

QR280A - QR400A - QR550A



INSTALLATION, USE AND MAINTENANCE MANUAL



QR280A - QR400A - QR550A

Heat Recovery Ventilation Unit

Read this manual carefully before using the product and keep it in a safe place for reference as necessary.

This product was constructed up to standard and in compliance with regulations relating to electrical equipment and must be installed by technically qualified personnel.

The manufacturer assumes no responsibility for damage to persons or property resulting from failure to observe the instructions contained in this manual.

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2 PRECAUTIONS

WARNING

Make sure that the mains supply to the unit is disconnected before performing any installation, service, maintenance or electrical work!

WARNING

The installation and service of the unit and complete ventilation system must be performed by an authorized installer and in accordance with local rules and regulations.

WARNING

If any abnormality in operation is detected, disconnect the device from the mains supply and contact a qualified technician immediately.

Transport and storage

- Do not leave the device exposed to atmospheric agents (rain, sun, snow, etc.).
- Duct connections/duct ends must be covered during storage and installation.

Installation

- After removing the product from its packaging, verify its conditions. Do not leave packaging within the reach of children or people with disabilities.
- Beware of sharp edges. Use protective gloves.
- The device should not be used as an activator for water heaters, stoves, etc., nor should it discharge into hot air/fume vent ducts deriving from any type of combustion unit or tumble dryer. It must expel air outside via its own special duct.
- If the environment in which the product is installed also houses a fuel-operating device (water heater, methane stove etc., that is not a “sealed chamber” type), it is essential to ensure adequate air intake, to ensure good combustion and proper equipment operation.
- The electrical system to which the device is connected must comply with local regulations.
- Before connecting the product to the power supply or the power outlet, ensure that:
 - the data plate (voltage and frequency) correspond to those of the electrical mains
 - the electrical power supply/socket is adequate for maximum device power.
- For installation an omnipolar switch should be incorporated in the fixed wiring, in accordance with the wiring rules, to provide a full disconnection under overvoltage category III conditions (contact opening distance equal to or greater than 3mm).

Use

- The device should not be used for applications other than those specified in this manual.
- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance.
Cleaning and user maintenance shall not be made by children without supervision.
- Do not touch the appliance with wet or damp hands/feet.
- The device is designed to extract clean air only, i.e. without grease, soot, chemical or corrosive agents, or flammable or explosive mixtures.
- Do not use the product in the presence of inflammable vapours, such as alcohol, insecticides, gasoline, etc.
- **The system should operate continuously, and only be stopped for maintenance/service.**
- Do not obstruct ducts or grilles to ensure optimum air passage.
- Do not immerse the device or its parts in water or other liquids.
- Operating temperature: 0°C up to +40°C.

Service

- Although the mains supply to the unit has been disconnected there is still risk for injury due to rotating parts that have not come to a complete standstill.
- Beware of sharp edges. Use protective gloves.
- Use original spare parts only for repairs.

3 PRODUCT INFORMATION

3.1 General

This is the Installation, Use and Maintenance Manual of the heat recovery ventilation units, models QR280A, QR400A and QR550A.

