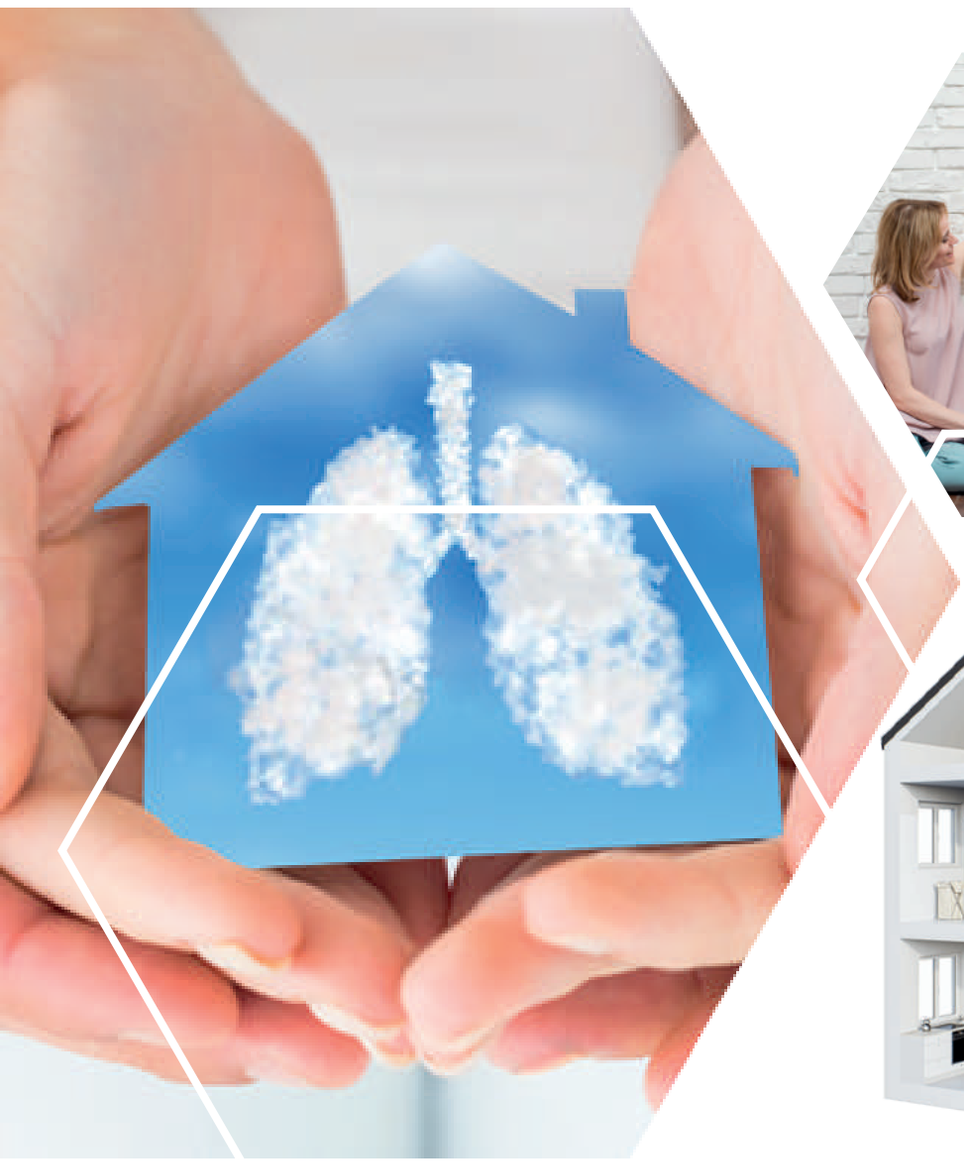
EKO

JAWAR



discover ventilation again!

RECUPERATION

JAWAR ATMO

discover ventilation again!

About ventilation

Each of us needs fresh air to live. Every day, people inhale and exhale about 10,000 liters of air. For this purpose, the oxygen contained in the air is used, and the carbon dioxide is exhaled. Moreover, the exhaled air contains water vapor. Moisture is also excreted by our bodies through the skin - in the process of sweating. In addition to the human body, there are other sources of moisture in the house: water evaporates during bathing and cooking. To ensure adequate comfort and health in the apartment, efficient ventilation should work, which will provide us with fresh air, and remove used air and excess moisture.

- In accordance with the logic of the building's operation, as well as with the regulations, fresh air should be blown into the rooms where people spend most of their time, and it should be vented from the rooms with the highest amounts of moisture and unpleasant odors.

Rooms to which we supply fresh air:	Rooms from which we remove used air:
Living room	Kitchen / pantry
Bedrooms	Bathroom / toilet
Corridors and staircases	Dressing room

Thanks to this arrangement, fresh air flows into the living rooms first, then, through e.g. door cuts, it moves to rooms such as kitchens and bathrooms, and then it is removed by ventilation.

- Malfunctioning ventilation causes many problems. Those visible include: mold and fungus formation, moisture condensation on windows and other surfaces.
- Lack of sufficient oxygen in the air also results in a deterioration of comfort and well-being, the symptoms of which are: fatigue, frequent headaches, allergies, and respiratory diseases.
- On the other hand, the excess of exchanged air results in heat loss and cooling of the apartment. Therefore, we should provide an adequate amount of ventilated air that is neither too much nor too little.

Two basic types of ventilation are commonly known:

natural ventilation

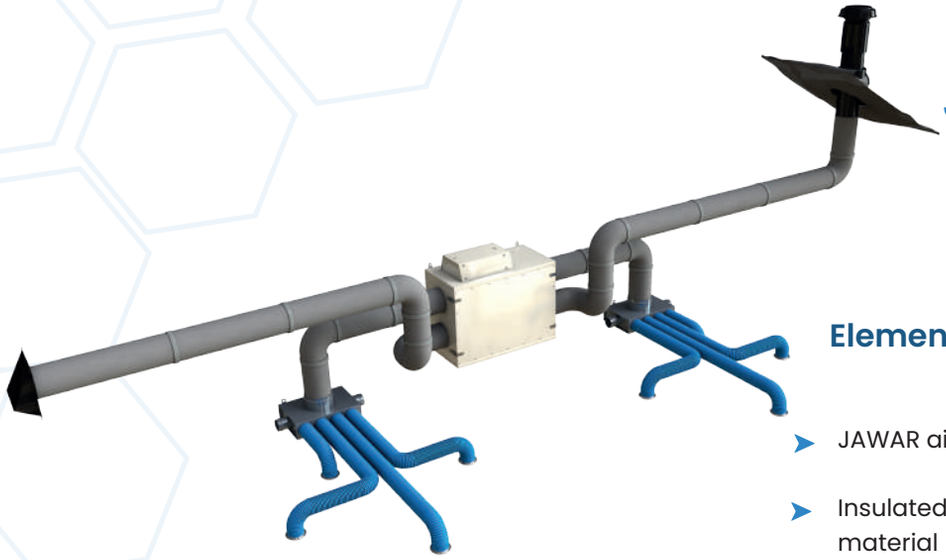
Natural ventilation is based on the installation of vertical exhaust ducts which, by gravity, remove used (warmer) air from the apartment. Fresh air, on the other hand, is supplied through leaks in windows and doors. This is how ventilation has worked for ages. Unfortunately, nowadays, looking for better thermal insulation of buildings, we install very tight windows and doors, so that gravity ventilation does not work. This problem can be solved by using e.g. window air inlets, but then we are dealing with considerable heat losses in the apartment.

mechanical ventilation.

Mechanical ventilation works by means of an air handling unit which mechanically blows fresh air through the inlet ducts, and draws out used air through the exhaust ducts. Air handling units are usually equipped with heat exchangers, which collect heat from the used air and heat the supplied air from the outside. This helps to reduce heat loss caused by ventilation. Air handling units also allow fresh air to be filtered, which prevents particles from entering the apartment. Unfortunately, the mechanical ventilation solutions available on the market are very complicated and therefore expensive to install and maintain.

JAWAR, based on its many years of experience, has created a system that allows you to combine the best features of both systems - a simple structure based on vertical ducts, as in natural ventilation, and efficiency and economy as in mechanical ventilation. This is how the JAWAR ATMO system was created.

