DUPLEX Slim

Compact ventilation units with heat recovery



Purpose

Compact ventilation units with heat recovery, designed to be mounted above concealed flush systems for wall hung toilets.

Description of the units

The units are characterised by a very flat design and their dimensions make them suitable for installation not only above overhead flushing systems for WCs. At the heart of the unit is a heat recovery heat exchanger whose main advantage is its high energy efficiency. Airflow is provided by high efficiency radial fans from leading manufacturer EBM. The unit includes retractable filters to filter the supply and extract air.

Advantages of the units:

- Very low ambient noise
- Meet energy class **A**
- Very low installation depth
- No thermal bridges at the connection ports
- Filter change without opening the door
- Left and right version

A

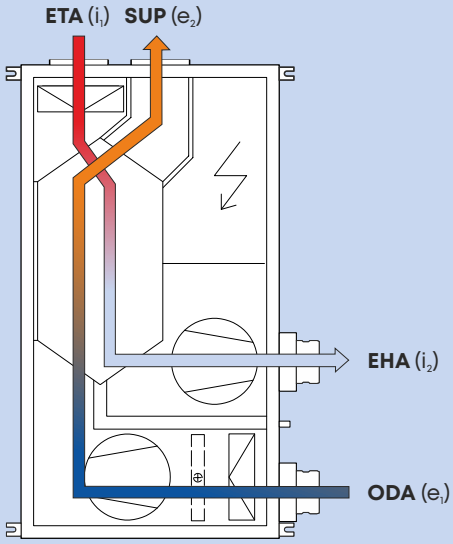
ErP 2018

Units meet:

- EU Commission Regulation 1253/2014 (Ecodesign) applicable from 2018
- Energy class **A** according to 1253/2014 (for average climate)

OPERATING MODES

DUPLEX Slim



equal pressure ventilation with heat recovery

Legend:

- **ODA** (e_1) fresh outdoor air inlet
- **SUP** (e_2) fresh supply air outlet
- **ETA** (i_1) extract air inlet
- **EHA** (i_2) exhaust air outlet

SELECTION SOFTWARE



For the detailed design of DUPLEX series units, accessories and control systems we recommend using our selection software. You can find it on our website at **www.atrea.eu.**

Atrea®

VENTILATION UNITS WITH HEAT RECOVERY

ATREA s.r.o., Čs. armády 32
466 05 Jablonec n. Nisou
Česká republika

Tel.: +420 483 368 133
E-mail: atrea@atrea.eu
www.atrea.eu

DUPLEX SLIM UNITS

BASIC DESCRIPTION OF THE DUPLEX Slim UNITS

Basic description

The units are used in systems for comfortable ventilation of family houses, apartments, offices or smaller commercial premises.

The units are designed for wall (vertical) mounting. The casing of the unit is designed as a sandwich construction in the composition of external sheet metal (surface finish aluzinc) - thermal and acoustic insulation (mineral wool thickness 30 mm, reaction to fire class A2/A1) - internal sheet metal (zinc coating).

The units are equipped with two radial fans, counter-flow plastic heat exchanger for heat recovery, air filtration on supply and exhaust air with Coarse 90% (G4) or ePM1 55% (F7) filtration class and control module with terminal box.

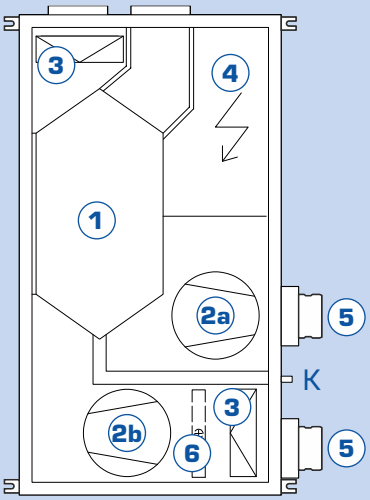
The unit has a ready connection for condensate drainage, connection ports with thermal bridge suppression, filter exchange through a separate opening. Access for servicing and to the heat exchanger through a fully opening door.

Delivery is possible with several types of control modules:

- The basic type **.CP** allows full control by touch control, power adjustment according to the calendar and control according to the air quality sensor (most often CO_2).
- The advanced **.aM** type allows control via touch controls, mobile app or PC. It allows the connection of a wide range of accessories such as zone dampers, air quality sensors, heaters and more...

