

EASY box

Air flow controller for constant-pressure controlled central ventilation systems

The new control system of EASY boxes provides easy control of central ventilation systems. The connection to central constant-pressure controlled DUPLEX units results in an efficient ventilation system with an option of variable control of each of the boxes as specifically required.

This solution is suitable as a basic system for central ventilation in schools, offices, flats and all other buildings with several independently ventilated sections.

Main parts of the system

1) A central AHU may be any DUPLEX unit with the control system RD5, CPM or CP – e.g. a DUPLEX Multi, MultiEco, Flexi, Roto and Silent etc. Depending on the actual layout it can be of indoor or rooftop configuration. On top of heat recovery and filtration the unit may also provide complete treatment of supply air (heating, cooling) as needed. The necessary condition is constant-pressure control of the unit.

2) EASY boxes are used in each section to be ventilated. EASY boxes control the flow rate at the supply and extraction points of a given section as required by the user. Such demand is set using one of the controllers available. Optionally connected sensors may adjust the flow rate fully automatically. Local supply air temperature can also be optionally adjusted.

3) Control and measurement – cable connections for the mutual functionality of individual parts – the central unit and EASY boxes. The system principle is based on controlling the central unit according to pressure proportions in the central air duct – constant pressure control. Independent control on the EASY box level provides ventilation power control for each section. Ventilation power can be set according to the type of the control system.

Version **A**: Configuration for direct ventilation power control using a master system or signals from contact inputs in two pre-defined power levels.

Version **SR**: Configuration for direct ventilation power control using a master system variably in a range of 0–10 V or using a CPB or CPA controller for manual and program settings of the system directly from the section being ventilated.



EASY box

Advantages of the ATREA system with EASY boxes

- Two basic control versions – type A and SR
- A range of controllers for the SR type, including a touch-screen version
- Compact dimensions for installation in false ceilings and such like
- Insulated control pipes
- Positional variability thanks to various configurations
- Low purchase cost
- A wide range of applications as a result of many available sizes
- Many accessories which can be connected to each EASY box for increased user comfort and further operating cost reduction
- Easy commissioning and user control
- Comprehensive design software

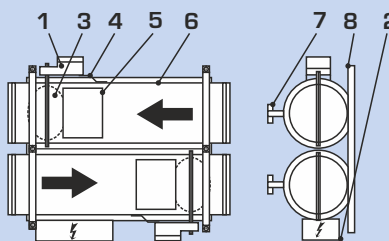
EASY BOX - BASIC DESCRIPTION

The EASY box consists of two separate pipes and a terminal box module, which can be joined together using a fixing bracket. One pipe is for air supply, the other one with air extraction. Each has its own servo drive. Both pipes can be used for supply and extraction. All that is needed is to maintain the indicated flow direction.

Each pipe has additional insulation and an inspection panel for accessing moving parts for maintenance without the need to disconnect the ductwork. Pipes may optionally have a silver colour cover separately for each part.

The terminal box can remain stand-alone or connected to the side of the pipe on the bracket provided. The terminal box contains terminals for connecting all optional accessories as well.

EASY boxes are for indoor installation with an environment according to ČSN 33 2000-5-51.



Legend:

- 1 Servo drive
- 2 Terminal box
- 3 Control dampers incl. seals
- 4 Servo drive holder
- 5 Inspection panel for access to the inside parts
- 6 Pipe incl. self-adhesive 15 mm thermal insulation
- 7 Access panel handle
- 8 Dismountable supporting frame for each element

SELECTION SOFTWARE



For detailed design of the entire system with EASY boxes we recommend using our dedicated selection software. You can find it on our website at www.atrea.eu or request a CD at our office.