JAWAR mechanical ventilation systems



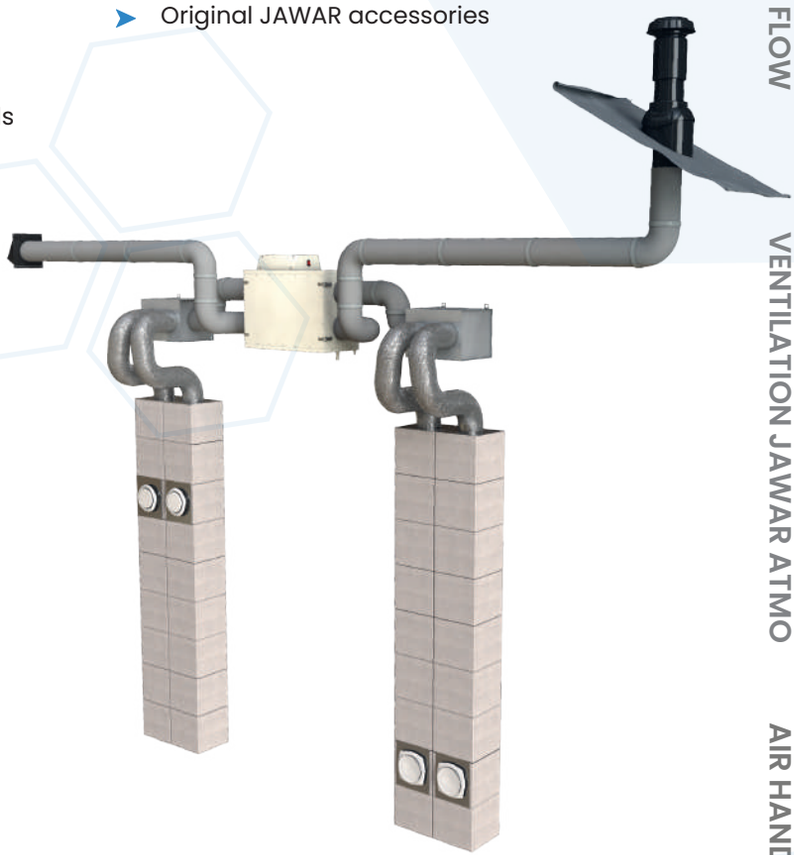
JAWAR FLOW

Advantages:

- High air-tightness
- High thermal insulation of the channels
- Resistance to humidity
- High heat exchange
- Easy and fast installation

Elements of the system:

- JAWAR air-handling unit
- Insulated channels made of innovative EPS material
- Flexible ventilation ducts
- Original JAWAR accessories



JAWAR ATMO

Advantages:

- High thermal insulation of the channels
- Very quiet operation
- No need to mount additional ceiling
- High heat exchange
- Easy cleaning of ducts
- Easy and fast installation

Elements of the system:

- JAWAR air-handling unit
- Insulated channels made of innovative EPS material
- Vertical ducts made of perlite-concrete
- Original JAWAR accessories

Jawar FLOW

JAWAR FLOW is a system of mechanical ventilation with heat exchange. The system is built of innovative EPS ventilation ducts and flexible polypropylene tubes to ensure ultimate air-tightness and easy installation.

What is JAWAR Flow

- JAWAR FLOW is a system of mechanical ventilation with heat exchange, including JAWAR air-handling unit, EPS ventilation ducts and flexible polypropylene tubes.
- The system operates by supplying fresh air from outside of the building into the apartment and conducting the used air to the outside. The air-handling unit is used to ensure heat exchange between the fresh and used air. It also filters the air and steers the right amount of the air exchanged.
- A set of ducts and accessories enables an easy installation and high air-tightness of the system. JAWAR Flow minimizes the energy loss during air distribution.

Properties:

- Available air-handling units: R250, R350, R450
- Available EPS/EPP ducts: 160mm, 180mm
- Available flexible duct diameter: 75mm

Advantages:

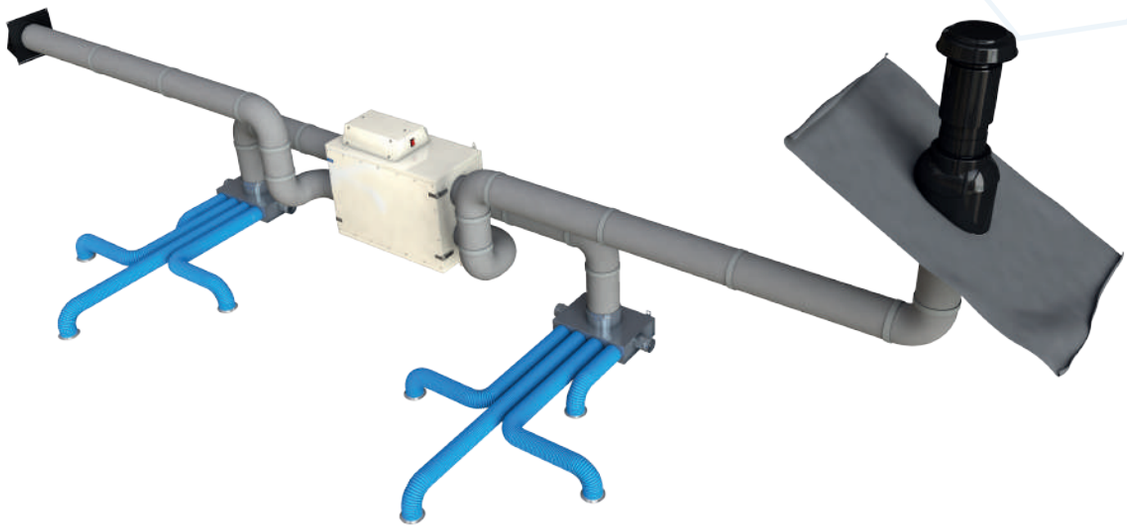
- High air-tightness
- High thermal insulation of the channels
- Resistance to humidity
- High heat exchange
- Easy and fast installation

Additional possibilities:

- Possible to be used in a house restoration
- Government funds for family houses available

JAWAR FLOW WAY OF OPERATION

JAWAR FLOW is a mechanical ventilation system, ensuring balanced air flow and heat exchange thanks to JAWAR air-handling unit. The system consists of 3 modules.



Module 1: Air-handling unit and steering

- JAWAR air-handling unit is a device equipped with a heat exchanger (efficiency up to 92%), fans for air intake and outlet and a system of exchangeable filters; the air-handling unit should be located in the attic or in the basement;
- The steering panel is located in any place, where it is comfortable for the user, ex. in the living room or bedroom; it is used to regulate the fan power, to ensure the ultimate comfort for the house residents;

Module 2: EPS installation

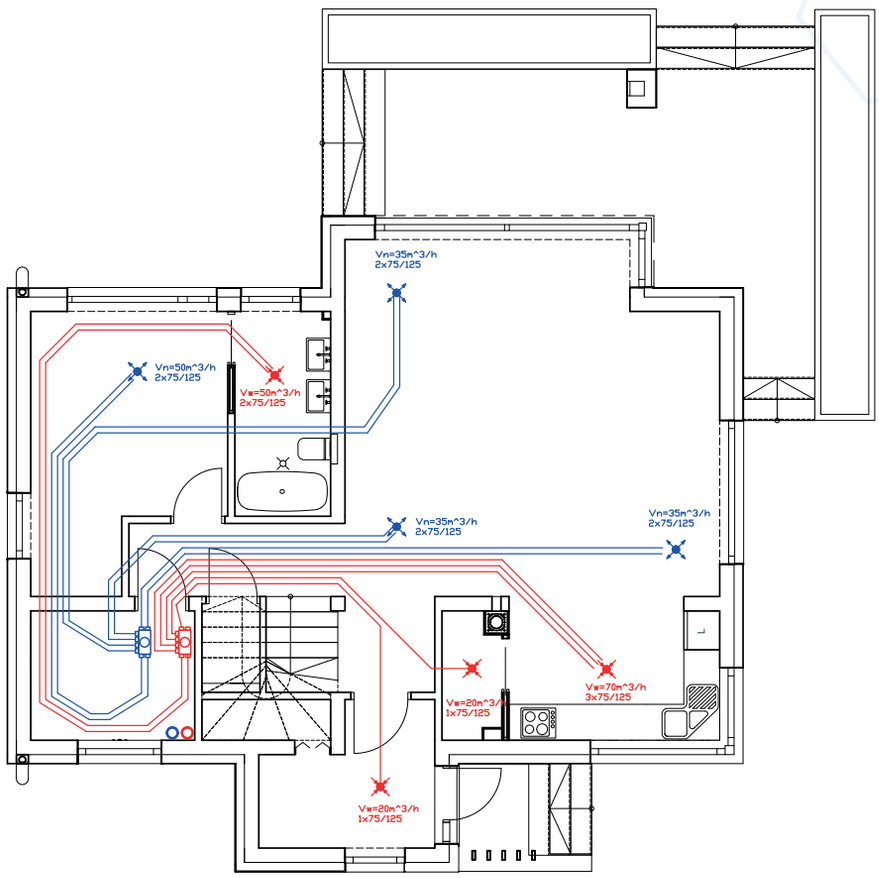
- Insulated ducts made of innovative EPS/EPP material are a nair-tight connection between the air-handling unit, air inlet/outlet and the junction boxes leading to different rooms in the building; using insulated ventilation channels limits the risk of condensation in the system and decreases the heat loss;
- Inlet and outlet – the air inlet lets the fresh air from outside of the building into the ventilation system, and the outlet lets the used air to the outside of the building; the air inlet and outlet can be located on outer walls or on the roof;

