

DUPLEX Pro-V

Compact ventilation units

with heat recovery

Purpose:

Compact ventilation units with heat recovery designed for central equal-pressure ventilation of family houses or apartments.

Units description:

The units are manufactured in a ceiling-mounted version and are available in a range of power ratings. The heart of the unit is a plate heat recovery exchanger with high efficiency. Airflow is provided by high efficiency EBM radial fans. The unit includes pull-out filters for filtration of fresh and exhaust air. The unit is equipped with a by-pass damper that allows to bypass the heat recovery exchanger during the summer period.

Advantages of the units:

- Very low ambient noise
- Filters exchange without opening the door
- Meeting the energy class A+
- Connection ports without thermal bridges
- Integrated by-pass damper with actuator
- Integrated air preheating and post-heating

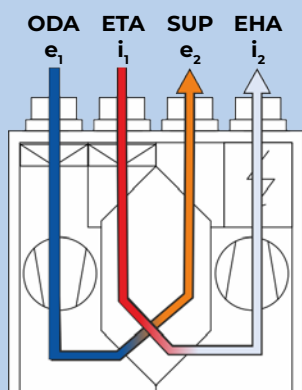
The units meet:

- EU Commission Regulation No 1253/2014 (Ecodesign) in force since 2018
- Energy class of units according to Regulation 1253/2014: **A+** (for average climate conditions)

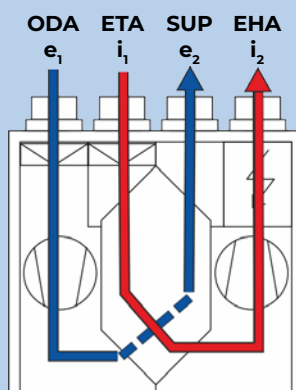
A+



OPERATING MODES



1. equal pressure ventilation with heat recovery



2. free cooling by by-pass during the summer

Key:

- ➡ ODA (e_1) fresh outdoor air intake
- ➡ SUP (e_2) fresh heated air outlet
- ➡ ETA (i_1) extract air inlet
- ➡ EHA (i_2) fresh heated 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

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www.atrea.eu

UNITS DUPLEX Pro-V

BASIC DESCRIPTION OF UNITS

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

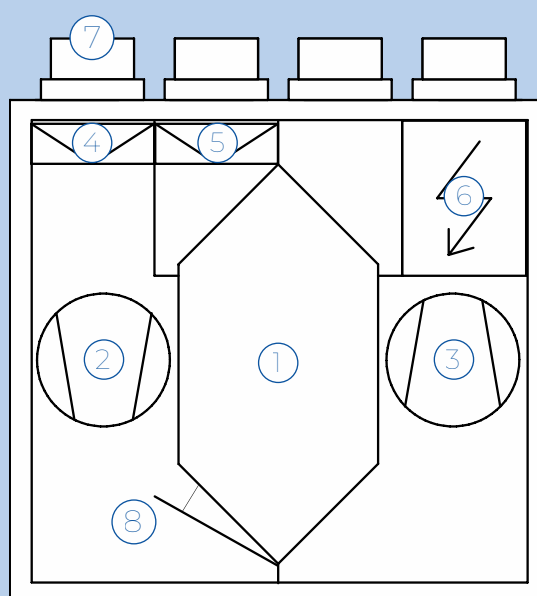
They are available in a wall-mounted version, and the unit casing is designed as a sandwich construction in the composition of external painted zinc galvanized sheet (RAL 9010) – thermal and acoustic insulation – (mineral wool 30 mm thick, reaction to fire class A2/A1) – internal galvanised sheet.

The units are equipped with two radial fans, counter flow plastic heat exchanger for heat recovery, air filtration on the supply and exhaust air with filtration class Coarse 90% (G4) or ePM1 55% (F7), automatically controlled by-pass damper with servo drive and a control module with junction box.

The unit has an outlet for condensate drain, variable connection ports with thermal bridge suppression, filter exchange through a separate door, access for service, maintenance and to the heat exchanger through a fully opening door.