Atrea®

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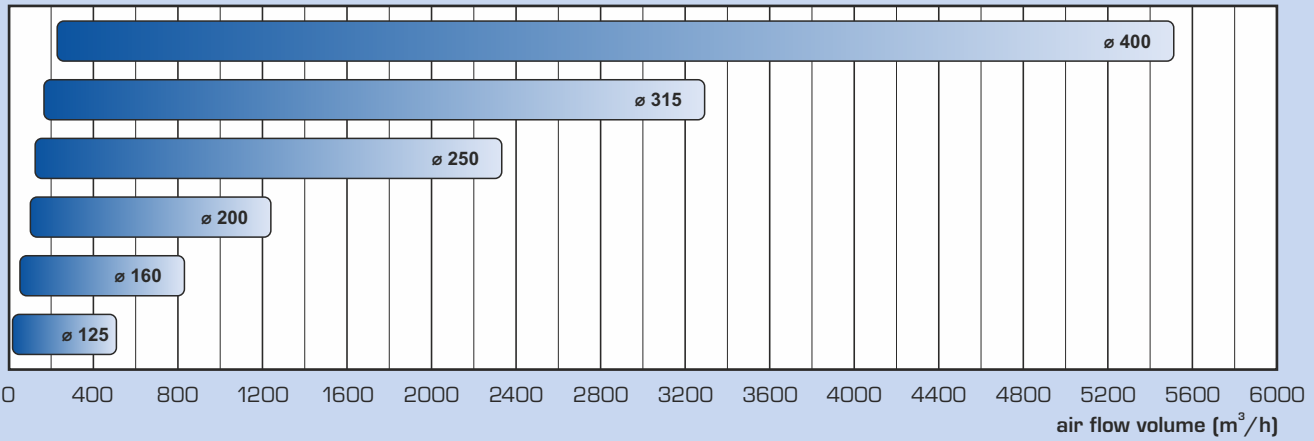


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TECHNICAL DATA

EASY BOX SIZE SELECTION



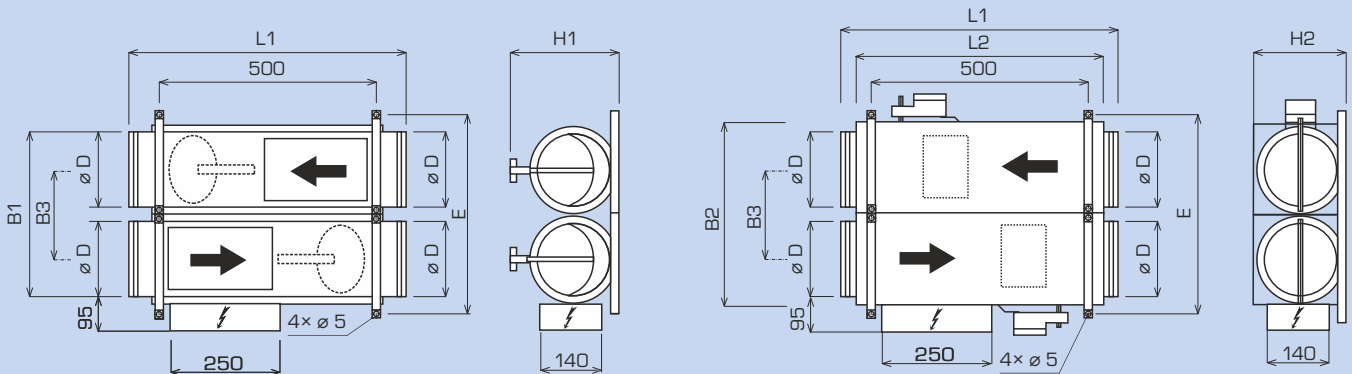
ACOUSTIC PARAMETERS

EASY box	working point		acoustic performance L_{WA} (dB)								L_{WA} (dB)
	pressure loss (Pa)	air flow volume (m^3/h)	63	125	250	500	1000	2000	4000	8000	
125	100	500	51	56	58	49	36	36	29	24	52
160		850	49	51	58	45	33	33	25	22	51
200		1 250	49	54	57	47	41	41	39	31	52
250		2 300	52	55	56	55	42	42	40	28	54
315		3 300	53	55	57	55	44	44	41	31	55
400		5 500	53	56	57	56	44	44	49	31	57
125	200	500	54	56	61	60	44	44	41	42	59
160		850	53	61	63	58	43	43	37	32	58
200		1 250	55	62	57	53	46	46	41	37	56
250		2 300	56	58	63	54	49	49	42	34	58
315		3 300	58	59	61	53	47	47	45	37	57
400		5 500	60	61	64	58	50	50	46	44	60
125	400	500	58	65	69	68	51	51	50	49	67
160		850	59	68	70	61	49	49	45	43	64
200		1 250	60	65	67	59	52	52	49	40	62
250		2 300	60	64	66	61	50	50	50	40	63
315		3 300	60	65	66	61	50	50	50	40	63
400		5 500	63	69	71	65	56	56	47	40	66