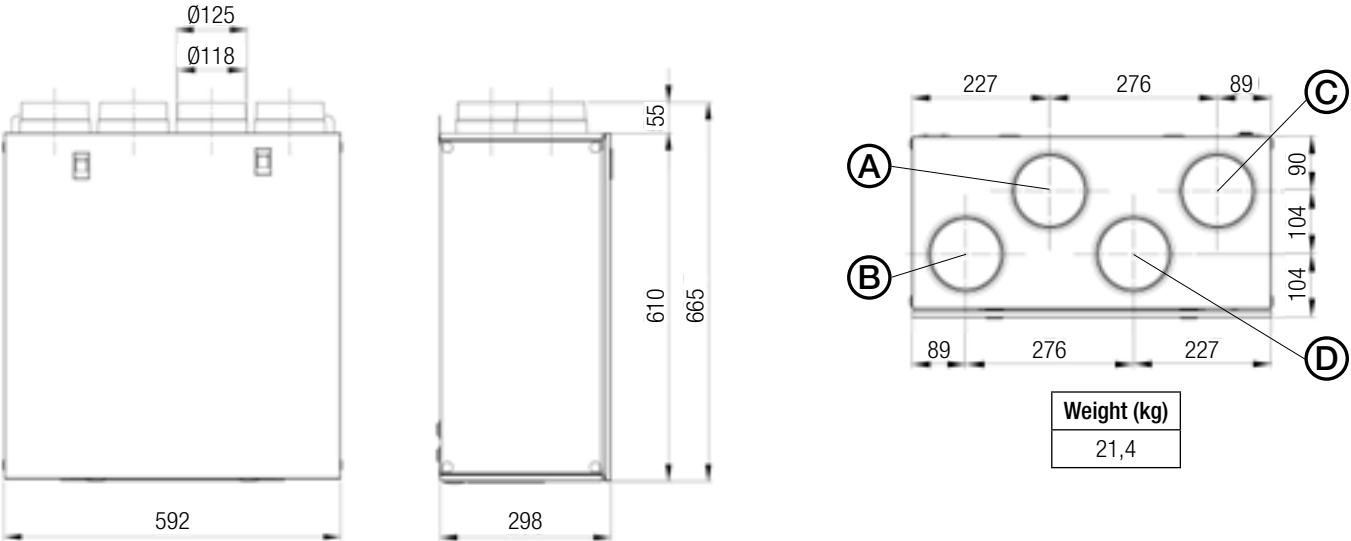
This manual consists of basic information and recommendations concerning installation, commissioning, use and service operations to ensure a proper fail-free operation of the unit.

The key to proper, safe and smooth operation of the unit is to read this manual thoroughly, use the unit according to given guidelines and follow all safety requirements.

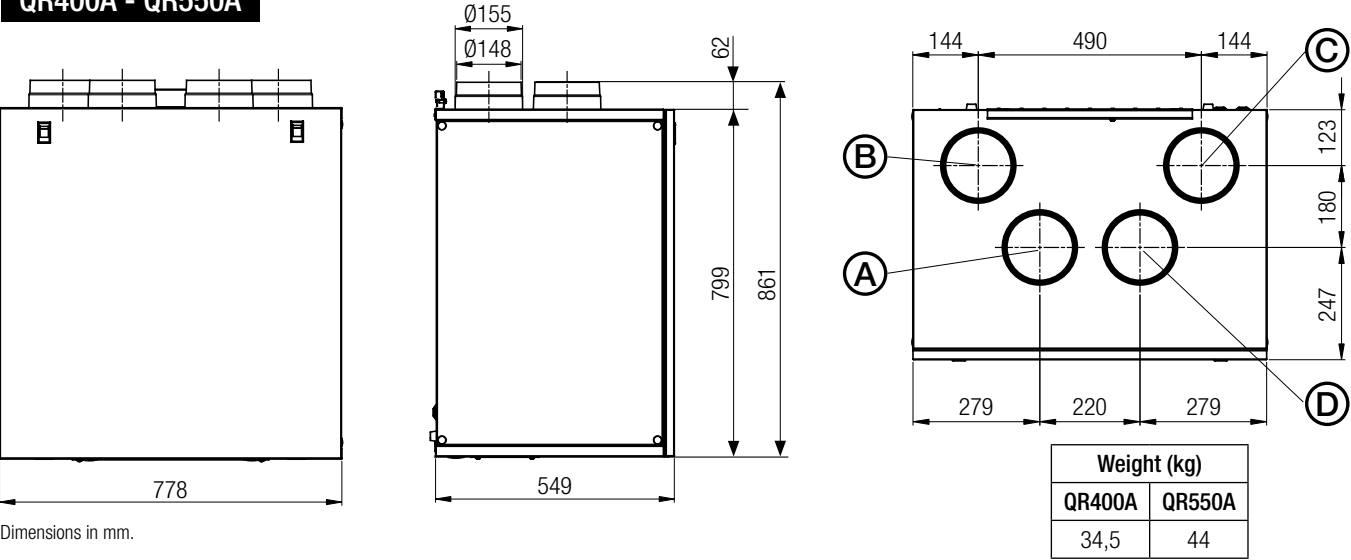
The units QR280A, QR400A and QR550A are supplied with the CTRL-DSP remote multifunction control panel as standard.

