off when fumes are taken in.

Units with the digital module can be controlled:

a) **Using a CP Touch controller** – touch-screen, colour display
b) Without a controller, only via a 0–10 V signal (for instance, from a CO_2 sensor or through another master system). Control through external signals and other automatic ventilation functions remain
c) Through an intelligent built-in web-based server, which also allows control through a web application and is also available for options a), b) and c).
d) Through a separate control system via a standard Modbus TCP interface.

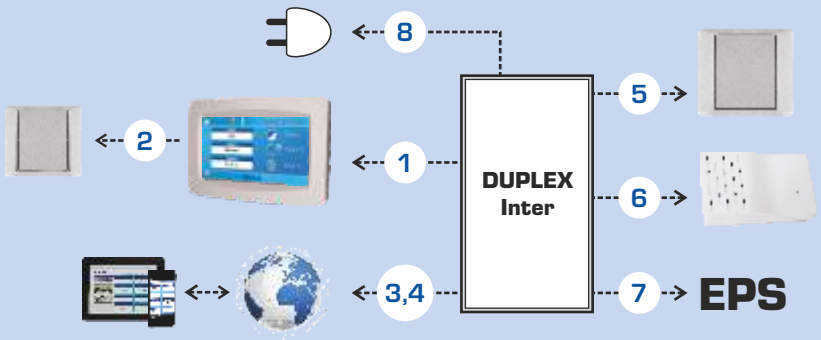
Functions

The control module provides all basic functions of the unit:

- Programming various ventilation power levels during the day and week
- Continuous control of both fan
- Automatic by-pass damper control (supply air by-pass) according to outdoor and indoor air temperature
- Constant supply air temperature control of the electric heater (optional accessory) in a range of between 15 and 50 °C (max. temperature depends on the power of the electric heater)
- Heat recovery exchanger freezing protection
- Switching over to the selected power level when started by an external signal, with adjustable start-up and switch-off delay times
- Optional automatic operation according to sensors – CO2 concentration (one sensor included); a second air quality sensor, a relative humidity sensor or a VOC sensor may be connected to the unit (optional accessories)
- Depending on the setting the unit enables periodic ventilation mode – the unit is idle and starts ventilating at preset interval
- Optional automatic ventilation operation according to occupancy and the air-tightness of the building – in periodic ventilation or intermittent ventilation mode
- An option to connect a signal from an EPS system to disconnect the unit

Controllers

CP Touch (not included) is designed for setting basic ventilation parameters and displaying the status of the ventilation unit including failure conditions. It allows the user to access to standard functions or programme the operating modes which can be run in automatic or manual mode, depending on weekly programme settings. The controller also allows setting the temporary Party / Holiday mode. It includes an integrated room thermostat with weekly heating / cooling mode, which can also control a simple heating system via the control module function. All values are set on a well-arranged graphic touch-screen display.