Delivery is possible with several types of control modules:

- The basic controls **.CP** type allows full control by touchpad, power setting according to the calendar and control according to the air quality sensor (usually CO₂).
- The advanced controls **.am** type allows control via touch controls, mobile app or PC. It allows connection of a wide range of accessories such as zone dampers, air quality sensors, heaters and more...



Key:

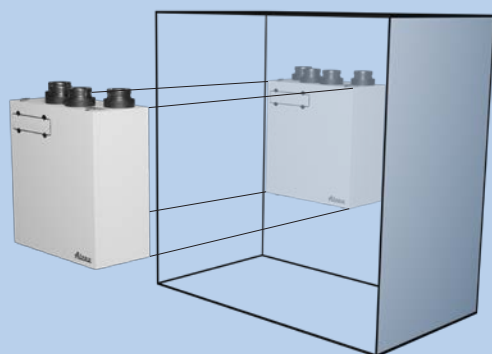
1. Counterflow plate heat recovery exchanger
2. Supply air fan
3. Exhaust air fan
4. Fresh air filter
5. Exhaust air filter
6. Controls with junction box
7. Connection ports with special flange to avoid the thermal bridges
8. By-pass damper with servo drive



The equipment is subject to compulsory professional commissioning. Commissioning may only be carried out by a service engineer with a valid service authorisation issued by the manufacturer for the specific range of units.

DUPLEX Pro-V INSTALLATION OF THE UNITS

DUPLEX Pro-V wall-mounted units can be installed directly on the wall or in built-in cabinets. The following table shows the minimum internal width and depth of the cabinet for the placement of the units.



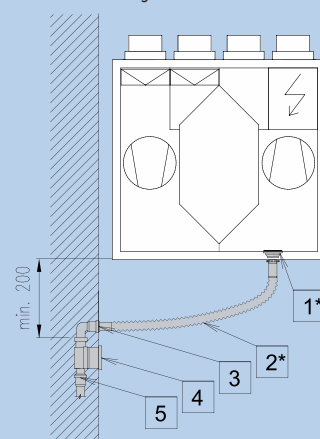
PLACING THE UNIT IN A BUILT-IN CABINET

DUPLEX Pro-V		160	360	560
unit width	mm	757	930	1070
min. internal width of the cabinet		797	970	1110
min. cabinet depth		381	505	546

DUPLEX Pro-V CONDENSATE DRAINAGE

During the heat recovery process, when the exhaust air is cooled, an air humidity condenses and precipitates on the walls of the heat exchanger, further increasing the efficiency of the recovery. The condensate drains out of the heat

exchanger in the direction of the exhaust air flow and is discharged from the DUPLEX unit to the sewer.

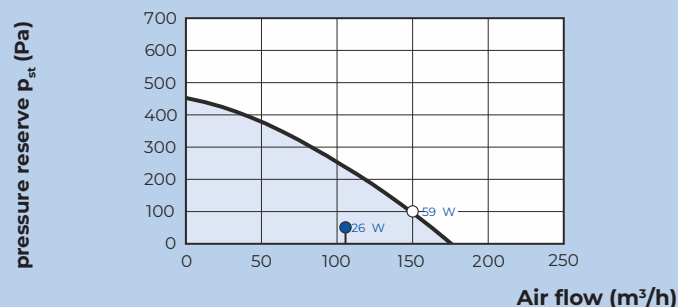


*included in the unit delivery

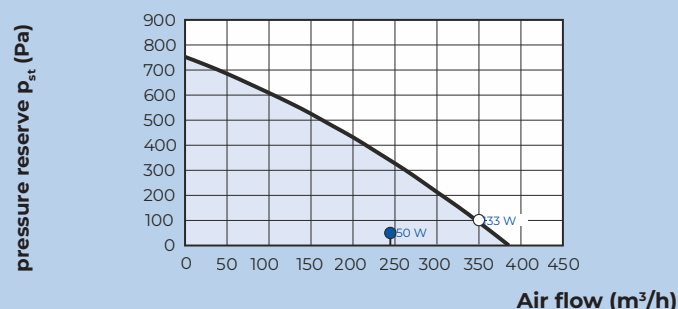
1 *	Outlet G5/4".
2 *	Flexi connection G 5/4" x 32/40 (length 300 to 700 mm).
3	Elbow (e.g. HT DN 32).
4	Odour stop (e.g. HL138).
5	Connection to sewer DN 32.