3.2 Dimensions and Weight

QR280A



QR400A - QR550A

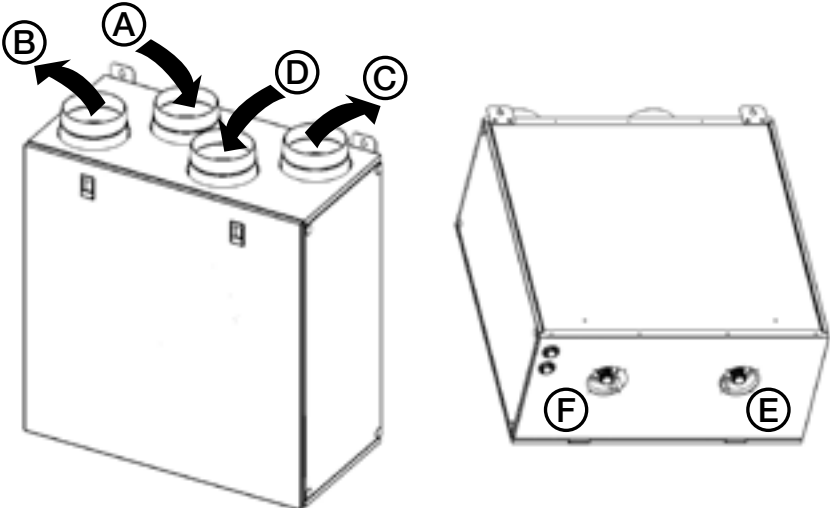


Dimensions in mm.

3.3 Duct connections

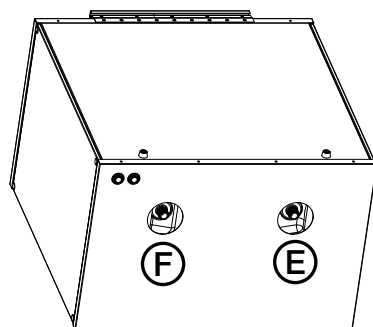
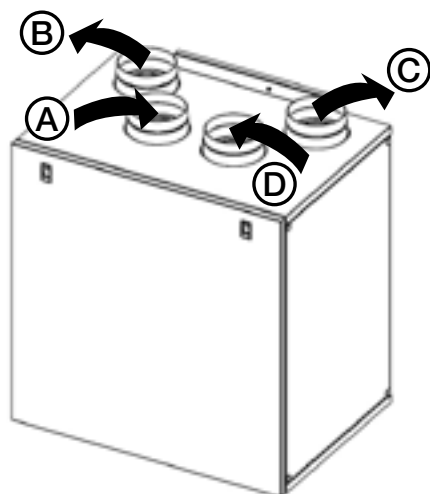
LEFT	Connections from and to outside are set on the left side of the unit front view	DEFAULT
RIGHT	Connections from and to outside are set on the right side of the unit front view	

The factory setting is LEFT.



QR280A		
LEFT	A	Intake air from outside
	B	Exhaust air to outside
	C	Supply air to inside
	D	Extract air from inside
	E	Winter condensation drainage
	F	Summer condensation drainage
RIGHT	A	Extract air from inside
	B	Supply air to inside
	C	Exhaust air to outside
	D	Intake air from outside
	E	Summer condensation drainage
	F	Winter condensation drainage

Fig. 3.a Connections in LEFT and RIGHT orientation - QR280A.



QR400A - QR550A		
LEFT	A	Intake air from outside
	B	Exhaust air to outside
	C	Supply air to inside
	D	Extract air from inside
	E	Winter condensation drainage
	F	Summer condensation drainage
RIGHT	A	Extract air from inside
	B	Supply air to inside
	C	Exhaust air to outside
	D	Intake air from outside
	E	Summer condensation drainage
	F	Winter condensation drainage

Fig. 3.b Connections in LEFT and RIGHT orientation - QR400A e QR550A.

To set the RIGHT orientation of the machine:

- Modify the orientation on the CTRL-DSP (§ 7.2 - Installer menu: 3 Machine Orientation).
- For the QR400 and QR550 units move the F7 filter from the left to the right side.
- Replace the ducting connection label on the top of the casing and the water drainage label on the bottom of the casing with those supplied with this installation manual.