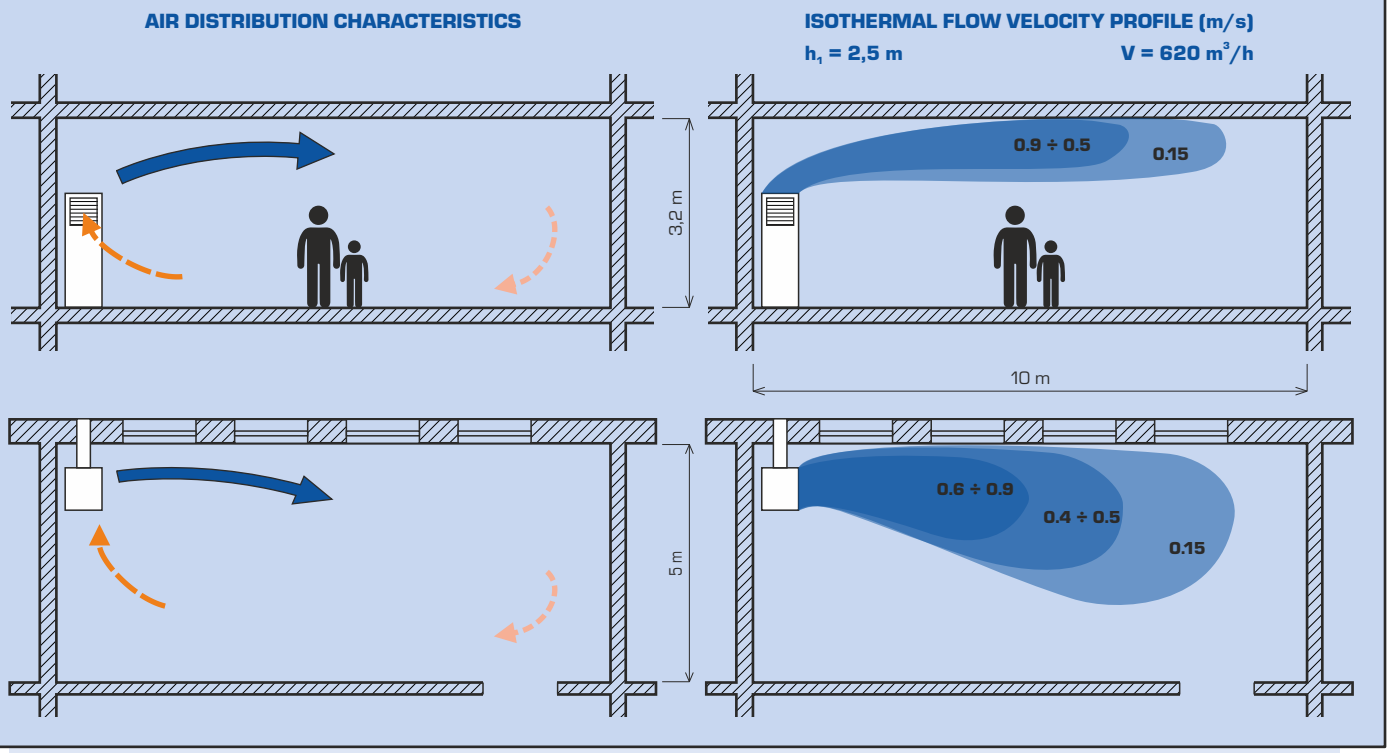
Functions:

1. Digital controller for complete control
2. External room temperature sensor
3. Control via a PC, Internet
4. Master control system
5. External signals – manual power increase
6. Analogue input – second air quality sensor
7. Connecting a signal from an EPS system
8. Power supply – 1x 10A char. C
   (a power socket circuit may also be used)

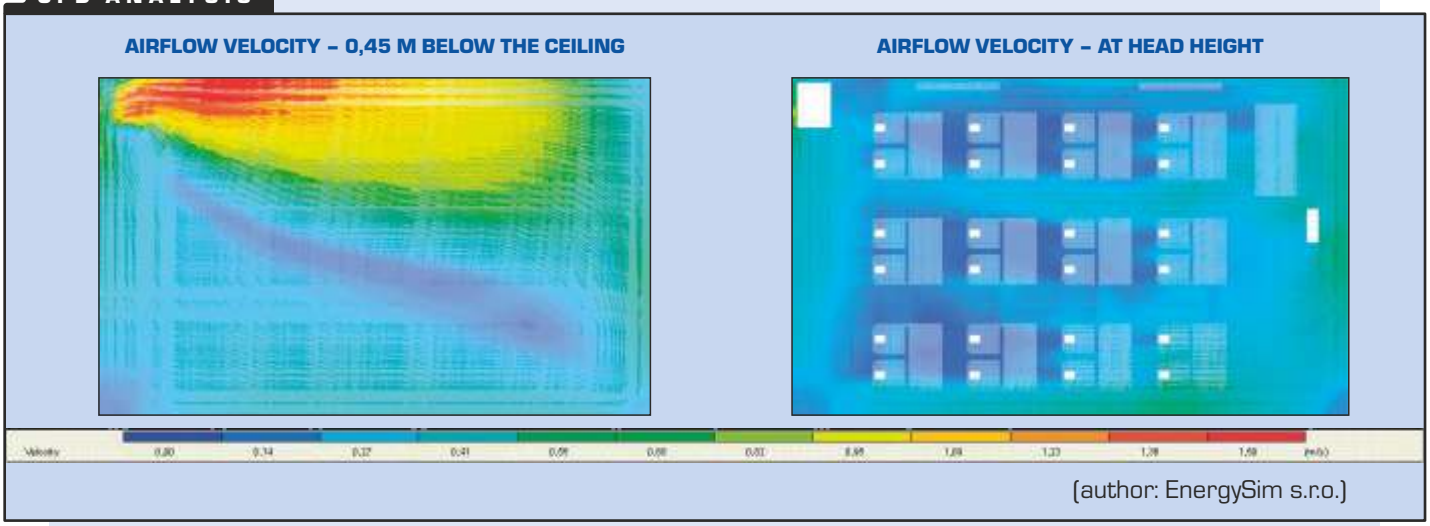
* Connection is provided through the external switchboard on the top of the unit