DUPLEX Pro-V PERFORMANCE PARAMETERS

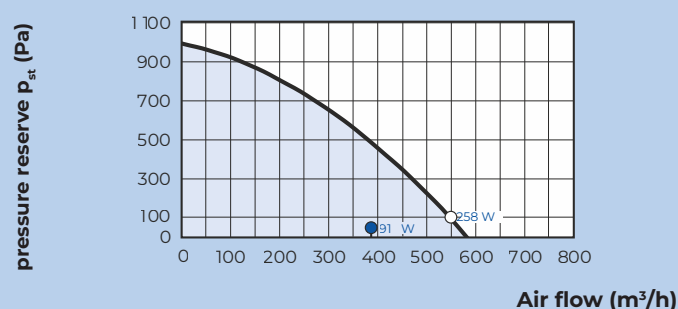
DUPLEX 160 Pro-V



DUPLEX 360 Pro-V



DUPLEX 560 Pro-V



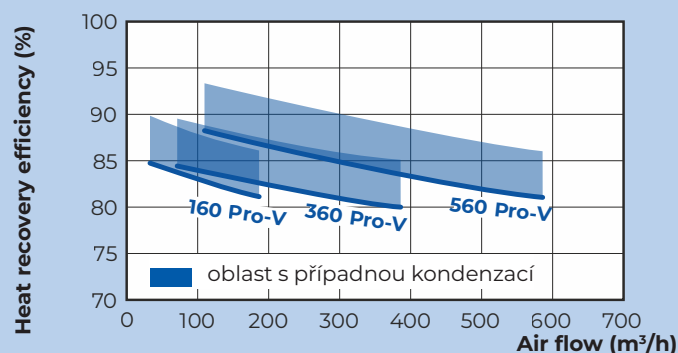
Key:

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

* max. pressure reserve curve is listed

* the electrical input of the whole unit (both fans including controls) is listed

DUPLEX Pro-V HEAT RECOVERY EFFICIENCY



* valid for balanced supply and extract air flow

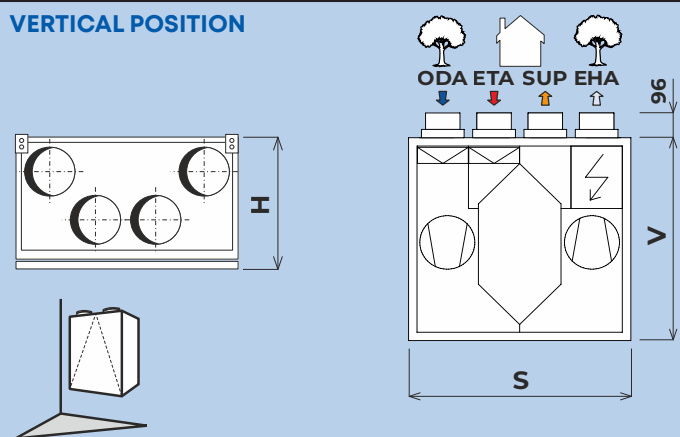
DUPLEX Pro-V TECHNICAL DATA

DUPLEX Pro-V		160	360	560
Energy class ¹⁾	-	A+		
maximum flow rate ²⁾	m^3/h	150	350	550
sound power radiated to ambient ³⁾	dB(A)	37	36	40
max. heat recovery efficiency	%	90	90	93
diameter of the connection ports	mm	ø 125	ø 160	ø 200
weight	kg	53	76	100
by-pass	-	yes		
ower supply, fuse	-	230 V / 50 Hz, 16 A, type C		
supply air filtration class	-	ISO Coarse 90% (G4) alternatively, ISO ePM1 55% (F7)		
condensate drainage	mm	G 5/4" × ø 32/40 (hose 0.7 m)		

- ¹⁾ All types of controls built into the unit normally include a minimum of two inputs to connect the electrical signals that result from human manipulation of the light or other devices that automatically control the unit's output. These inputs must always be connected, or other types of sensors (e.g. CO₂, VOC, rH, etc.) must be connected instead.
- ²⁾ The maximum flow rate is set at a pressure loss of 100 Pa.
- ³⁾ The listed value refers to the reference flow rate i.e. 70% of the maximum flow rate and a pressure loss of 50 Pa.