3.4 Space required

Make sure that enough space is left around the unit to allow easy maintenance (access to filters, terminal box and removal of the side and front inspection panels).

3.5 Rating label

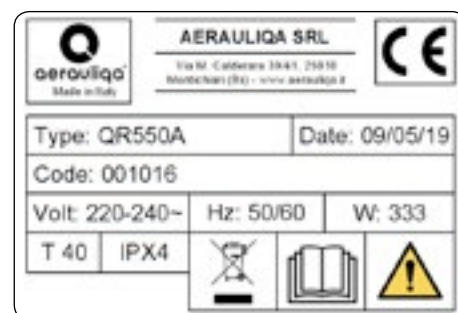


Fig.3.c Rating label

4 TRANSPORT AND STORAGE

WARNING

Make sure that specific warnings and cautions in Chapter 2 “Precautions” are carefully read, understood and applied!

The appliance is delivered in one carton box.

The appliance should be stored and transported in such a way that it is protected against physical damage that can harm spigots, casing, display etc...

It should be covered so that dust, rain and snow cannot enter and damage the unit and its components.

5 INSTALLATION

WARNING

Make sure that specific warnings and cautions in Chapter 2 “Precautions” are carefully read, understood and applied!

This section describes how to install the unit correctly.

The unit must be installed according to these instructions.

5.1 Unpacking

Verify that the unit (and eventual accessories) delivered is according to order before starting the installation. Any discrepancies from the ordered equipment must be reported to the supplier.

5.2 Where/how to install

- All QR units are meant for indoor installation in a heated space.
- Mount the unit on flat surface (wall).

- The unit must always be installed vertically.
- It's important that the unit is completely leveled before it is put into operation.
- Place the unit preferably in a separate room (e.g. storage, laundry room or similar).
- When choosing the location it should be kept in mind that the unit requires maintenance regularly and that the inspection doors should be easily accessible.
- Leave free space for opening the removable panels and for removal of the main components (§ 3.4).
- The outdoor air grilles if possible be put in the northern or eastern side of the building and away from other exhaust outlets like kitchen fan exhausts or laundry room outlets.

5.3 Installation

The unit must be installed in the following position.

It is important that the unit is vertical in order for the condensation drainage to work properly.