AIR DISTRIBUTION CHARACTERISTICS

TYPICAL LOCATION OF THE UNIT IN A CLASSROOMS

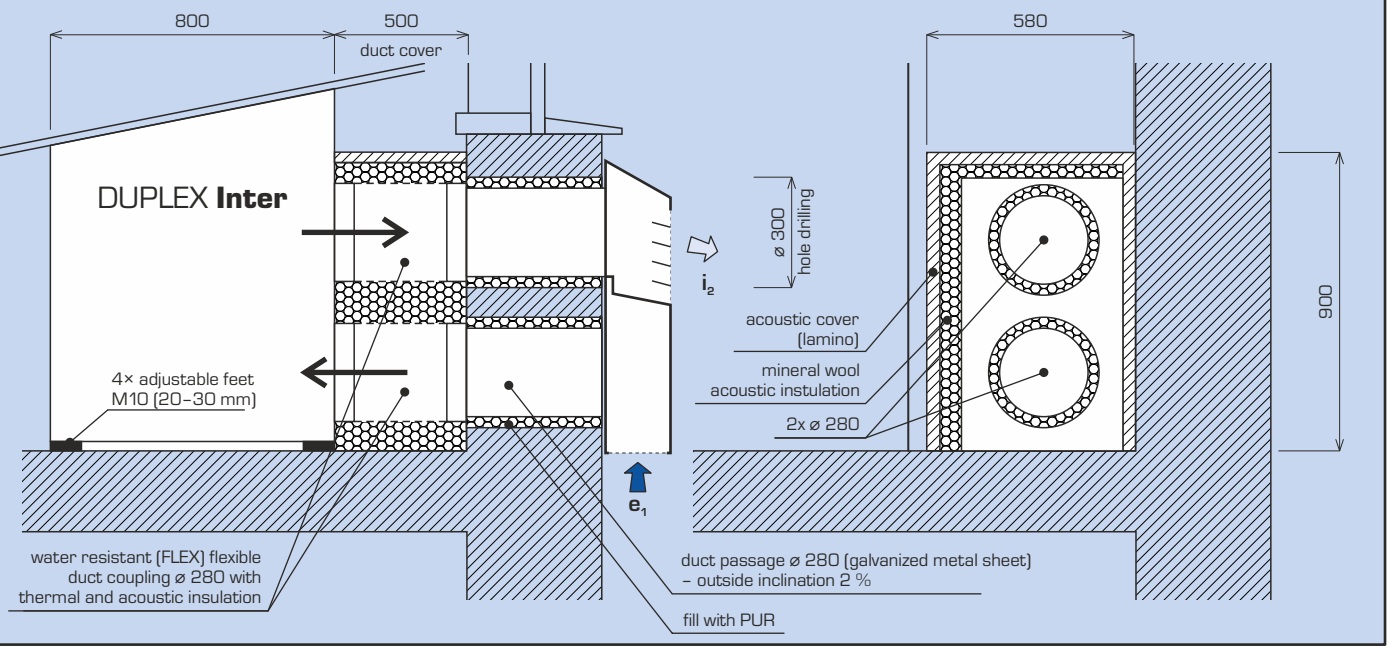


CFD ANALYSIS

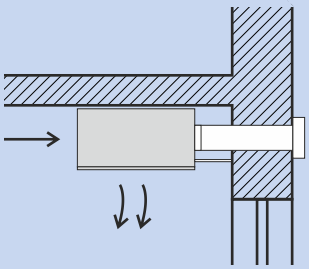


(author: EnergySim s.r.o.)

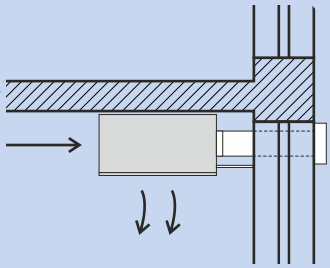
INSTALLATION AND FACADE PASSAGES DETAILS



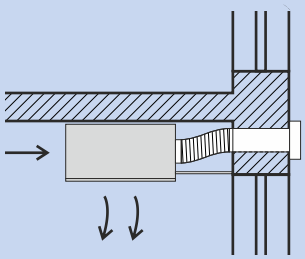
INSTALLATION SAMPLES OF DUPLEX INTER – PLAN VIEW



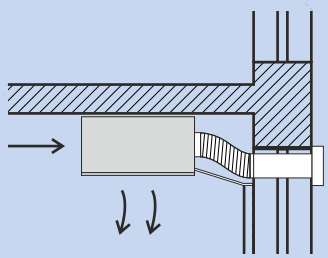
Standard location of the unit in the rear window corner of a classroom
The entries through the wall with windows are above each other in the bearing wall, the duct is covered with laminate boards with noise insulation, with a vertical facade outlet.