Module 3: Flexible ducts installation

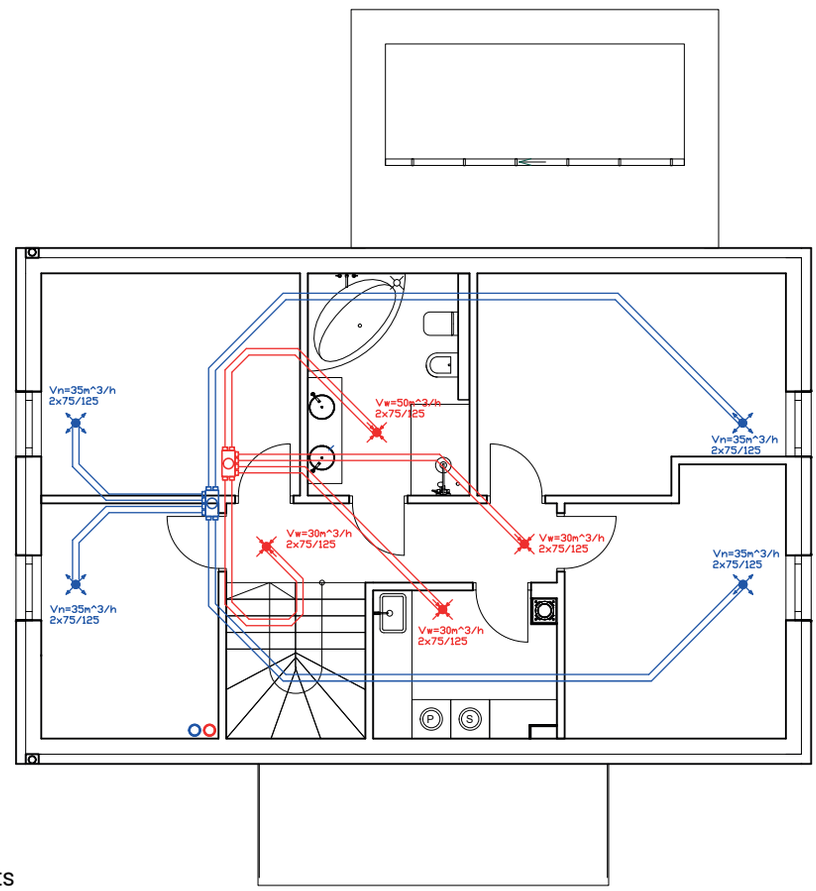
- Ducts leading from junction boxes towards rooms are made of polypropylene flexible tubes, ensuring easy installation and efficient quiet operation;
- Junction boxes – enable junction of the air coming from the air-hanndling unit towards different rooms, and from rooms towards the air-handling units;
- Diffusers – allow to adjust the air stream depending on the size and function of each room.

Examples of project adaptation – JAWAR Flow

a) level „0”



b) level „1”



Exhaust ducts

Supply air ducts

Jawar ATMO

Jawar ATMO is a new system of ventilation with heat exchange. Its way of operation is based on supplying fresh air and exhausting used air through vertical channels made of lightweight perlite-concrete, which lead to the central ventilation unit placed in the attic or basement.

What is JAWAR ATMO

- Jawar ATMO ventilation system is energy efficient apartment ventilation. It removes used air from the house and supplies fresh filtered air mechanically. Jawar ATMO is equipped with a recuperator, which is exchanging heat between the used and fresh air. As a result, a preheated and filtered fresh air is supplied to the apartment through vertical perlite-concrete channels.
- Ventilation blocks made from lightweight perlite-concrete are distinguished by excellent thermal insulation, which results in little heat loss in the system. Special properties of perlite allow quiet work of the system. Easy installation of the blocks results in low costs of the investment.
- ATMO is an optimal solution in terms of costs and functionality. For a lower price, the user receives a system with comparable energy efficiency and capacity and a simple installation.

Properties:

- Available air-handling units: R250, R350, R450
- Available vertical ducts size: 120x160mm

Advantages:

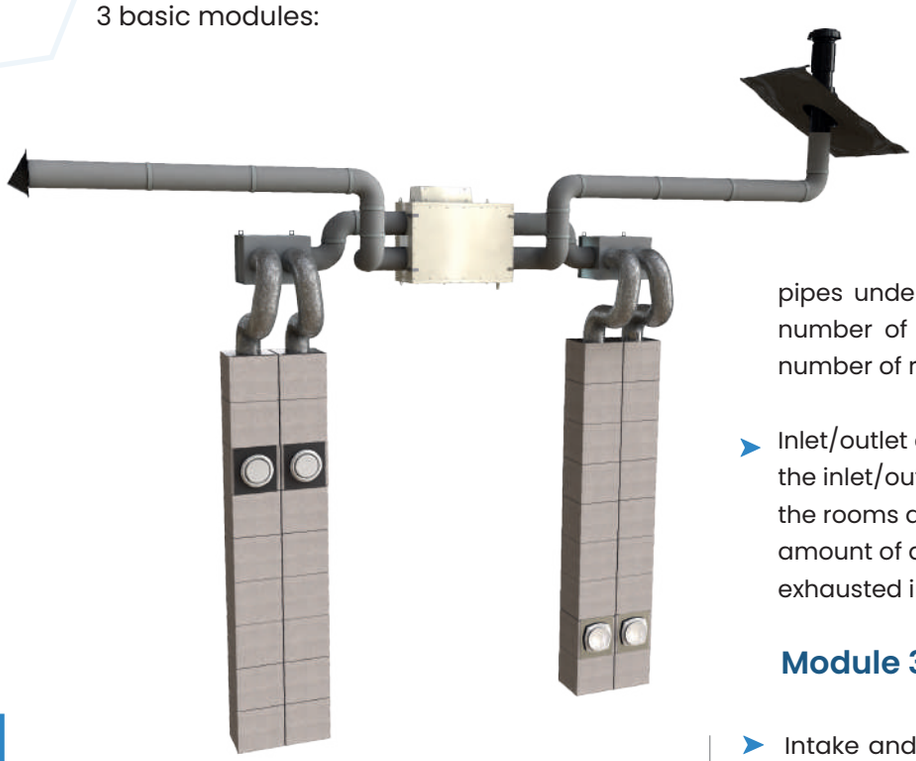
- Heat exchange and high therma insulation of the channels
- Damping noises thanks to perlite-concrete
- No need to mount additional ceiling
- No need of a roof duct
- Easy and fast installation

Additional possibilities:

- Possible to be used in a house restoration
- Government funds for family houses available
- Possibility of mixing JAWAR FLOW and JAWAR ATMO systems

JAWAR ATMO WAY OF OPERATION

Jawar ATMO is a mechanical ventilation system with heat exchange. It exhausts used air from the apartment and supplies fresh air, which is preheated and filtered. Jawar ATMO consists of 3 basic modules:



Module 1 – central unit and ste-

- Jawar central air handling unit is an electrical device equipped with heat exchanger with efficiency of up to 92%, fans ensuring air outflow/inflow and a system of exchangeable filters; the central ventilation unit should be placed in the attic or in the basement;
- Steering panel can be placed in anywhere in the apartment, like in the living room or bedroom; with the panel you can adjust the power of the fans to get the desired comfort in the house;

Module 2 – vertical channels

- Channels made from lightweight perlite--concrete ensure quiet operation and good thermal insulation of the system; they are placed within the inner walls of the house and are responsible for transport of fresh and used air between the rooms and the central ventilation unit; an advantage of using this kind of channels is that you don't need to hang ventilation pipes under the ceiling of in the floor; the number of channels is dependent on the number of rooms that you need to ventilate;
- Inlet/outlet diffusers – they are placed in the inlet/outlet of the vertical channels in the rooms and allow adjustment of the amount of air that we want supplied/exhausted in the room;

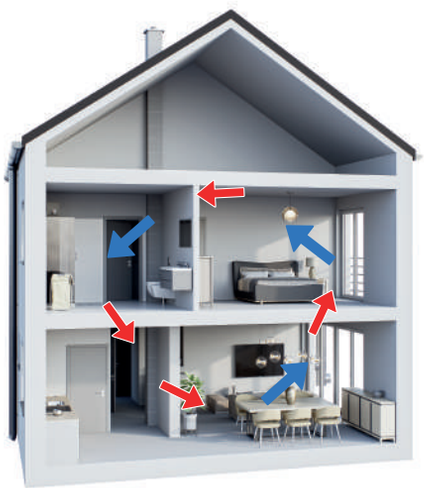
Module 3 – horizontal installation

- Intake and outlet – intake allows supplying the air from outside to the central ventilation unit, and the outlet allows exhausting used air from the central unit to the outside; the intake and outlet can be placed in the upper parts of the outside walls or in the roof; the ATMO system is standard equipped with wall intake and outlet; in case of the need to go through the roof we recommend to use standard parts of the roofing system; the intake and outlet are connected to the central ventilation unit through flexible insulated ducts;
- Junction boxes – allow to separate the air going from the central ventilation unit to individual vertical channels, as well as connecting air coming from different vertical channels towards the central ventilation unit;
- Throttles – allow to adjust the air stream depending on the function of each room;
- Ducts connecting vertical channels with the central ventilation unit – the vertical channels are connected in the attic or basement with the central ventilation unit (through the junction boxes) with flexible insulated ducts; ducts are ended with system connectors; Jawar ducts make the system installation fast and easy.