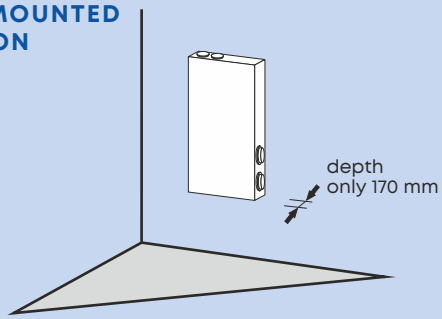
Legend:

1	Counterflow plate recuperator
2a	Exhaust air fan
2b	Supply air fan
3	Fresh or extract air filter
4	Control with connection terminal box
5	Connection sockets with special collar against thermal bridges
6	Preheater (optional)
K	Condensate drain



DUPLEX Slim DESIGN

WALL-MOUNTED POSITION

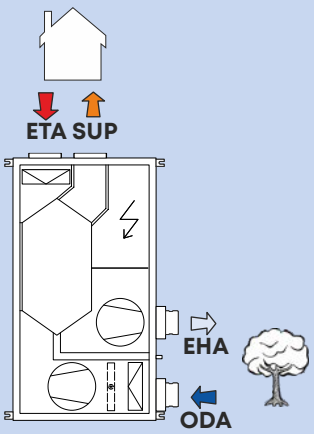


LEGEND

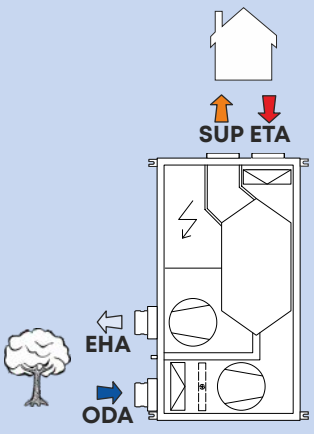
ODA	(e_1)	fresh outdoor air inlet
SUP	(e_2)	fresh supply air outlet
ETA	(i_1)	extract air inlet
EHA	(i_2)	exhaust air outlet

DUPLEX Slim DESIGN

DESIGN 10



DESIGN 11

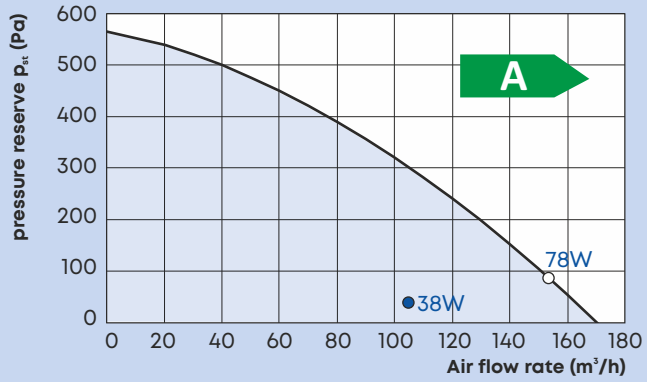


DUPLEX Slim units can only be installed in a wall-mounted (vertical) position. The units are available in design 10 or 11.

TECHNICAL DATA – Slim

DUPLEX SLIM PERFORMANCE PARAMETERS

DUPLEX 150 Slim

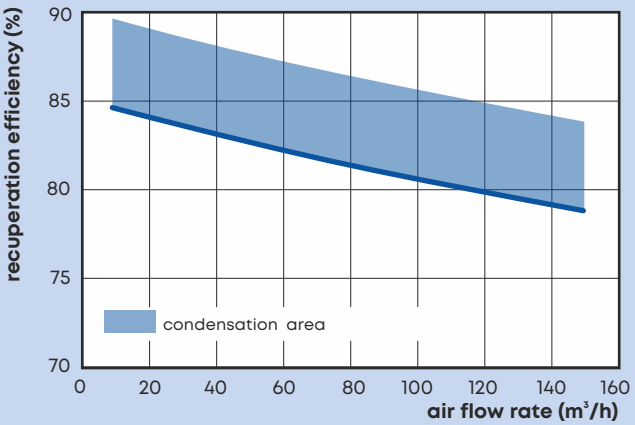


Legenda:

- **Pressure reserve with ISO Coarse 90% filter (G4)***
- **Qref reference flow rate** (70% Qmax, 50 Pa)
- **Qmax maximum flow rate** (100 Pa)

* maximum pressure reserve curve is given
* the power consumption of the whole unit (both fans including control) is given