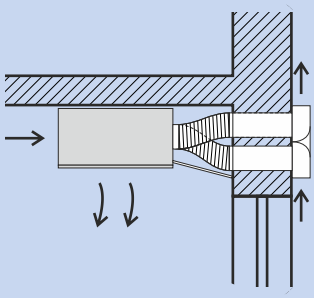
Standard location of the unit – the entries above each other in the window sill
No structural weakening of the window pier.



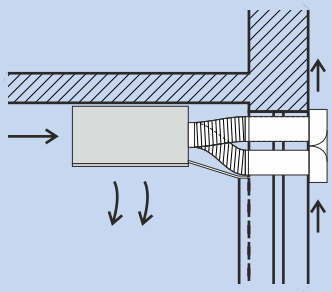
Standard location of the unit – the entries run through the window pier
Must be structurally verified for window pier weakening.



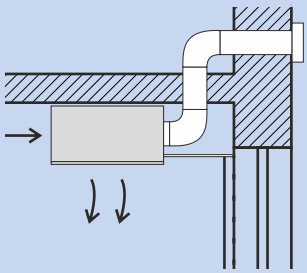
Standard location of the unit – the entries through the window still
The tilted duct cover merges with the window sill.



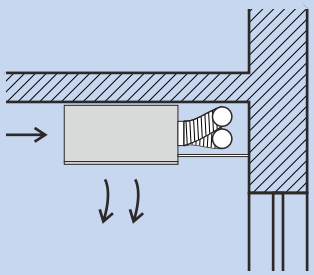
Standard location of the unit – the entries through the wall are next to each other,
with a horizontal facade outlet (e.g. in facade sills)



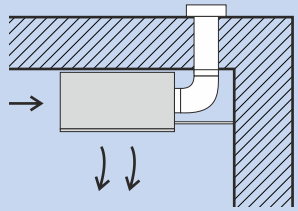
Standard location of the unit – the entries through the window sill next to each other,
with a horizontal facade outlet.



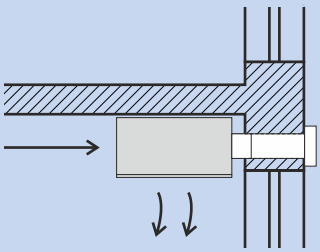
Standard location of the unit – the entries through the classroom rear wall
into the adjacent room and through the wall with windows.



Standard location of the unit – intake and exhaust via vertical HVAC ducting into the roof,
alternatively downstairs.



Standardn location of the unit – the entries through the rear classroom wall
into the side facade of the building.



Standard location of the unit set directly on the wall.
Not recommended!

MODULAR ATREA HVAC SYSTEM

DUPLEX 850 Inter 10/0 – silver color	Ord. No. A350000
DUPLEX 850 Inter 11/0 – silver color	Ord. No. A350001
DUPLEX 850 Inter 10/0 – white color	Ord. No. A350002
DUPLEX 850 Inter 11/0 – white color	Ord. No. A350003
DUPLEX 850 Inter 10/0 – galvenized metal sheet for veneer	Ord. No. A350008
DUPLEX 850 Inter 11/0 – galvenized metal sheet for veneer	Ord. No. A350009
Laminate tiling 18 mm – beech natural	Ord. No. A350020
Laminate tiling 18 mm – oak natural	Ord. No. A350021
Laminate tiling 18 mm – oak bardolino	Ord. No. A350022

	**CP Touch controller** – touchscreen – 4 colour versions (white, ivory, grey and anthracite)	Ord. No. A170130 Ord. No. A170131 Ord. No. A170132 Ord. No. A170133
	**Integrated heater 0,6 kW**	Ord. No. A350010
	**Integrated preheater 0,9 kW**	Ord. No. A350011
	**Filter cassette 850 INT – M5**	Ord. No. A350090
	**Filter cassette 850 INT – F7**	Ord. No. A350091

Note: Other accessories could be found in separate price list.

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