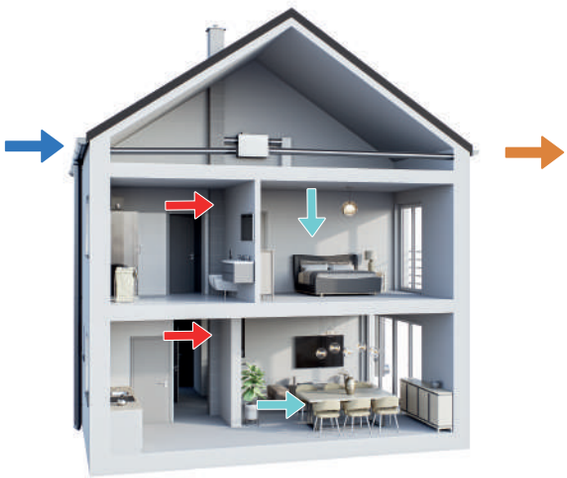
Ventilation restoration in existing buildings

Stuffy at home? Moisture problems? Gravity ventilation is not working? Mechanical ventilation can also be installed in the existing building. It does not always require a major restoration and house reconstruction. Thanks to JAWAR products, it is possible to renovate ventilation in an existing building and install mechanical ventilation with heat recovery.

Before



After



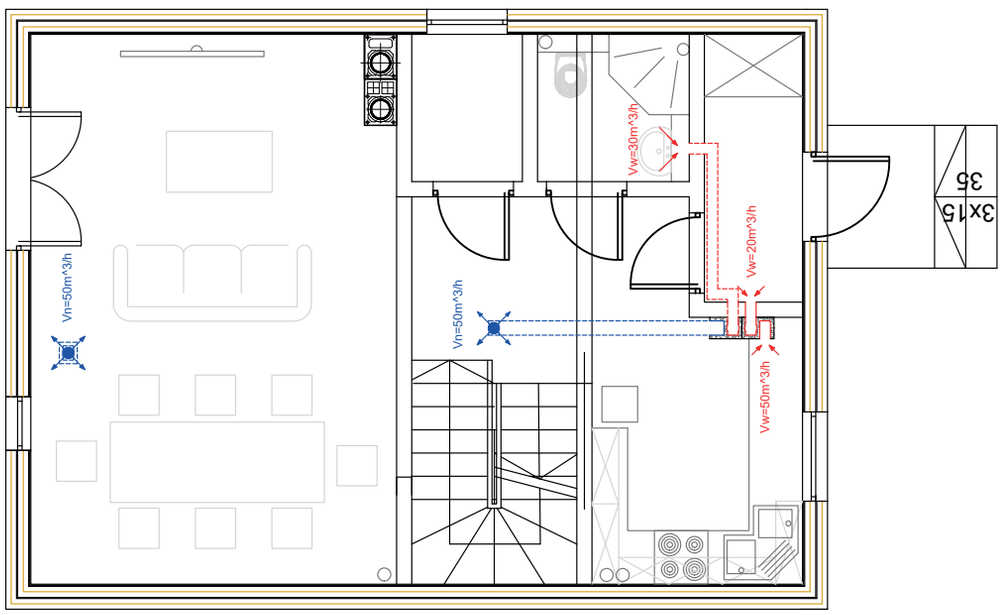
Ventilation restoration should begin with a thorough feasibility study and design. First, the location of the central air handling unit should be set. In the case of restoration, the best solution is to place it in an unused part of the attic. Thanks to this location, it will be possible to supply air from the air intake and to the launcher, which can be located in the roof or in the gable walls of the building. Using an unused attic, we can also easily distribute air to / from rooms located directly below it.

Ventilation of the rooms on the lower storey is a bigger challenge, if it is a two-storey house. In this case, it is necessary to use the existing gravity ventilation ducts that lead from the kitchen, toilet or other rooms. These canals can be connected to the recuperator in the attic. On the ground floor, they can be branched to ventilate as many rooms as possible.

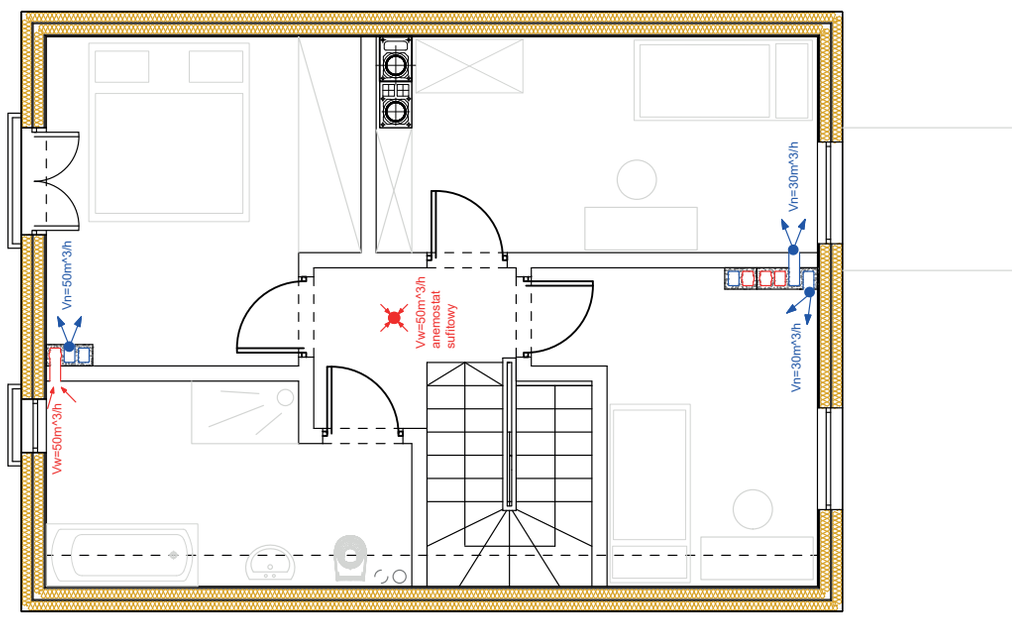
When designing mechanical ventilation, we try to ensure that every room has an air supply or exhaust air valve. This will not always be possible in the case of restoration. This does not mean that such a project does not make sense. Any improvement in the operation of ventilation will be felt by increasing the comfort of living in the apartment and savings in heating.

Examples of project adaptation – JAWAR ATMO

a) level „0”



b) level „1”

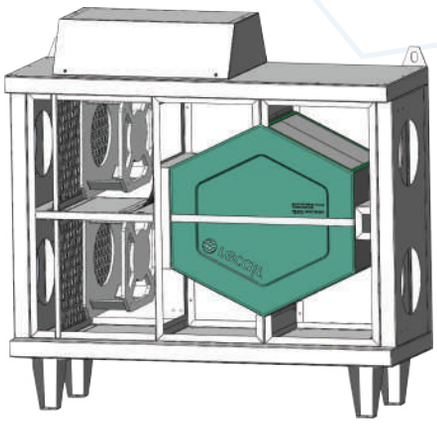


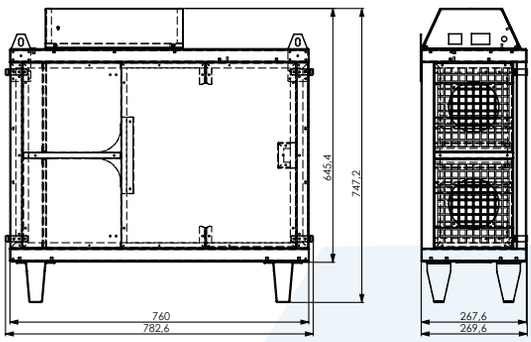
Exhaust ducts

Supply air ducts

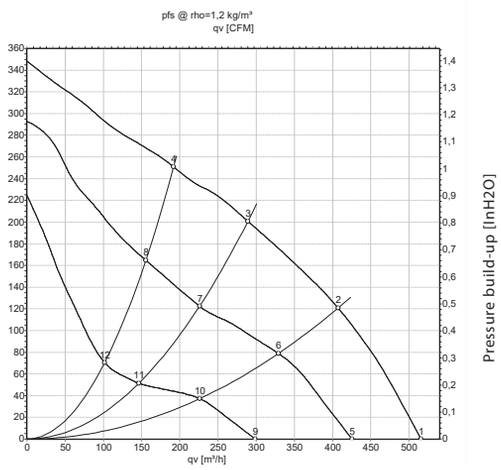
Air handling unit R200

- **Heat exchanger:** countercurrent, made of plastic, RECAIR RC160
- **Fan:** 3-gear ebm-papst Mulfingen GmbH & Co.
- **Filters:** Inlet and outlet G4, filter exchange reminder in the steering
- **By-pass:** Electronical
- **Steering:** Panel NANO ONE installed in the apartment, connected to the air-handling unit with a cable. The panel and steering is user friendly. It is possible to communicate between the panel and the air-handling unit also by radio.
- **Standard cables:** As standard, a power cord with a switch and a melting fuse, wiring to the control panel and a built-in output (socket) for the secondary heater.
- **Casing:** unburnable, made of steel sheets powder painted in whate with 30mm rockwool insulation layer. Including legs, siphon, door ensuting easy access to all device's components.
- **Ionizer:** Located in the fresh air intake chamber, removes bacteria, viruses, funghi, alergenes. Limits unpleasant smell, pollen and dust.