DIMENSIONS

EASY box without cover

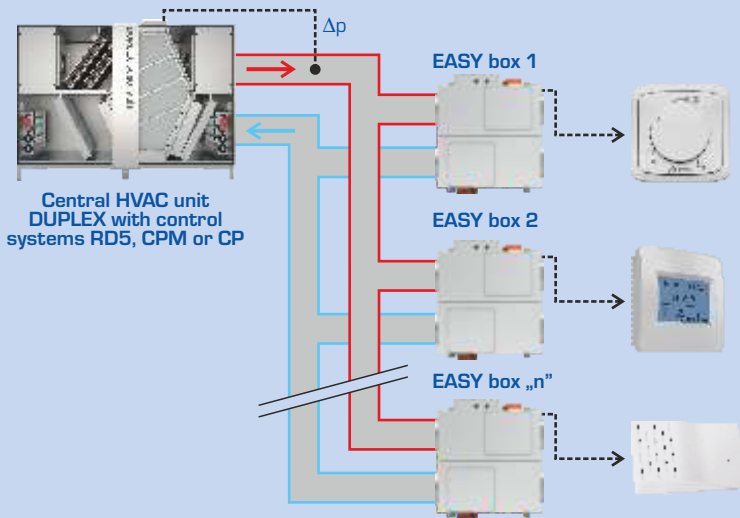
EASY box with cover



EASY box	B1 (mm)	B2 (mm)	B3 (mm)	ø D (mm)	E (mm)	L1 (mm)	L2 (mm)	H1 (mm)	H2 (mm)
125/125	387	397	230	125	429	590	540	155	185
160/160	457	467	265	160	499	590	540	190	220
200/200	537 (588)	547 (659)	304 (358)	200	685	600	550	230	265
250/250	642 (698)	647 (781)	362 (418)	250	804	700	650	280	315
315/315	765 (826)	777 (905)	419 (480)	315	929	850	800	345	380
400/400	904 (950)	917 (1 038)	505 (569)	400	1 099	930	850	446	475

Values in brackets are valid for EASY box ø200-400 with servodrives inside

CENTRAL VENTILATION SYSTEMS - BASIC TOPOLOGY



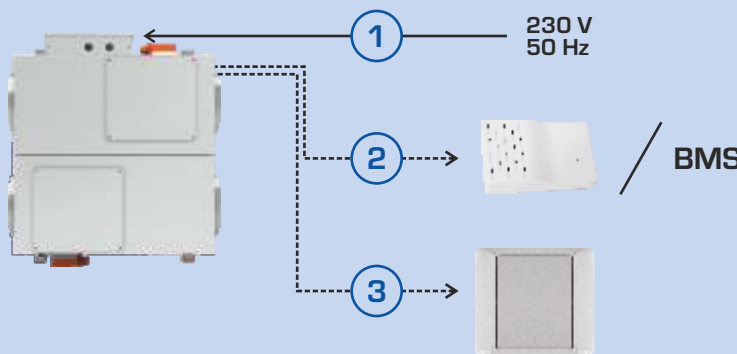
The system is based on individual EASY boxes and a central AHU DUPLIX with the control system RD5, CPM or CP for constant-pressure control (measured in the supply section). Individual parts of the system are connected only through an air duct. EASY boxes must have a separate power supply with appropriate protection.

The required power level is set independently from each section using one of the controllers or automatically through a CO₂ sensor etc. When the control damper changes its position, pressure in the system increases / decreases, indicating the need to increase / decrease power in the central unit. Individual sections are controlled independently.

Central unit control system	Central unit control mode
CPA	Only constant pressure for inlet / outlet, second fan controlled identically, optionally with adjustable delay
CPM	Only constant pressure for inlet / outlet, second fan controlled identically, optionally with adjustable delay
RD5	Constant pressure for inlet and outlet separately
	Only constant pressure for inlet / outlet, second fan controlled for same volume flow

EASY BOX A - INTERNAL CONNECTION

EASY box A is a basic version with a servo driver for two-point control. Both positions of the damper are set mechanically in the servo drive. The damper then moves between these two positions. Signals for positional changes may come from a master system (voltage-free or CO₂ etc.). The control module has a 24 V power supply.