DUPLEX Slim RECUPERATION EFFICIENCY



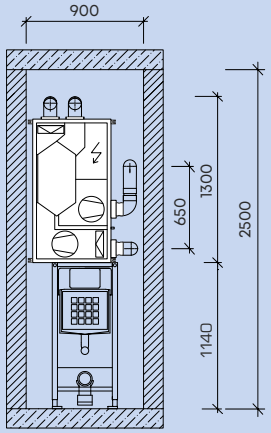
*valid for balanced mass air flow at supply and extract

DUPLEX Slim NOISE PARAMETERS

The sound power levels for the specific DUPLEX Slim unit and any selected operating point can be found in the ATREA design program.

INSTALLATION OF DUPLEX Slim UNITS

The new **DUPLEX Slim** units are characterised by their very flat design and dimensions adapted so that they can be placed primarily in spaces above concealed flush toilet systems. If the unit is to be located in a bathroom it is advisable to ensure that the inspection door is vapour-tight.

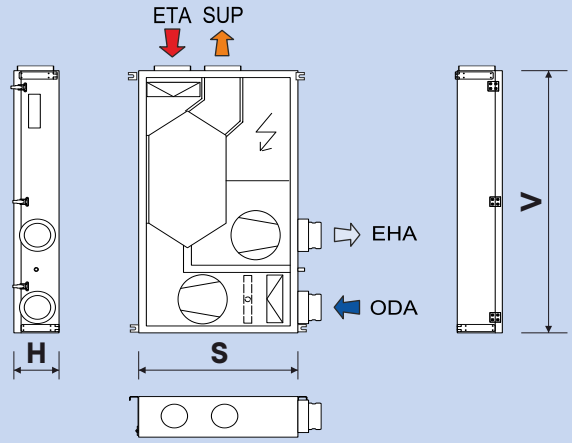


TECHNICAL DATA DUPLEX Slim

DUPLEX Slim		150
energy class [1]	–	A
maximum flow rate [2]	m³/h	150
ambient sound power [3]	dB (A)	38
max. heat recovery efficiency	%	89
diameter of the connection ports	mm	ø 100
weight	kg	43
power supply, protection	–	230 V / 50 Hz, 16A char. C
supply air filtration class	–	ISO Coarse 90% (G4), alternatively ISO ePM1 55% (F7)
condensate drainage	mm	ø 16 (2 m hose included)

[1] All types of control built into the unit include as standard a minimum of two inputs to connect electrical signals resulting from human manipulation of the light, or other devices that automatically regulate the output of the unit. These inputs must always be connected, or other types of sensors (e.g. Co_2, VOC, rH etc.) must be connected instead.
[2] The maximum flow rate is set at a pressure disposition of 100 Pa
[3] the value quoted refers to the reference flow rate i.e. 70% of the maximum flow rate and the pressure disposition 50 Pa

DIMENSIONAL DIAGRAM OF DUPLEX Slim

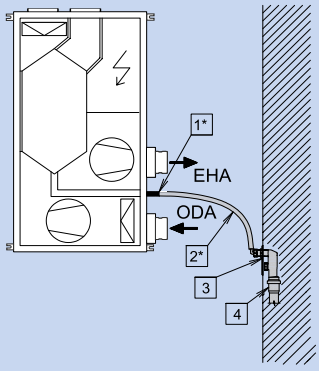


DUPLEX Slim		150
depth **H**	mm	170
width **S**	mm	600
height (without ports) **V**	mm	1 100

For detailed information and for 2D or 3D blocks in format DXF / IFC / RFA please use our selection software.

DUPLEX Slim CONDENSATE DRAINAGE

WALL POSITION



Condensate drain design

It is necessary to separate the unit and the drain by means of a "dry" ball trap. For cases where the recommended connection to the sewer cannot be made, small condensate drainage pumps can be used.