R200 fan efficiency curve

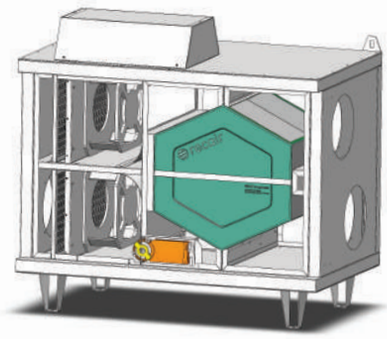


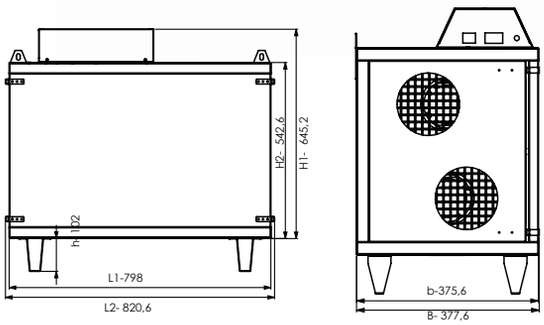
	U	f	n	Pe	I	qv	Pfs	qv	Pfs
	V	Hz	min-1	W	A	m3/h	Pa	cfm	in.wg
1	240	50	2525	59	0,26	515	0	305	0,00
2	240	50	2475	61	0,27	405	120	240	0,48
3	240	50	2440	63	0,28	290	200	170	0,80
4	240	50	2490	60	0,26	190	250	115	1,00
5	240	50	2110	46	0,20	425	0	250	0,00
6	240	50	2010	48	0,21	330	79	195	0,32
7	240	50	1935	49	0,21	225	122	135	0,49
8	240	50	2030	48	0,21	155	165	90	0,66
9	240	50	1510	43	0,19	300	0	175	0,00
10	240	50	1380	44	0,19	225	37	135	0,15
11	240	50	1250	45	0,19	145	51	85	0,20
12	240	50	1340	44	0,19	100	70	60	0,28

U- f- frequency, n- speed, Pe- power consumption, qv- air flow, Pfs- pressure increase

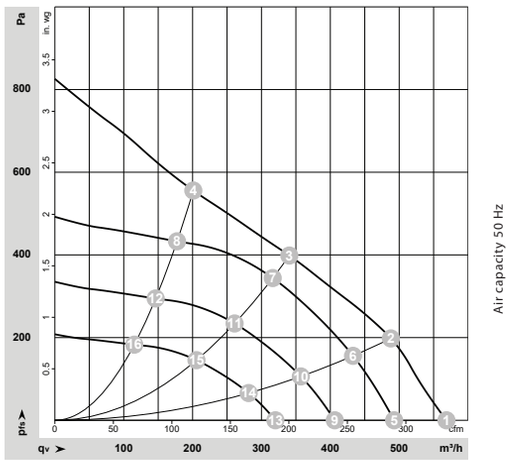
Air handling unit R250

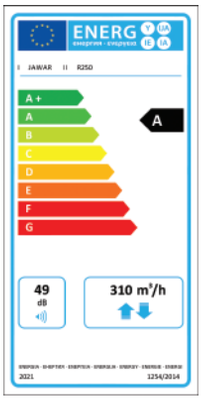
- **Heat exchanger:** countercurrent, made of plastic, RECAIR RC160
- **Fan:** EC energy-efficient ebm-papst Mulfingen GmbH & Co.
- **Filters:** Inlet and outlet G4, filter exchange reminder in the steering
- **By-pass:** Automated, integrated
- **Steering:** Thermostat NANO COLOR installed in the apartment, connected to the air-handling unit with a cable. The panel and steering are equipped with a wide range of fucntions, and a possibility to connect to other media, such as alarm system, gates, lighting, etc. (an additional EX4 module is necessary). The panel can be programmed for holidays or changed into manual steering. NANO COLOR is equipped with LCD touch screen.
- **Standard cables:** As standard, a power cord with a switch and a melting fuse, wiring to the control panel and a built-in output (socket) for the secondary heater.
- **Casing:** unburnable, made of steel sheets powder painted in whate with 30mm rockwool insulation layer. Including legs, siphon, door ensuting easy access to all device's components.
- **Ionizer:** Located in the fresh air intake chamber, removes bacteria, viruses, funghi, alergenes. Limits unpleasant smell, pollen and dust.





R250 fan efficiency curve



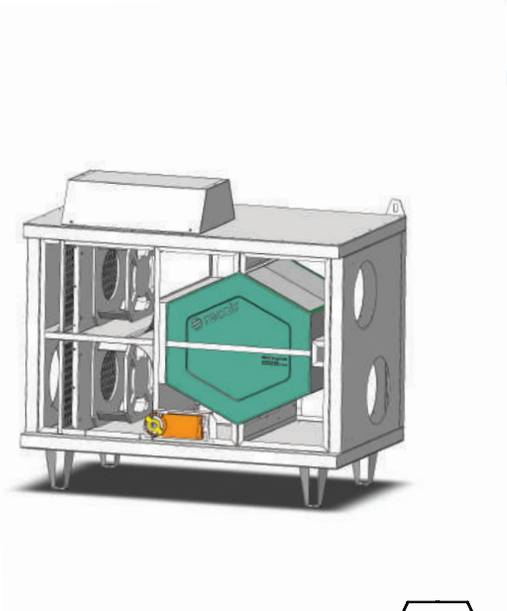


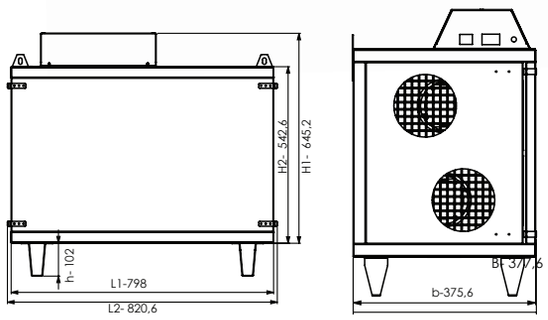
	Wired	U	f	n	P_{ed}	I	LpA_n	LwA_n	q_v	p_s	q_v	p_s
		V	Hz	min¹	W	A	dB(A)	dB(A)	m³/h	Pa	cfm	in. wg
1	1~	230	50	4615	85	0.75	68	76	570	0	335	0.00
2	1~	230	50	4510	85	0.75	65	74	490	200	285	0.80
3	1~	230	50	4300	85	0.75	60	68	340	400	200	1.61
4	1~	230	50	4530	85	0.75	65	74	200	550	120	2.21
5	1~	230	50	4000	55	0.48	65	73	495	0	290	0.00
6	1~	230	50	4000	59	0.51	63	71	435	157	255	0.63
7	1~	230	50	4000	67	0.59	58	66	315	345	185	1.39
8	1~	230	50	4000	59	0.51	62	71	175	433	105	1.74
9	1~	230	50	3300	31	0.27	60	68	405	0	240	0.00
10	1~	230	50	3300	33	0.29	58	66	355	107	210	0.43
11	1~	230	50	3300	38	0.33	53	61	260	235	155	0.94
12	1~	230	50	3300	33	0.29	57	66	145	294	85	1.18
13	1~	230	50	2600	15	0.13	54	62	320	0	190	0.00
14	1~	230	50	2600	16	0.14	52	60	280	66	165	0.26
15	1~	230	50	2600	18	0.16	47	55	205	146	120	0.59
16	1~	230	50	2600	16	0.14	51	60	115	183	70	0.73

U- voltage; f- frequency; n- speed, Ped- power consumption, LpAin- sound pressure level on the inlet side, LwAin- sound power level of the inlet, qv- air flow, p fs- pressure increase

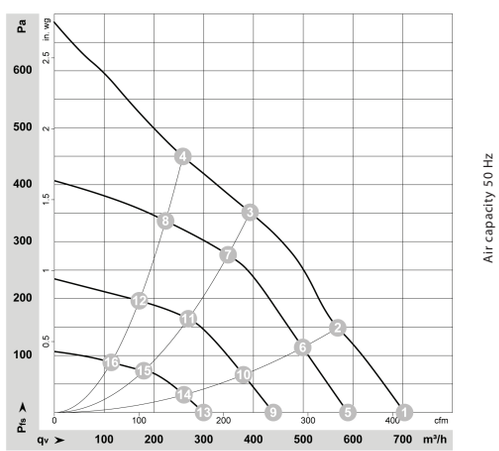
Air handling unit R350

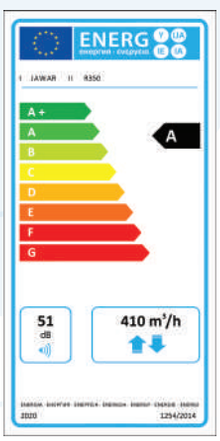
- **Heat exchanger:** countercurrent, made of plastic, RECAIR RC160
- **Fan:** EC energy-efficient ebm-papst Mulfingen GmbH & Co.
- **Filters:** Inlet and outlet G4, filter exchange reminder in the steering
- **By-pass:** Automated, integrated
- **Steering:** Thermostat NANO COLOR installed in the apartment, connected to the air-handling unit with a cable. The panel and steering are equipped with a wide range of fucntions, and a possibility to connect to other media, such as alarm system, gates, lighting, etc. (an additional EX4 module is necessary). The panel can be programmed for holidays or changed into manual steering. NANO COLOR is equipped with LCD touch screen.
- **Standard cables:** As standard, a power cord with a switch and a melting fuse, wiring to the control panel and a built-in output (socket) for the secondary heater.
- **Casing:** unburnable, made of steel sheets powder painted in whate with 30mm rockwool insulation layer. Including legs, siphon, door ensuting easy access to all device's components.
- **Ionizer:** Located in the fresh air intake chamber, removes bacteria, viruses, funghi, alergenes. Limits unpleasant smell, pollen and dust.