Mandatory connections

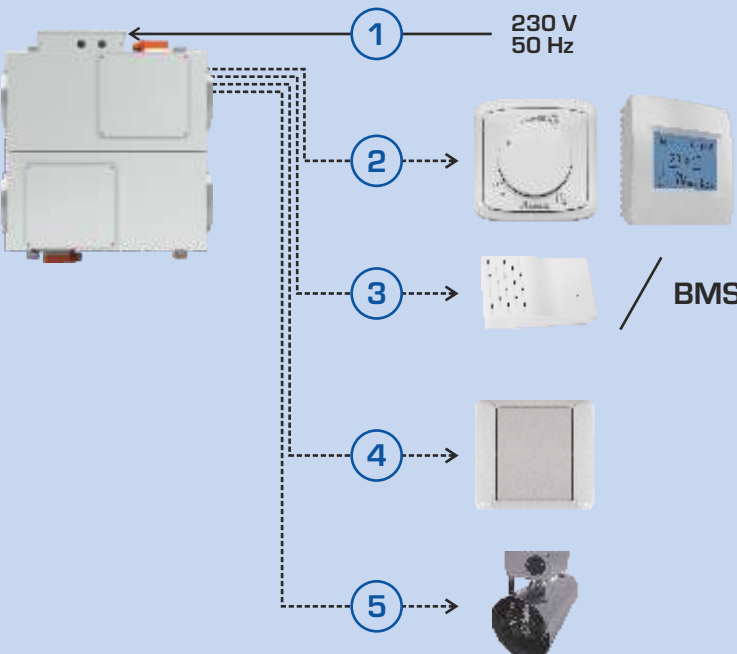
1. Power supply - 1x 230 V/4 A char. B

Optional connections

2. Contact input - CO₂, humidity sensors etc.
3. Contact input - e.g. signals from the toilet, bathroom etc.

EASY BOX SR - INTERNAL CONNECTION

EASY box SR is an expanded version with a servo drive with 0-10 V variable control. The position of the damper is directly controlled by the 0-10 V signal of one of the system controllers - CPA or CPB. Position change signals may also be generated by a CO₂ or humidity sensor. The control system also provides control of shut-off dampers or electric heaters. The control module has a 24 V power supply.



Mandatory connections

1. Power supply - 1x 230 V/4 A char. B
2. CPA controller (alt. CPB)

Optional connections

3. Analogue input - CO₂, humidity sensors etc.
4. Contact input - e.g. signals from the toilet, bathroom etc.
5. Electric air reheater EPO-PTC

Digital controller

CPA - A comfort controller for setting all modes with detailed status display. It allows the user to access standard functions including the heater, weekly mode settings or temporary party / holiday mode settings. It includes a built-in room temperature sensor as a standard feature. All values are shown on a well-organized **touch-screen display**. More colour versions available.

Mechanical controller

CPB - Ventilation power setting using a dial selector, which also makes it possible to switch the heater on or off.