DUPLEX Pro-V DIMENSIONAL DIAGRAM AND DESIGN

VERTICAL POSITION



DUPLEX Pro-V		160	360	560
height (without ports) V	mm	807	900	1000
width S		757	930	1070
depth H		361	485	526

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

DUPLEX Pro-V NOISE PARAMETERS

Sound power levels for specific unit of DUPLEX Pro-V and the selected operation point to be found in the ATREA selection software.

KEY

- ➡ ODA (e_1) fresh outdoor air intake
- ➡ SUP (e_2) fresh heated air outlet
- ➡ ETA (i_1) extract air inlet
- ➡ EHA (i_2) fresh heated air outlet

CONTROL SYSTEM – BASIC CP

CONTROL SYSTEMS – GENERAL DISTRIBUTION

type of the control system	power adjustment range	constant flow control	automatic by-pass	webserver	external inputs		control of external elements						
					delay + (timeout)	input 0-10 V	closing dampers	electric reheater / preheater	weekly program	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									●	●	●	●	●

*possible to connect the external inputs

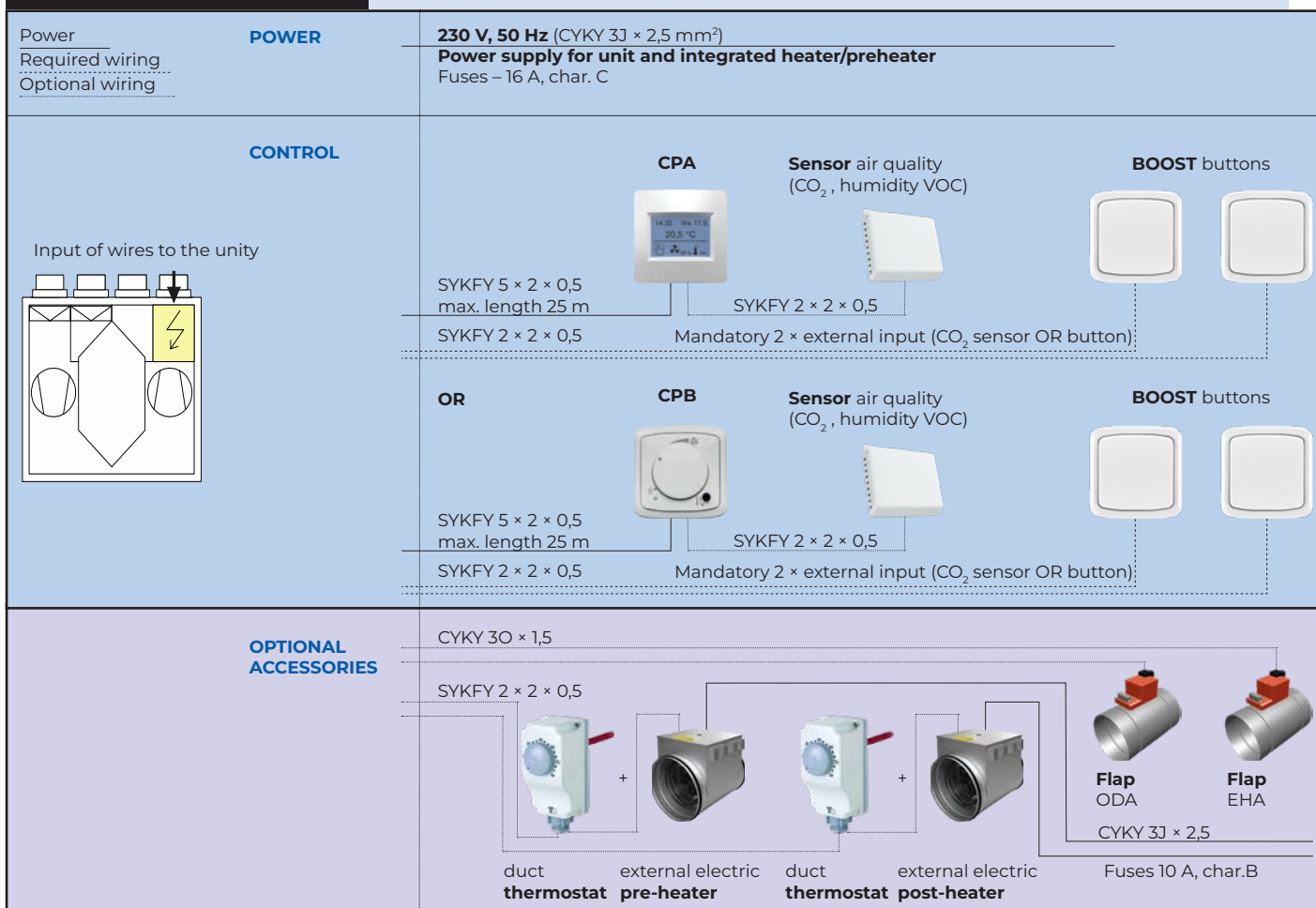
CP CONTROL – BASIC CONTROL MODULE

Comfort controls offers an intuitive operation and a wide range of adjustable parameters. The system allows connection of an external input to increase ventilation performance (signals from rooms, e.g. toilet, bathroom, for controlling the output according to air quality sensors (CO₂, rH).

It is also possible to connect an integrated or external electric preheater (for protection kitchen), 0-10 V input The standard

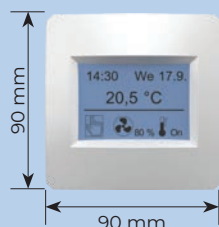
control also provides the possibility of controlling the shut-off dampers on the supply and extract air. The uniqueness of the system is underlined by the **CPA wall-mounted digital touch controller**. As an alternative to the touch controller, a simple **mechanical CPB controller** can be used.

CP CONTROL WIRING DIAGRAM

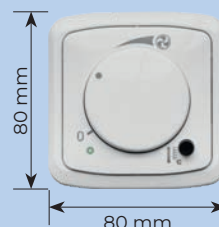


CONTROLLERS FOR CP CONTROLS

CPA controller



CPB controller



aMotion CONTROLS – ADVANCED CONTROL SYSTEM MODULE

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 control the power based on the air flow measurement directly in the unit (CF – constant flow option)