R350 fan efficiency curve



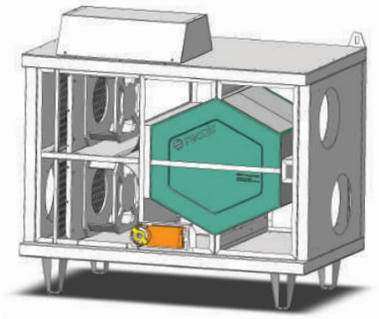


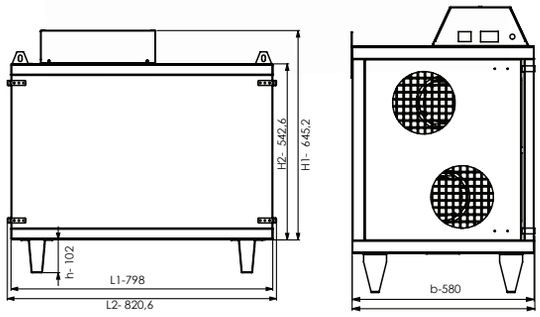
		U	f	n	Ped	I	LpA in	LwA in	qv	p fs	q v	P fs
		V	Hz	min-1	W	A	dB(A)	dB(A)	m3/h	Pa	cfm	in. wg
1	1~	230	50	4050	85	0,80	70	77	705	0	415	0,00
2	1~	230	50	3815	85	0,80	64	72	570	150	335	0,60
3	1~	230	50	3740	85	0,80	59	67	395	350	230	1,41
4	1~	230	50	3825	85	0,80	62	70	260	450	150	1,81
5	1~	230	50	3395	49	0,47	64	73	590	0	345	0,00
6	1~	230	50	3330	54	0,50	61	68	500	114	295	0,46
7	1~	230	50	3290	54	0,50	55	63	350	278	205	1,12
8	1~	230	50	3355	51	0,49	57	66	225	337	130	1,35
9	1~	230	50	2530	22	0,25	59	66	440	0	260	0,00
10	1~	230	50	2505	24	0,24	53	60	380	67	225	0,27
11	1~	230	50	2500	26	0,26	48	56	270	166	160	0,67
12	1~	230	50	2530	24	0,25	51	59	170	196	100	0,79
13	1~	230	50	1725	9,0	0,11	49	58	300	0	175	0,00
14	1~	230	50	1710	9,0	0,12	43	52	260	32	155	0,00
15	1~	230	50	1675	9,0	0,11	37	46	180	73	105	0,29
16	1~	230	50	1685	9,0	0,11	41	49	115	88	65	0,35

U- voltage; f- frequency; n- speed; Ped- power consumption; LpAin- sound pressure level on the inlet side; LwAin- sound power level of the inlet; qv- air flow; p fs- pressure increase

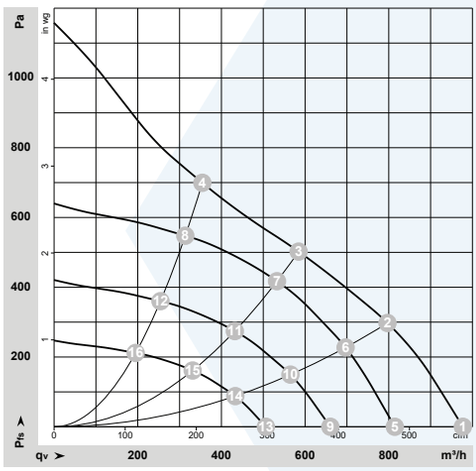
Air handling unit R450

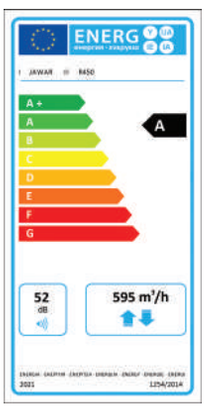
- **Heat exchanger:** countercurrent, made of plastic, RECAIR RC160
- **Fan:** EC energy-efficient ebm-papst Mulfingen GmbH & Co.
- **Filters:** Inlet and outlet G4, filter exchange reminder in the steering
- **By-pass:** Automated, integrated
- **Steering:** Thermostat NANO COLOR installed in the apartment, connected to the air-handling unit with a cable. The panel and steering are equipped with a wide range of fucntions, and a possibility to connect to other media, such as alarm system, gates, lighting, etc. (an additional EX4 module is necessary). The panel can be programmed for holidays or changed into manual steering. NANO COLOR is equipped with LCD touch screen.
- **Standard cables:** As standard, a power cord with a switch and a melting fuse, wiring to the control panel and a built-in output (socket) for the secondary heater.
- **Casing:** unburnable, made of steel sheets powder painted in whate with 30mm rockwool insulation layer. Including legs, siphon, door ensuting easy access to all device's components.
- **Ionizer:** Located in the fresh air intake chamber, removes bacteria, viruses, funghi, alergenes. Limits unpleasant smell, pollen and dust.





R450 fan efficiency curve





	U	f	n	Ped	I	LpA in	LwA in	qv	P fs	q v	P fs
	V	Hz	min-1	W	A	dB(A)	dB(A)	m3/h	Pa	cfm	in. wg
1	230	50	4440	161	1.35	72	81	975	0	575	0.00
2	230	50	4230	165	1.35	67	75	795	300	470	1.20
3	230	50	4120	169	1.35	63	71	585	500	345	2.01
4	230	50	4180	160	1.35	67	75	355	700	210	2.81
5	230	50	3700	93	0.80	68	77	815	0	480	0.00
6	230	50	3700	110	0.94	63	72	695	230	410	0.92
7	230	50	3700	126	1.07	60	69	535	417	315	1.67
8	230	50	3700	111	0.95	64	72	315	548	185	2.20
9	230	50	3000	50	0.43	63	71	660	0	390	0.00
10	230	50	3000	59	0.50	58	67	565	152	335	0.61
11	230	50	3000	67	0.57	55	64	430	274	255	1.10
12	230	50	3000	59	0.51	58	66	255	360	150	1.45
13	230	50	2300	22	0.19	56	65	505	0	300	0.00
14	230	50	2300	27	0.22	51	60	435	89	255	0.36
15	230	50	2300	30	0.26	48	57	330	161	195	0.65
16	230	50	2300	27	0.23	52	60	195	212	115	0.85

U- voltage; f- frequency; n- speed; Ped- power consumption; LpAin- sound pressure level on the inlet side; LwAin- sound power level of the inlet; qv- air flow; p fs- pressure increase

JAWAR Flow set price list

An example of a price list for recuperation made on Vent-Flex pipes, taking into account the power of the recuperator

Power of air handling unit	Number of supply / exhaust channels											
	2N+2W	3N+2W	3N+3W	4N+3W	4N+4W	5N+4W	5N+5W	6N+5W	6N+6W	7N+6W	7N+7W	8N+7W
R200	1832	1889	1992	2076	2182	2276	2348	-	-	-	-	-
R250	2297	2356	2459	2543	2649	2745	2819	2958	3097	-	-	-
R350	-	-	2589	2675	2781	2878	2954	3112	3269	3407	3548	-
R450	-	-	-	-	3152	3250	3325	3483	3640	3794	3947	4042

JAWAR Atmo set price list

Power of air handling unit	Number of supply / exhaust channels											
	2N+2W	3N+2W	3N+3W	4N+3W	4N+4W	5N+4W	5N+5W	6N+5W	6N+6W	7N+6W	7N+7W	8N+7W
R200	1928	2027	2148	2224	2323	2421	2520	-	-	-	-	-
R250	2590	2689	2788	2886	2985	3084	3182	3281	3380	-	-	-
R350	-	-	2899	2998	3096	3195	3294	3392	3491	3590	3688	-
R450	-	-	-	-	3185	3284	3382	3481	3580	3678	3777	3974

*- The price list should be treated as an average value for a given solution. The final valuation is based on the technical documentation of the mechanical ventilation system, taking into account all the points of the project. The price list does not include the cost of assembly work.