QR280A

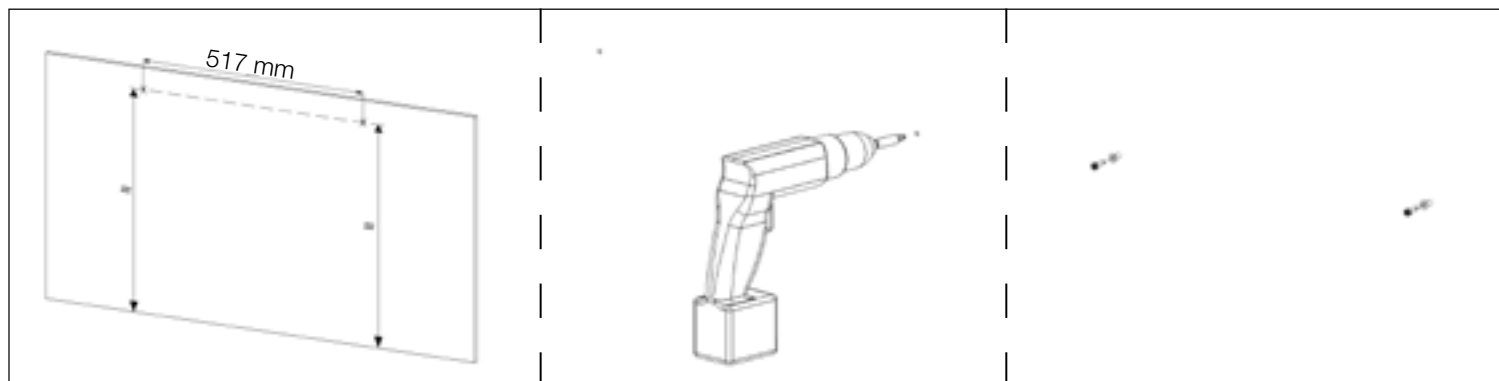


Fig. 5.a

Fig. 5.b

Fig. 5.c

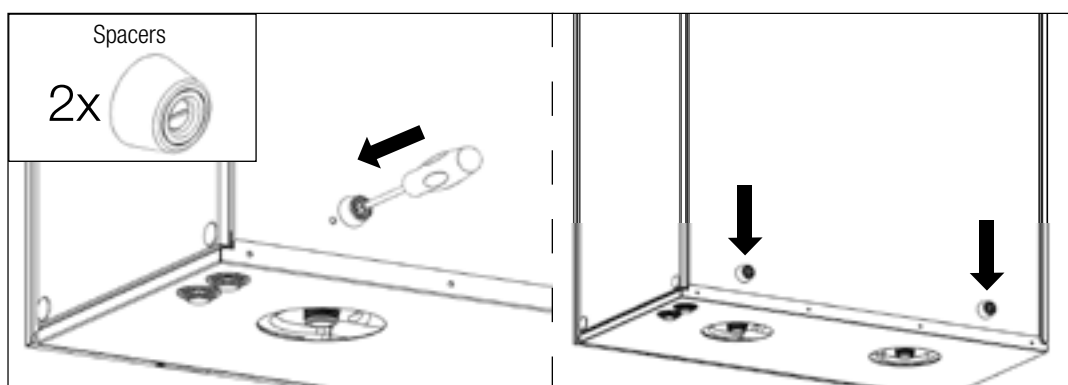


Fig. 5.d

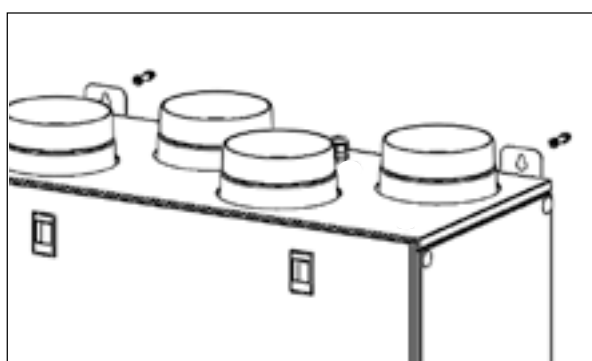


Fig. 5.e

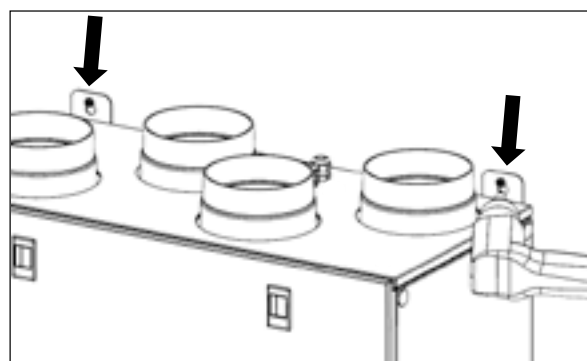


Fig. 5.f

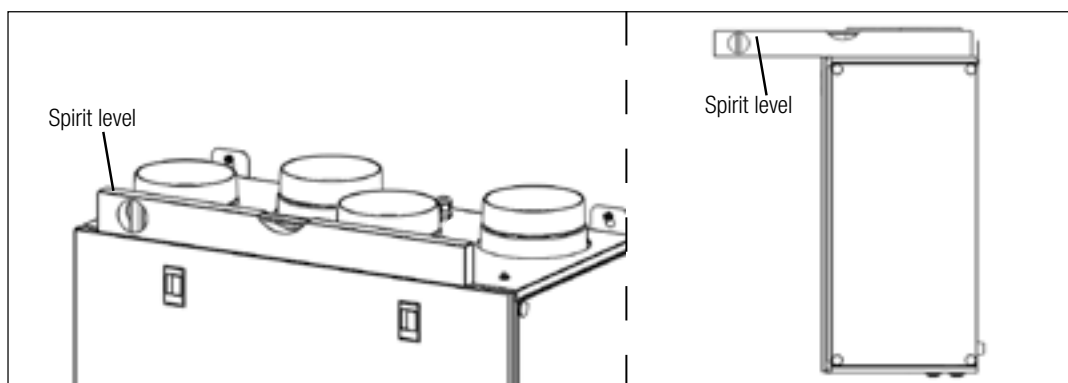


Fig. 5.g

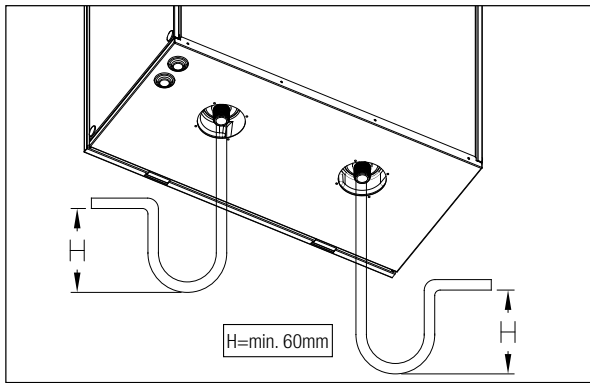


Fig. 5.h

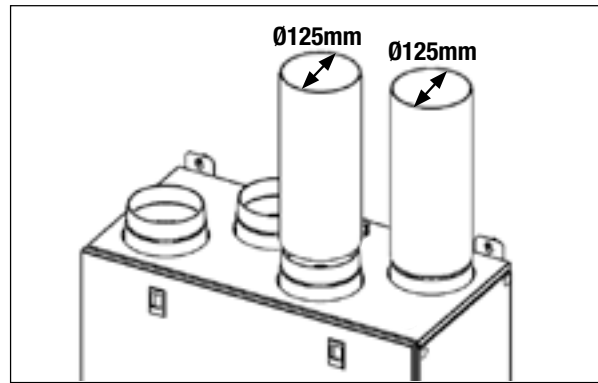


Fig. 5.i

- 5.a** Prepare the surface where the unit is to be mounted. Make sure that the surface is flat, levelled and that it supports the weight of the unit. Perform the installation in accordance with local rules and regulations.
- 5.b** Drill the holes in the wall.
- 5.c** Use appropriate wall plugs and screws (not supplied).
- 5.d** Fix the 2 spacers on the back of the unit.