- Automatic control of the by-pass damper (the bypass of the heat recovery exchanger) based on the user's desired temperature
- Autonomous frost protection of the heat exchanger
- BOOST based on push-button signal (kitchen, bathroom or toilet) with selectable delay
- Continuous control of electric preheater and electric or water heater
- Control of shut-off dampers 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:

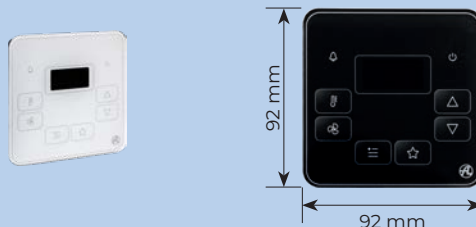
- a) aTouch** controller – this is a wall-mounted controller with a size 4,3" touch screen. The controller allows you to perform all user settings.
- b) aDot** controller – this is a simplified wall-mounted touch controller. The controller allows you to perform the most important user settings.
- c)** Without the controller, use **a computer** or **mobile phone** via the built-in webserver or via the aSpace cloud service.
- d)** Without the controller, the control based on the measured value from the air quality sensors (CO₂, humidity, VOC) or based on the detection of one of the BOOST buttons.
- e)** Using a superior control system, by default using the Modbus TCP protocol.
- The individual control options **a)** to **e)** can be combined with each other.

CONTROLS FOR aMotion

aTouch controller



aDot controller (in white and black)



OPTION HEATERS

Units with CP controls				Units with aM controls		
Double	160 Pro-V	360 Pro-V	560 Pro-V	160 Pro-V	360 Pro-V	560 Pro-V
integrated electric preheate	EDO – 1,1 – CP (Pro-V, Easy2, Slim)	EDO – 2.2 – CP (Pro-V)		EDO – 1,1 – aM (Pro-V, Easy2, Slim)	EDO – 2.2 – aM (Pro-V)	
	A160660	A160661		A160662	A160663	
integrated electric reheater	EDO – 1,1 – CP (Pro-V, Easy2, Slim)			EDO – 1,1 – aM (Pro-V, Easy2, Slim)		
	A160660			A160662		
external electric preheate / reheater	EPO-V 125/0.9	EPO-V 160/1.6	EPO-V 200/2.0	EPO-V 125/0.9	EPO-V 160/1.6	EPO-V 200/2.0
	A150101	A150102	A150103	A150101	A150102	A150103
	+					
	pipe thermostat for EPO-V			* ANS 120 (duct temperature sensor)		
	A150199			A145620		

A wider range of electric preheaters and reheaters is configurable in the ATREA selection software.
 *Optional duct temperature sensor for cases with long distance between the preheater and the unit.