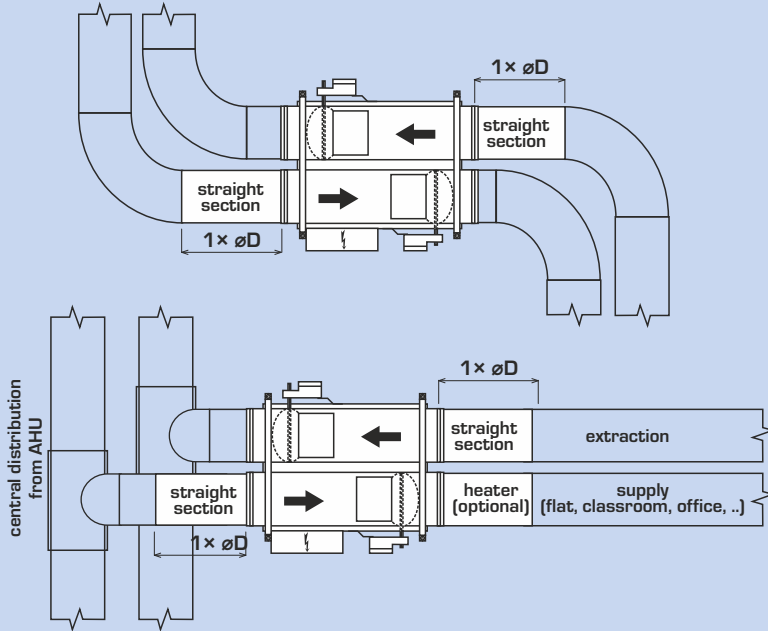
CONFIGURATION, INSTALLATION

INSTALLATION

Straight sections

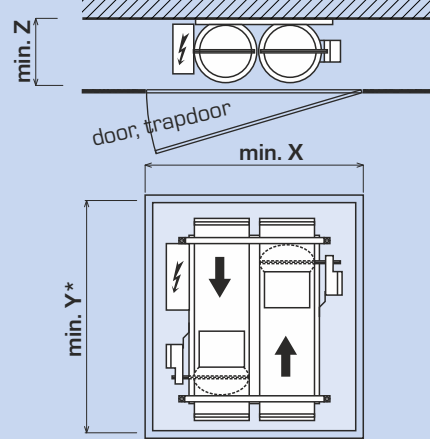
During installation make sure to comply with the flow direction through each pipe as defined by the arrow (towards the measurement element → dampers), regardless of whether it is supply or extraction.

To achieve the desired degree of flow rate control precision it is necessary to include a straight section of min. $1 \times \text{øD}$ behind a change in direction (elbow etc.) in front of the pipe.



Access

The EASY box must remain permanently accessible for system commissioning and maintenance, for example through a panel in the false ceiling

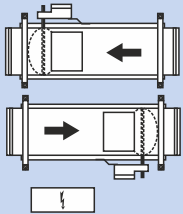


EASY box	X (mm)	Y* (mm)	Z (mm)
125/125	500	500	225
160/160	550	500	225
200/200	700	650	270
250/250	800	750	320
315/315	980	850	385
400/400	1 100	900	480

* If electric heaters are installed, this size must be increased or separate access to the heater provided

CONFIGURATION

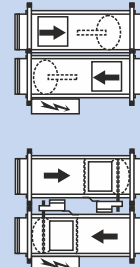
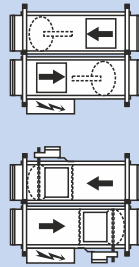
BASIC CONFIGURATION - SPLIT



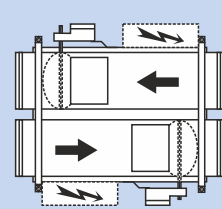
DIAMETERS
ø125 - 160

DIAMETERS
ø200 - 400

PIPE CONNECTION - VERSATILE *



TERMINAL BOX CONNECTION - VERSATILE **



Examples of designation

2× EASY box UNI A (SR) 125
1× EASY box CP

* For connecting supporting frames; plan view

** The terminal box with controls can be connected to either side using a supporting frame

ORDER NUMBERS

	EASY box UNI A 125 (CAV control pipe ø 125)	Ord. No. A701212
	EASY box UNI A 160 (CAV control pipe ø 160)	Ord. No. A701216
	EASY box UNI A 200 (CAV control pipe ø 200)	Ord. No. A701220
	EASY box UNI A 250 (CAV control pipe ø 250)	Ord. No. A701225
	EASY box UNI A 315 (CAV control pipe ø 315)	Ord. No. A701231
	EASY box UNI A 400 (CAV control pipe ø 400)	Ord. No. A701240
	EASY box UNI SR 125 (CAV control pipe ø 125)	Ord. No. A701312
	EASY box UNI SR 160 (CAV control pipe ø 160)	Ord. No. A701316
	EASY box UNI SR 200 (CAV control pipe ø 200)	Ord. No. A701320
	EASY box UNI SR 250 (CAV control pipe ø 250)	Ord. No. A701325
	EASY box UNI SR 315 (CAV control pipe ø 315)	Ord. No. A701331
	EASY box UNI SR 400 (CAV control pipe ø 400)	Ord. No. A701340
	EASY box CP (control and measurement part, all-purpose)	Ord. No. A701001

	SMART/EASY box C 125 (metal cover for EASY box ø 125)	Ord. No. A701112
	SMART/EASY box C 160 (metal cover for EASY box ø 160)	Ord. No. A701116
	SMART/EASY box C 200 (metal cover for EASY box ø 200)	Ord. No. A701120
	SMART/EASY box C 250 (metal cover for EASY box ø 250)	Ord. No. A701125
	SMART/EASY box C 315 (metal cover for EASY box ø 315)	Ord. No. A701131
	SMART/EASY box C 400 (metal cover for EASY box ø 400)	Ord. No. A701140
	CPA controller - touch-screen, ivory color	Ord. No. A144100
	Exchangeable cover CPA 5 color versions	see pricelist
	CPB controller - white color	Ord. No. A144110
	Heater EPO-PTC / EPO-V - electrical	according to size