1*	Outlet pipe 16 mm
2*	Flexible hose, inner diameter 16 mm, length 2 m
3	Odour stopper (e.g. AKS7)
4	Connection to sewer DN 40

*part of delivery

CONTROL SYSTEM

CONTROL SYSTEMS - GENERAL DIVISION

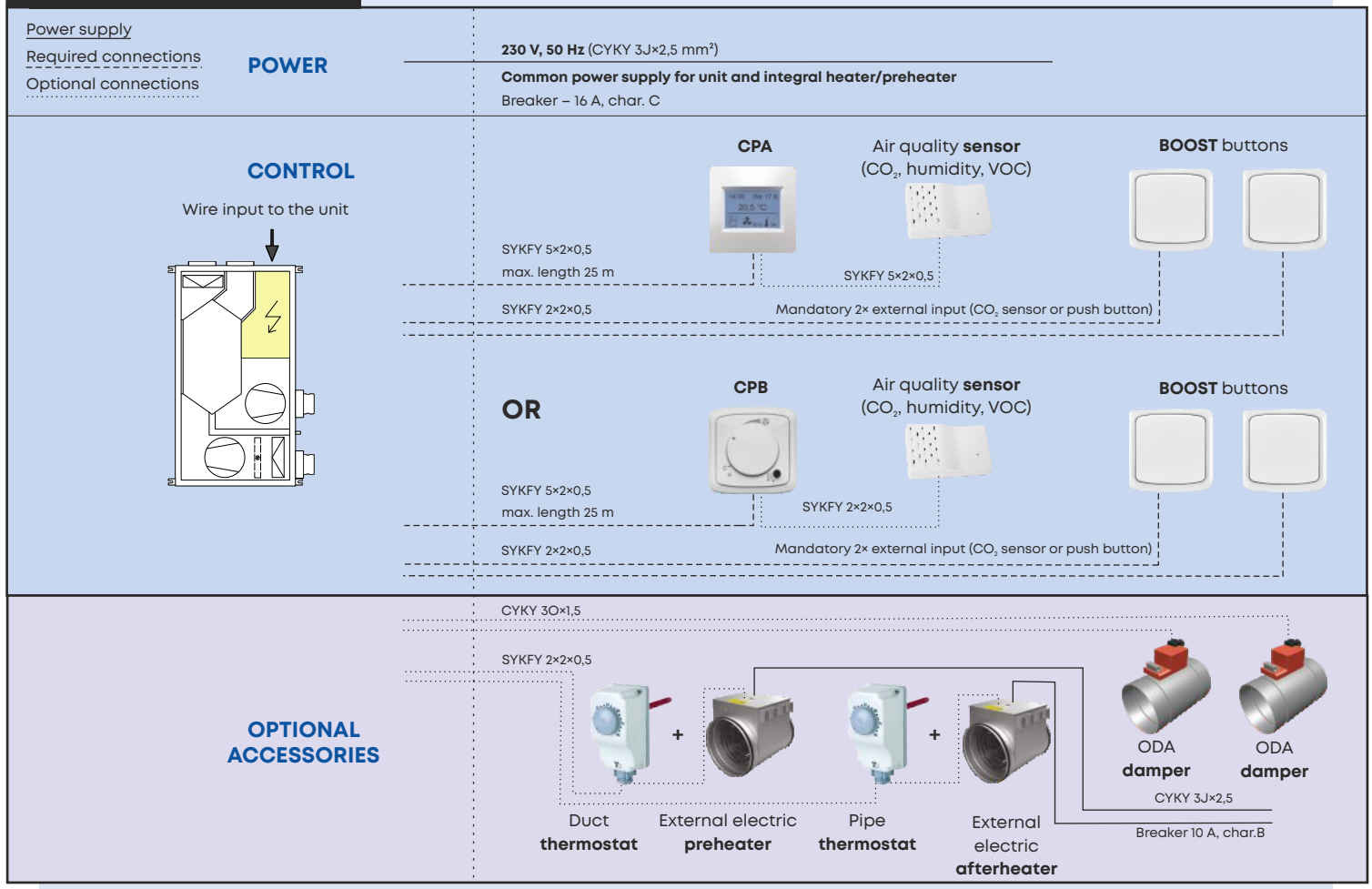
type of regulation	power adjustment range	control per const. flow rate	webserver	external inputs		control of external elements						
				delay +(time)	0-10V input	shut-off valves	el. heater/ preheater	weekly program	hot water heater	water cooler	zone dampers 2×	kitchen damper
CP + CPA	10–100 %			1+n*	1	●	●	●				
CP + CPB												
aMotion	10–100 %		●	4	2	●	●	●	●	●	●	●
aMotion.CF		●										