CONTROL SYSTEM – aMotion

aMotion CONTROL WIRING DIAGRAM

Power

POWER

Required wiring
Optional wiring

230 V, 50 Hz (CYKY 3J × 2,5 mm²)

Power supply for unit and integrated heater/preheater

Fuses – 16 A, char. C

CONTROL

WEB server / host system
(Modbus TCP)



UTP CAT 5e

SYKFY 2 × 2 × 0,5

Sensor air quality
(CO₂, humidity VOC)



SYKFY 2 × 2 × 0,5

BOOST buttons



SYKFY 2 × 2 × 0,5

Mandatory 2 × external input (CO₂ sensor OR button)

or

aTouch



SYKFY 2 × 2 × 0,5
max. length 50 m

SYKFY 2 × 2 × 0,5

Sensor air quality
(CO₂, humidity VOC)



SYKFY 2 × 2 × 0,5

BOOST buttons



SYKFY 2 × 2 × 0,5

Mandatory 2 × external input (CO₂ sensor OR button)

or

aDot



SYKFY 2 × 2 × 0,5
max. length 50 m

SYKFY 2 × 2 × 0,5

Sensor air quality
(CO₂, humidity VOC)



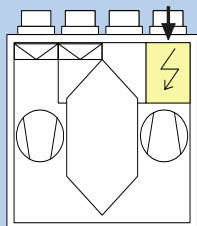
SYKFY 2 × 2 × 0,5



SYKFY 2 × 2 × 0,5

Mandatory 2 × external input (CO₂ sensor OR button)

Input of wires to the unity



**OPTIONAL
ACCESSORIES**

CYKY 30 × 1,5

SYKFY 2 × 2 × 0,5

**Basic aM control module
(aM-CE)**



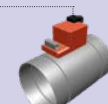
post-heater
external electric



pre-heater
external electric



**ANS 120
duct
temp. sensor**



**Flap
ODA**



**Flap
EHA**

CYKY 3J × 2,5

Fuses 10 A, char.B

**Basic aM control module
(aM-IO18)**

CYKY 30 × 1,5

SYKFY 2 × 2 × 0,5



BOOST buttons

**External water
heater**



**Throttle
valve**



CYKY 30 × 1,5

**Circulation
pump**



CYKY 3J × 1,5

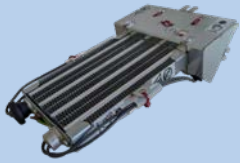
**ANS 120
duct temp. sensor**



SYKFY 2 × 2 × 0,5

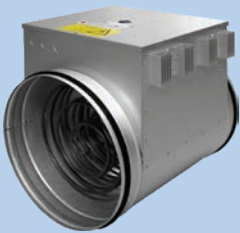
**Switching flap
for exhaust zone**

BUILT-IN ELECTRIC HEATERS EDO



- when used as a **pre-heater** it also works as one of the frost protection of the heat recovery core
- when used as a **post-heater** it increases the comfort
- designed for to be **built-in into the unit**, installation at a predetermined place inside the unit incl. the installation frame
- according to the output and the indication, the heater is designed for the supply air preheating or reheating
- operating temperature control is ensured by the unit control system
- the element is prepared for the easy installation into the unit incl. the cables
- the heater is equipped with SSR switch
- iBuilt-in EDO heaters don't reduce the pressure reserve of the unit
- it is equipped with two safety reverse acting thermostats (60 °C reversible and 90 °C manual reset)