PROGRAM TERMS

The limit temperature efficiency of heat recovery for the air handling unit is ≥85%, achieved in at least one of the measurement ranges in accordance with the PN-EN 308 standard

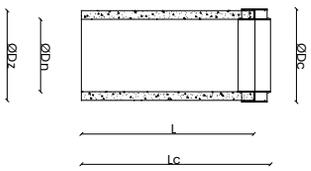
The maximum value of the electronic energy input factor ≤ 0.50 Wh / m3

Equipped with a control automation system that allows you to adjust the performance to the current needs

ACCESSORIES

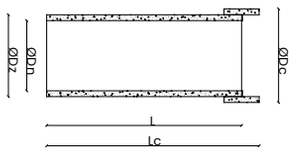
Pipe EPS 160

RREPS160	Ø Dn	Ø Dz	Ø Dc	L	Lc	PRICE
0,5	160	190	194	500	530	16,00
1,0	160	190	194	1000	1030	29,00



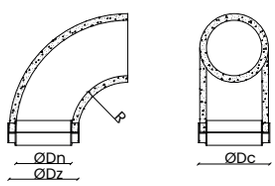
Pipe EPP 180

RREPP 180	Ø Dn	Ø Dz	Ø Dc	L	Lc	PRICE
0,5	180	210	240	500	545	26,00
1,0	180	210	240	1000	1045	38,00



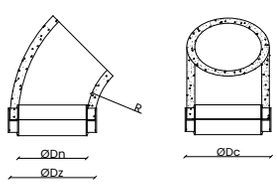
Elbow EPS 90

RKEPS 160/90	Ø Dn	Ø Dz	Ø Dc	R	PRICE
	160	190	194	163	22,00



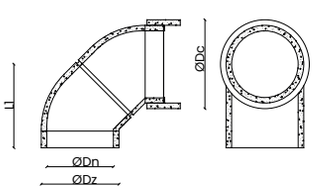
Elbow EPS 45

RKEPS160/45	Ø Dn	Ø Dz	Ø Dc	R	PRICE
	160	190	194	163	18,00



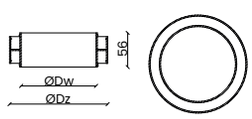
ElbowEPP 180

RKEPP 180/90	Ø Dn	Ø Dz	Ø Dc	L1	L2	PRICE
	180	210	240	214	260	26,00



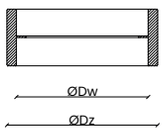
Muff EPS

RMEPS 160	Ø Dn	Ø Dw	Ø Dz	L	PRICE
	160	158	196	56	5,00



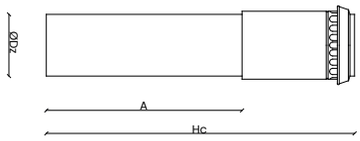
Muff EPP

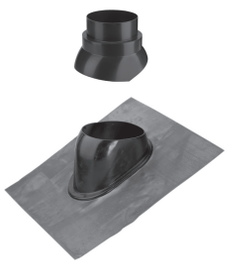
RMEPP 180	Ø Dn	Ø Dw	Ø Dz	L	PRICE
	180	210	240	85	9,00



Roof terminal EPS

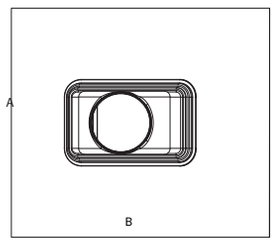
	Ø Dn	Ø Dz	A	Hc	PRICE
RCWEPSD 160	160	200	635	1000	124,00

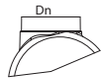


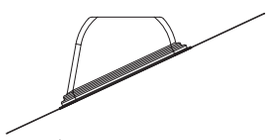


Roof duct

	Ø Dn	A	B	PRICE
RPD160	160	500	1000	126,00

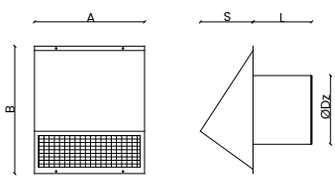






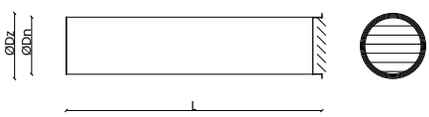
Wall terminal

Index	Ø Dn	Ø Dz	A	B	S	L	PRICE
RCWEPS	160	159	255	295	122	136	78,00



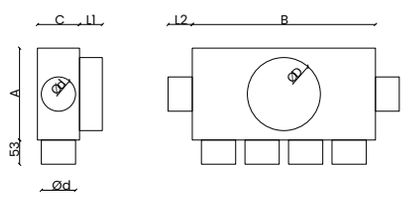
Wall inlet/outlet

Index	Ø Dn	Ø Dz	L	PRICE
RCWK125	125	145	500	24,00
RCWK160	160	180	500	29,00



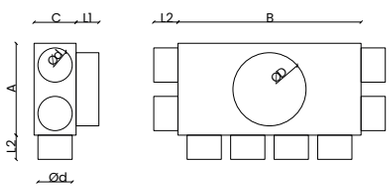
Junction box 6x75/160

	A	B	C	ØD	Ød	L1	L2	PRICE
SK6X75/160	201	401	92	160	75	50	53	88,00



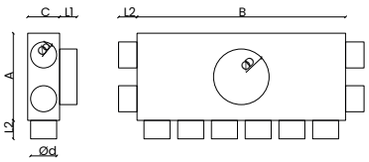
Junction box 8x75/160

	A	B	C	ØD	Ød	L1	L2	PRICE
SK8X75/160	201	401	92	160	75	50	53	100,00



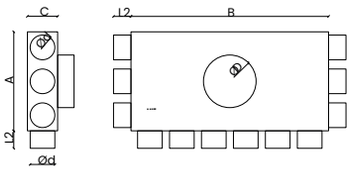
Junction box 10x75/160

	A	B	C	ØD	Ød	L1	L2	CENA
SK10X75/160	251	601	92	160	75	50	53	102,00



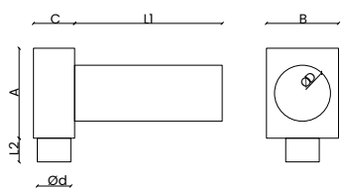
Junction box 12x75/160

	A	B	C	ØD	Ød	L1	L2	CENA
SK12X75/160	301	601	92	160	75	50	53	120,00



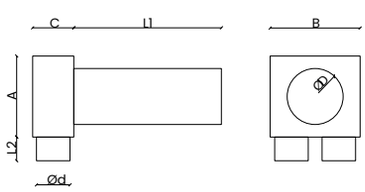
Diffuser connector

	A	B	C	ØD	Ød	L1	L2	CENA
SK1X75/125	201	161	92	125	75	330	53	20,00



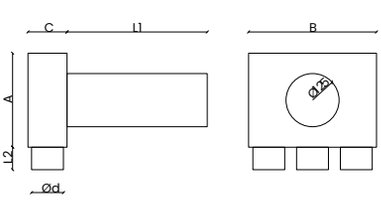
Diffuser connector

	A	B	C	ØD	Ød	L1	L2	CENA
SK2X75/125	181	201	92	125	75	330	53	22,00



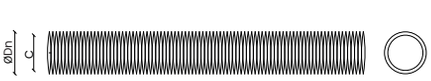
Diffuser connector

	A	B	C	ØD	Ød	L1	L2	CENA
SK3X75/125	221	331	92	125	75	330	53	31,00



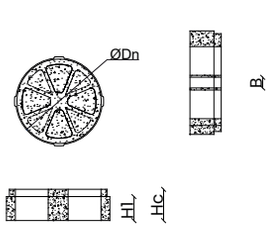
Flexible duct DN 75

	ØD	ØDz	CENA
SK1/75	75	64	2,00



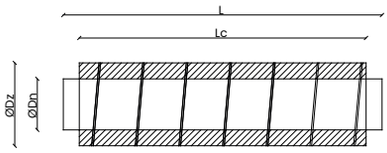
Dumping throttle

	Ø Dn	H1	Hc	A	B	CENA
RPTŁ	125	30	39	40	15	9,00



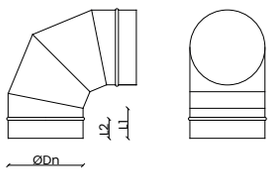
Damper

RTŁU	Ø Dn	Ø Dz	Lc	L	PRICE
0,5	160	225	1000	900	141,00
1,0	180	280	1000	400	141,00



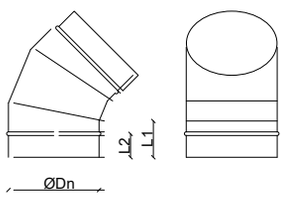
Elbow Atmo 90/125mm, 90/160 mm

Index	Ø Dn	L1	L2	PRICE
RKO125	125	50	30	11,00
RKO160	160	50	30	13,00



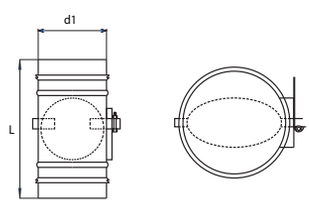
Elbow Atmo 45/125mm, 45/160 mm

Index	Ø Dn	L1	L2	PRICE
RKO125	125	50	30	7,00
RKO160	160	50	30	8,00



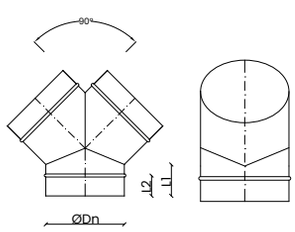
Throttle

Index	L	d	PRICE
RP125	125	50	9,00
RP160	160	50	9,00



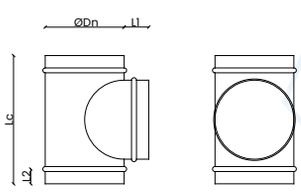
Y-pipe Y 125mm/160mm

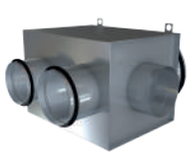
Index	Ø Dn	L1	L2	PRICE
RTY125	125	50	30	15,00
RTY160	160	50	30	16,00