*parallel connection of other external inputs possible

CP CONTROL - BUILT-IN CONTROL MODULE

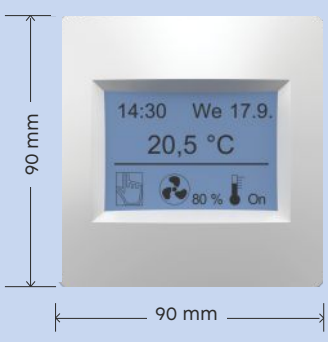
Comfort control offers intuitive operation and a wide range of adjustable parameters. The system allows connection of an external input to increase ventilation power (signals from rooms, e.g. toilet, bathroom, kitchen), 0-10 V input to control power according to air quality sensors (CO_2, rH).
It is also possible to connect an integrated or external electric preheater (to protect the heat exchanger from freezing) and a reheater (to achieve the desired supply air temperature). The control also provides the possibility of controlling the shut-off dampers on the supply and extract air.
The uniqueness of the system is underlined by the wall-mounted **CPA digital touch controller**.
As an alternative to the touch controller, a simple **mechanical CPB controller** can be used.

CP CONTROL WIRING DIAGRAM

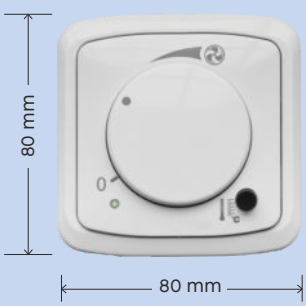


CONTROLLERS FOR CP CONTROL

CPA controller



CPB controller



CONTROL SYSTEM – aMOTION

AMOTION REGULATION - ADVANCED MODULE OF REGULATION

The main functions of the aMotion control module:

- Possibility to adjust ventilation power and other parameters according to weekly program
- Continuous control of the EC fans with the possibility to regulate the power based on the air flow measurement directly in the unit (control flow variant CF)
- Autonomous frost protection of the heat exchanger
- BOOST ventilation power increase based on push-button signal (kitchen, bathroom or toilet) with selectable delay and timing
- Continuous control of electric preheater and electric or water heater
- Control of shut-off valves on the fresh water supply pipe and exhaust air
- Control of zone dampers on supply and extract air (priority kitchen extraction)

CONTROL WITH aMOTION MODULE

Units with the aMotion control module can be controlled in several ways:

a) **aTouch** controller - this is a wall-mounted controller with the size of the touch screen 4.3". The controller allows you to perform all user settings.

b) **aDot** - this is a simplified wall-mounted touch controller. The controller allows you to perform the most important user settings.

c) Without the control panel use a **computer** or **mobile phone** via the built-in webserver or via the aSpace cloud service.

d) Without the remote control based on the measured value from the air quality sensors (CO_2, humidity, VOC) or based on the detection of one of the BOOST buttons.

e) Using a higher-level system, by default using the Modbus TCP protocol.

The individual control variants **a)** to **e)** can be combined with each other.

CONTROLLERS FOR AMOTION CONTROL

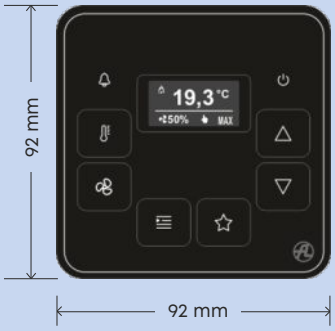
aTouch controller



aDot controller

(white and black design)





CONTROL SYSTEM – aMOTION

AMOTION CONTROL WIRING DIAGRAM

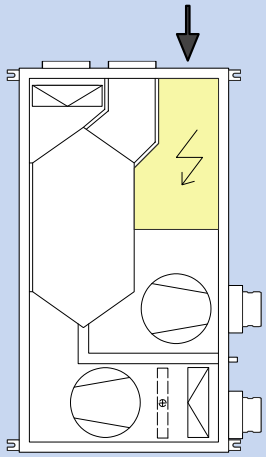
Power supply
Required wiring
Optional wiring

POWER

230 V, 50 Hz (CYKY 3J×2,5 mm²)
Common power supply for unit and integral heater/preheater
Breaker – 16 A, char. C

CONTROL

Wire input to the unit



WEB server / master system (ModBus TCP)



UTP CAT 5e

Air quality **sensor** (CO_2, humidity, VOC)



BOOST buttons



SYKFY 2×2×0,5
SYKFY 2×2×0,5
SYKFY 2×2×0,5
mandatory 2× external input (CO2 sensor or push button)