DUCT ELECTRIC HEATER EPO-V

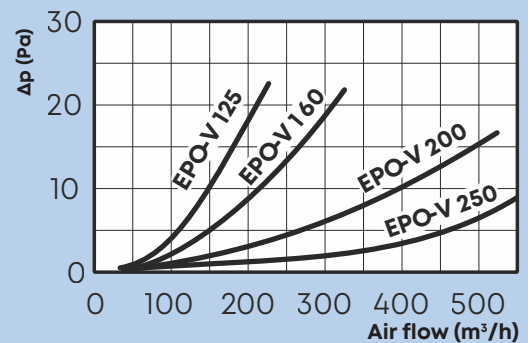


- used for the fresh air **preheating**, installing in the duct at the fresh air inlet
- to be used for the supply air **reheating**, installing in the duct downstream the unit
- it is required to be used a thermostat in the duct behind the heater together with CP controls
- it is required an installation of the ADS 120 duct sensor in the duct downstream the heater together with aMotion controls
- the casing is made of galvanized metal sheet
- the casing includes the terminal board
- IP44 protection, to be installed only in normal environment
- it is equipped with two safety thermostats reversible (60°C returnable and 120°C manual reset)
- the heater is equipped with SSR switch
- the safety reset button is located on the heater cabinet casing, during the assembly the heater must be located with regard to access and must not be fitted with a cover downward
- minimum airflow in the heater is 1,5 m/s

typ	power input (kW)	voltage (V)	min. air. flowrate (m³/h)	Ø D (mm)
EPO-V 125/0,9	0,9	230	45*	125
EPO-V 160/1,6	1,6	230	110*	160
EPO-V 200/2,0	2,0	230	170*	200

* If requested lower flowrate than shown here, please use the built-in EDO integrated heaters.

PRESSURE LOSS



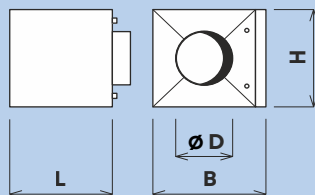
HOT WATER AIR HEATERS TPO EC THV



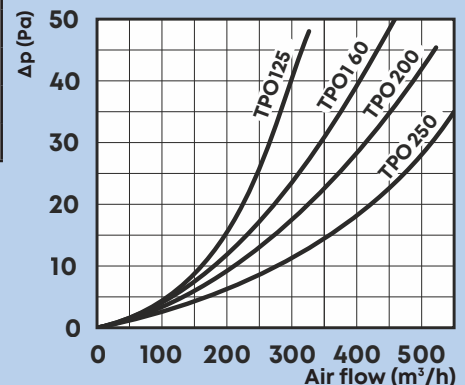
- to be used to reheat the air, to be installed in ducts (can be used only with aMotion control system)
- ANS 120 sensor required (to be installed in the duct downstream the heater)
- painted metal sheet casing
- aluminium lamellas on copper tubes
- maximum operating pressure 10 bar
- maximum operating temperature 70 °C
- as a standard the heater is supplied included the throttle valve equipped with servo drive (24V power supply, 0-10V control)

air flow rate (m³/h)	water flow rate (l/h)	pressure loss (kPa)	Heating power* (kW)
100	30	0,1	0,3
150	40	0,2	0,5
200	60	0,3	0,8
300	80	0,6	1,3
400	100	0,9	1,9
500	120	1,3	2,5

* The table applies for heating water temperature 55/35 °C supply air after heat recovery 15–20 °C, exhaust air min. 30 °C. Parameters for different conditions can be found in the ATREA selection software.



PRESSURE LOSS



typ	Ø D (mm)	B (mm)	H (mm)	L (mm)	connection (")	recommended for DUPLEX
TPO 125 EC THV	125	418	348	350	1/2" (e)	160 Pro-V
TPO 160 EC THV	160	418	348	350	1/2" (e)	360 Pro-V
TPO 200 EC THV	200	418	348	350	1/2" (e)	560 Pro-V