T-pipe

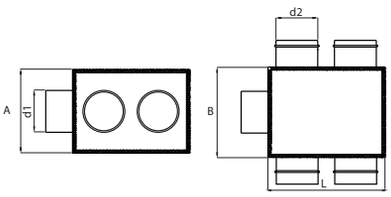
Index	Ø Dn	Lc	L1	L2	PRICE
RT125	125	225	50	30	8,00
RT160	180	280	50	30	9,00

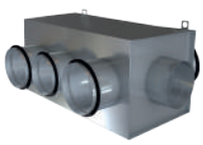




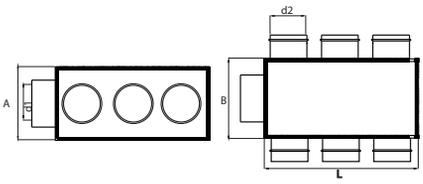
ATMO junction box

RSR4	A	B	L	d1	d2	PRICE
	250	270	350	125	125	89,00

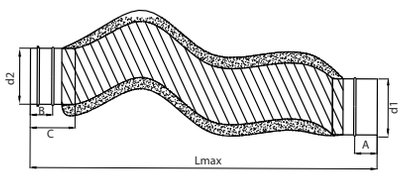




ATMO junction box 6						
	A	B	L	d1	d2	PRICE
RSR6	250	270	525	125	125	93,00



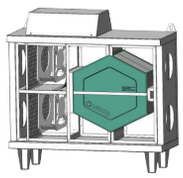
Pipe insulated Atmo						
Index	A	B	C	Lmax	d1/d2	PRICE
RRI125/2	50	50	100	2000	125	21,00
RRI125/4	50	50	100	2000	125	43,00
RRI160/2	50	50	100	2000	125	26,00
RRI160/4	50	50	100	2000	160	49,00



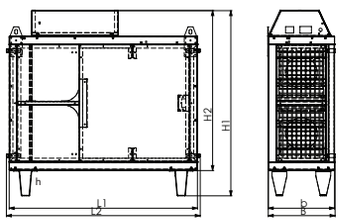
Installation accessories:

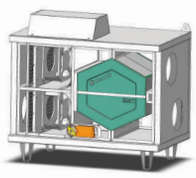
Accessories:		
INDEKS	NAME	PRICE
RAN	Inlet diffuser 125	7,00
RAW	Outlet diffuser 125	7,00
RRI 125/10	Insulated pipe 10mb	84,00
RZRIN	Nipple connector	8,00
RZRIM	Muff connector	8,00
ROTUL	Insulation 30mm (with glue)	106,00
SK03/75	Pipe connector	2,00
SK06/75	Gasket	1,00
SK05/75	Pipe plug	1,00
RTP	Perforated tape	16,00
RTA	Aluminium tape	15,00
RORS	Pipe clamp	3,00
RNO75	Knife for flexible ducts	7,00

Air handling unit

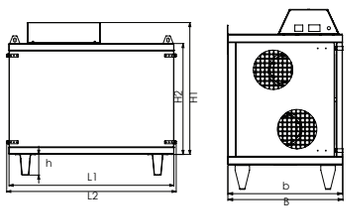


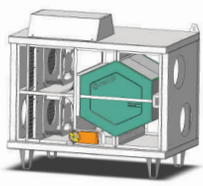
Air handling unit 200								
RR200	H1	H2	h	L1	L2	b	B	PRICE
	747	645	102	760	783	267	270	



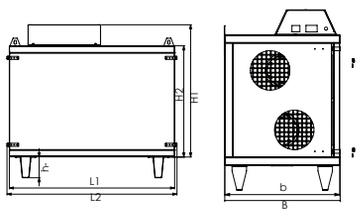


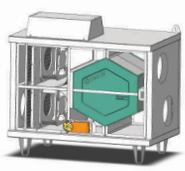
Air handling unit 250								
RR250	H1	H2	h	L1	L2	b	B	PRICE
	645	543	102	798	821	376	373	1664,00



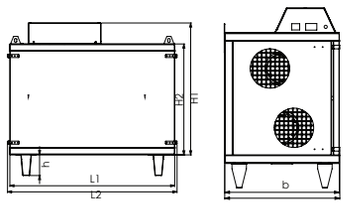


Air handling unit 350								
RR350	H1	H2	h	L1	L2	b	B	PRICE
	645	543	102	798	821	376	373	1776,00





Air handling unit 450								
RR450	H1	H2	h	L1	L2	b	B	PRICE
	645	543	102	798	821	580	577	1864,00



Additional accessories

Sensor of carbon dioxide, humidity and temperature SHC	PRICE
Sensor of carbon dioxide, humidity and temperature SHC. The sensor is used to measure key air quality indicators in the apartment. It can be used with the NANO Color (version 7.01 and higher) panels and ventilation modules AERO 3, AERO 4 and AERO 5.	103,00

Sensor of humidity and temperature SH-W (internal)	PRICE
The sensor measures humidity and temperature in the apartment. It can be used with the NANO Color (version 6.18 and higher) panels and ventilation modules AERO 3, AERO 4 and AERO 5, it can communicate in protocols COMPIT C14 and Modbus RTU. It has an analog output 0-10 V, which can be configured to work in the measured humidity mode.	44,00

Sensor of humidity and temperature SH-K (duct)	PRICE
The sensor measures humidity and temperature in the ventilation duct. It can be used with the NANO Color (version 6.18 and higher) panels and ventilation modules AERO 3, AERO 4 and AERO 5, it can communicate in protocols COMPIT C14 and Modbus RTU. It has an analog output 0-10 V, which can be configured to work in the measured humidity mode.	41,00

iNext internet module	PRICE
iNEXT is a system to remotely access the steering panel. The main function of the system is to control the panel through the internet, which enables remote: – checking actual settings – read measurement data – adjust ventilation functions – remotely configure and service the system	98,00

Converter C14 Radio – RS	PRICE
Converter C14 radio-rs enables a radio data transmission between devices using C14 protocol. The converter is placed in a plastic casing, prepared to be hanged on the wall. It includes a cable duct and antenna. A Nano power adapter is required	30,00

Nano power adapter	PRICE
The power adapter is used to Nano control panels and converters.	6,00

Entalpic heat exchanger	RR	PRICE
This is an option heat exchanger to recover heat and humidity in the apartment. It can be used with the air handling units RR200, RR250, RR350, RR450.	200	575,00
	250	575,00
	350	806,00
	450	1037,00

Electrical pre-heater	PRICE
The pre-heater can be used with an air-handling unit as a protection from frosting. The pre-heater is designed to heat up fresh air in the systems of ventilation and air-conditioning.	138,00

Technical data
Air handling units JAWAR

	PROPERTIES		AIR HANDLING UNITS			
1.	**Name**	**R**	**200**	**250**	**350**	**450**
2.	Maximum flow rate	m3/h	405	410	510	795
3.	Pressure at nominal flow	Pa	120	235	250	300
4.	Energy consumption	W	88-120	32-175	11-175	44-320
5.	Power supply	V	230	230	230	230
6.	Outlet diameter	mm	125	160	160	160
7.	Length/Width/Hight	mm	760/280/650	800/380/650	800/480/650	800/580/650
8.	Weight	kg	33	36	45	45
9.	Filter class	-	G4	G4	G4	G4
10.	Outlet arrangement	-	horizontal	horizontal	horizontal	horizontal
11.	SEC in average climate conditions	kWh/m2/rok	-31,44	-34,05	-38,58	-39,46
12.	SEC in cold climate conditions	kWh/m2/rok	-69,04	-71,66	-76,19	-77,07
13.	SEC in warm climate conditions	kWh/m2/rok	-7,27	-9,88	-14,41	-15,29
14.	SEC class (average climate conditions)	-	B	A	A	A
15.	Declared type	-	two-way			
16.	Motor & drive	-	Variable speed fan	Variable speed fan		
17.	Heat recovery type	-	membrane			
18.	Efficiency acc. to UE 1254/2014, dT=13°C, SWM	%	85	85,1	85,3	85,3
19.	Power input at max air flow	W	119,7	172,2	174,1	318,9
20.	Sound power level	dB (A)	43-55	36-57	36-58	36-60
21.	Reference flow rate	m3/s	0,08	0,09	0,09	0,09
22.	Reference pressure difference	Pa	50	50	50	50
23.	Specific Power Input	W/(m3/h)	0,49	0,39	0,22	0,19
24.	Ventilation control	-	0,85; central demand control			
25.	Maximum internal leak	%	2	2	2	2
26.	Maximum external leak	%	3	3	3	3
27.	Clogged filter warning	-	tak	tak	tak	tak
28.	Annual heating saved in average climate conditions	kWh/m2	45	44	45	45
29.	Annual heating saved in cold climate conditions	kWh/m2	88	88	88	88
30.	Annual heating saved in warm climate conditions	kWh/m2	20	20	20	20
31.	Annual energy consumption	kWh/m2	5,67	4,63	2,81	2,81

JAWAR

JAWAR ATMO

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