OR

aTouch



SYKFY 2×2×0,5
max. length 50 m
SYKFY 2×2×0,5
SYKFY 2×2×0,5
SYKFY 2×2×0,5
mandatory 2× external input (CO2 sensor or push button)

OR

aDot



SYKFY 2×2×0,5
max. length 50 m
SYKFY 2×2×0,5
SYKFY 2×2×0,5
SYKFY 2×2×0,5
mandatory 2× external input (CO2 sensor or push button)

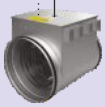
OPTIONAL ACCESSORIES

Basic aM control module
(aM-CE / aM-CL)

CYKY 3O×1,5
SYKFY 2×2×0,5



External electric **preheater**



External electric **reheater**

+



ANS 120 ducted temperature **sensor**



Damper ODA



Damper EHA

CYKY 3J×2,5
Breaker 10 A, char.B

Optional aM control module
(aM-IO18)

CYKY 3O×1,5
SYKFY 2×2×0,5



BOOST buttons



Z1



Z2
Supply zoning **dampers**



diverter damper for extract zoning

External water **superheater**



+

Throttling valve



+

Circulation pump



+

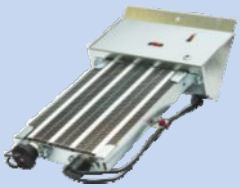
ANS 120 ducted temperature **sensor**



CYKY 3O×1,5
CYKY 3J×1,5
SYKFY 2×2×0,5

OPTIONAL ACCESSORIES

INTEGRABLE ELECTRIC EDO PREHEATERS



- when used for air **preheating**, serves as one of frost protection for the heat exchanger
- designed for **integration into the unit**, installation in a predetermined location inside the unit including installation frame
- operating temperature control is provided by the unit control
- the element is ready for easy installation into the unit, including cables
- the heater is equipped with an SSR switching element
- the integration of the EDO directly into the unit does not reduce the pressure reserve of the unit
- it is equipped with two protection thermostats (60 °C reversible and 90 °C manual reset)

EPO-V PIPING ELECTRIC HEATERS

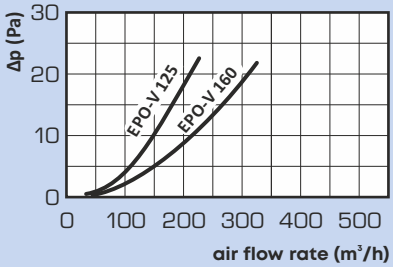


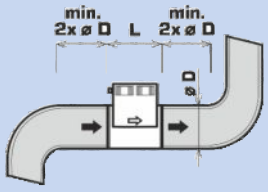
- use for fresh air **preheating**, installation in the ductwork of the fresh air inlet
- use for supply air **heating**, installation in the ductwork behind the unit
- installation required for use with CP control thermostat in the duct behind the heater
- galvanised sheet metal housing
- cabinet includes terminal block
- protection IP44, for installation in normal environment only
- is equipped with two protective thermostats (60 °C reversible and 120 °C manual reset)
- the heater is equipped with an SSR switching element
- the reset button for the safety thermostat is located on the heater cabinet, the heater must be positioned with respect to access during installation and must not be fitted with the lid down
- the minimum air velocity in the heater is 1,5 m/s

Type	input power (kW)	voltage (V)	min. air flow (m^3/h)	ø D (mm)
EPO-V 125/0,9	0,9	230	45*	125
EPO-V 160/1,6	1,6	230	110*	160

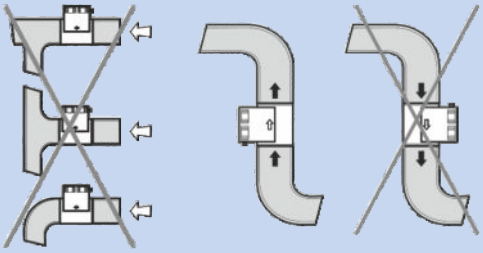
* If the required flow rate is lower than that shown in the table, please use EDO integrated air heaters.