OPTIONAL ACCESSORIES

UNITS DUPLEX Pro, Pro-X

	DUPLEX 160 Pro-V.CP	Ord. No. A160603
	DUPLEX 160 Pro-V.aM	Ord. No. A160613
	DUPLEX 160 Pro-V.aM.CF	Ord. No. A160623
	DUPLEX 360 Pro-V.CP	Ord. No. A160604
	DUPLEX 360 Pro-V.aM	Ord. No. A160614
	DUPLEX 360 Pro-V.aM.CF	Ord. No. A160624
	DUPLEX 560 Pro-V.CP	Ord. No. A160605
	DUPLEX 560 Pro-V.aM	Ord. No. A160615
	DUPLEX 560 Pro-V.aM.CF	Ord. No. A160625

SPARE FILTER CASSETTES

	FK 160 Pro-V - G4	Ord. No. A160691
	FK 160 Pro-V - F7	Ord. No. A160694
	FK 360 Pro-V - G4	Ord. No. A160692
	FK 360 Pro-V - F7	Ord. No. A160695
	FK 560 Pro-V - G4	Ord. No. A160693
	FK 560 Pro-V - F7	Ord. No. A160696

Spare air filters are delivered in package of 1 pc.

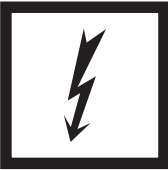
OPTIONAL ACCESSORIES – SENSORS

	SMOKE 24 room sensor for cigarette smoke and air quality	Ord. No. A142311
	RH 24 room humidity sensor - relative humidity sensor	Ord. No. A142318
	ADS CO₂ 24 room sensor continuously controlling the ventilation power according to the current CO ₂ value	Ord. No. A142319
	VOC 24 room air quality sensor	Ord. No. A142331
	ADS CO₂ D duct sensor continuously controlling the ventilation power according to the current CO ₂ value	Ord. No. A142330
	SI2504 movement sensor	Ord. No. A142333
	HYG 6001 room hygrostat – relative humidity sensor	Ord. No. A141303
	100 ABB room temperature sensor design ABB, (white colour)	Ord. No. A145601
	ANS 110 outdoor temperature sensor	Ord. No. A145610

OPTIONAL ACCESSORIES – FLEXIBLE CUFFS

	H.D125.P flexible circular cuff (diameter 125)	Ord. No. A131163
	H.D160.P flexible circular cuff (diameter 160)	Ord. No. A131161
	H.D200.P flexible circular cuff (diameter 200)	Ord. No. A131160

CONTROLLERS

	Controller aTouch 4,3 colour touchscreen remote control 4,3"	Ord. No. A145500
	Controller aDot (B) design controller with display – basic print – black	Ord. No. A145550
	Controller aDot (W) design controller with display – basic print – white	Ord. No. A145551
	Controller CPA – cover colour changeable – touch	Ord. No. A144100 coloured covers see price list
	Controller CPB – color white	Ord. No. A144110
	aM-I018 unmounted aMotion Input/Output board with 18 terminals	Ord. No. A145310
	aM-D4 aMotion control expansion module for 4 inputs of 230V	Ord. No. A145353
	RD-BACnet/KNX aMotion control expansion module	Ord. No. A170288

OPTIONAL ACCESSORIES – AIR HEATERS

	EDO – 1,1 – CP (160 – 560 Pro-V)	Ord. No. A160660
	EDO – 2,2 – CP (360 – 560 Pro-V)	Ord. No. A160661
	EDO – 1,1 – aM (160 – 560 Pro-V)	Ord. No. A160662
	EDO – 2,2 – aM ((360 – 560 Pro-V)	Ord. No. A160663
	EPO-V 125/0,9	Ord. No. A150101
	EPO-V 160/1,6	Ord. No. A150102
	EPO-V 200/2,0	Ord. No. A150103
	TPO 125 EC THV	Ord. No. A160212
	TPO 160 EC THV	Ord. No. A160213
	TPO 200 EC THV	Ord. No. A160214
	ANS 120 required for EPO-V or TPO EC THV water heaters (aMotion control)	Ord. No. A145620
	Pipe thermostat for EPO-V required for EPO-V preheaters or reheaters (CP control)	Ord. No. A150199

OPTIONAL ACCESSORIES – CLOSING FLAPS

	K.D125.LM24A closing flap with actuator circular (diameter 125)	Ord. No. A130191
	K.D160.LM24A closing flap with actuator circular (diameter 160)	Ord. No. A130190
	K.D200.LM24A closing flap with actuator circular (diameter 200)	Ord. No. A130192