PRESSURE LOSS

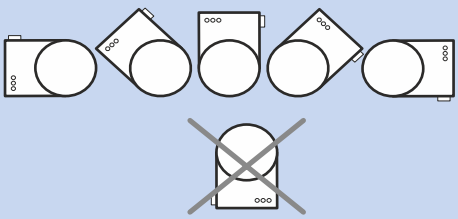




Heater diagram



Permissible terminal positions



HEATER OPTION

150 Slim		
type of control	**CP control**	**aMotion control**
integrable electric preheater	EDO - 1,1 - CP (Pro-V, Easy2, Slim) A160660	EDO - 1,1 - AM (Pro-V, Easy2, Slim) A160662
integrable electric reheater	these units cannot have integrated	these units cannot have integrated
external electric preheating	EPO-V 125/0,9 A150101	EPO-V 125/0,9 A150101
	+	+
	pipe thermostat for EPO-V A150199	ANS 120 (duct temperature sensor) A145620
external electric preheat	EPO-V 125/09 A150101	EPO-V 125/09 A150101
	+	+
	pipe thermostat for EPO-V A150199	ANS 120 (duct temperature sensor) A145620

A wider range of electric preheaters and reheaters is configurable in the ATREA ADU selection software.

MODULAR AIR HANDLING SYSTEM OF ATREA

UNITS DUPLEX SLIM

	**DUPLEX 150 Slim.10.CP**	order no. A161400
	DUPLEX 150 Slim.11.CP	order no. A161401
	DUPLEX 150 Slim.10.aM	order no. A161410
	DUPLEX 150 Slim.11.aM	order no. A161411
	DUPLEX 150 Slim.10.aM.CF	order no. A161420
	DUPLEX 150 Slim.11.aM.CF	order no. A161421
	**FK 150 Slim – G4**	order no. A160699
	FK 150 Slim – F7	order no. A160684

Spare air filters are delivered in package of 1 pc.

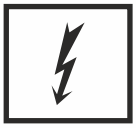
OPTIONAL ACCESSORIES - SENSORS

	**HYG 6001** room hygrostat - relative humidity sensor	order no. A142303
	**SMOKE 24** cigarette smoke and air quality room sensor	order no. A142311
	RH 24 relative humidity room sensor	order no. A142318
	CO_2 24 room sensor continously controlling the ventilation power according to the current CO_2 value	order no. A142319
	**CO_2 D** duct sensor continously controlling the ventilation power according to the current CO_2 value	order no. A142330
	**VOC 24** spatial air quality sensor	order no. A142331
	**SI2504** motion sensor	order no. A142333
	**ANS 100** room temperature sensor design ABB (white colour)	order no. A145601
	**ANS 110** outdoor temperature sensor	order no. A145610

OPTIONAL ACCESSORIES - FLEXIBLE FITTING

	**Sb5** – silent block set	order no. A160530

CONTROLLERS

	**controller aTouch 4,3** 4,3" colour touchscreen remote control	order no. A145500
	**controller aDot (B)** design controller with display – basic print – black	order no. A145550
	**controller aDot (W)** design controller with display – basic print – white	order no. A145551
	**controller CPA** – cover colour changeable – touch	order no. A144100 coloured covers see price list
	**controller CPB** – white colour	order no. A144110
	**aM-IO18** unmounted aMotion Input/Output board with 18 terminals	order no. A145310
	aM-D4 aMotion control expansion module for 4 inputs of 230V	order no. A145353
	RD-BACnet/KNX aMotion control expansion module	order no. A170288

OPTIONAL ACCESSORIES – AIR HEATERS

	**EPO-V 125/0,9**	order no. A150101
	EPO-V 160/1,6	order no. A150102
	**TPO 125 EC THV**	order no. A160212
	TPO 160 EC THV	order no. A160213
	**Duct thermostat EPO-V** Duct thermostat required for EPO-V pre-heaters or EPO-V post-heaters (CP controls)	order no. A150199
	**ANS 120** required for EPO-V or TPO EC THV heaters (aMotion controls)	order no. A145620

OPTIONAL ACCESSORIES – AIR PRE-HEATERS

	**EDO – 1,1 – CP** (160-560PV, 200-300E2,150S)	order no. A160660
	EDO – 1,1 – aM (160-560PV, 200-300E2,150S)	order no. A160662

OPTIONAL ACCESSORIES – CLOSING FLAPS

	**K.D125.LM24A** closing flap with circular actuator (diameter 125)	order no. A130191
	K.D160.LM24A closing flap with circular actuator (diameter 160)	order no. A130190

OPTIONAL ACCESSORIES – FLEXIBLE CUFFS

	**H.D125.P** flexible circular cuff (pr. 125)	order no. A131163
	H.D160.P flexible circular cuff (pr. 160)	order no. A131161