- 5.e** Hang the unit to the wall by means of the fixing brackets.
- 5.f** Screw safely.
- 5.g** Make sure that the unit is at spirit level.
- 5.h** Connect the condensation drain joints (G 3/4" M) placed in the bottom side of the unit to a U-bend (or similar) on the condensation drainage pipe. In case close the non-used joint by means of the supplied drain stopper. Make sure this operation is well done in accordance to the best practice in order to assure water and air tightness.
- 5.i** Connect the unit to the duct system. Make sure that all necessary accessories are used to create a functional ventilation solution.
Connect the unit electrically according to § 5.4. Check that it starts up correctly.

QR400A - QR550A

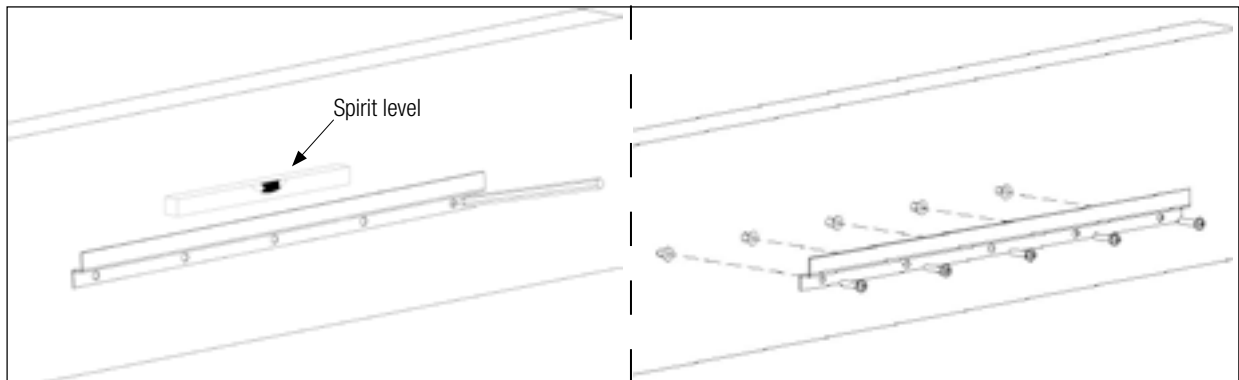


Fig. 5.j

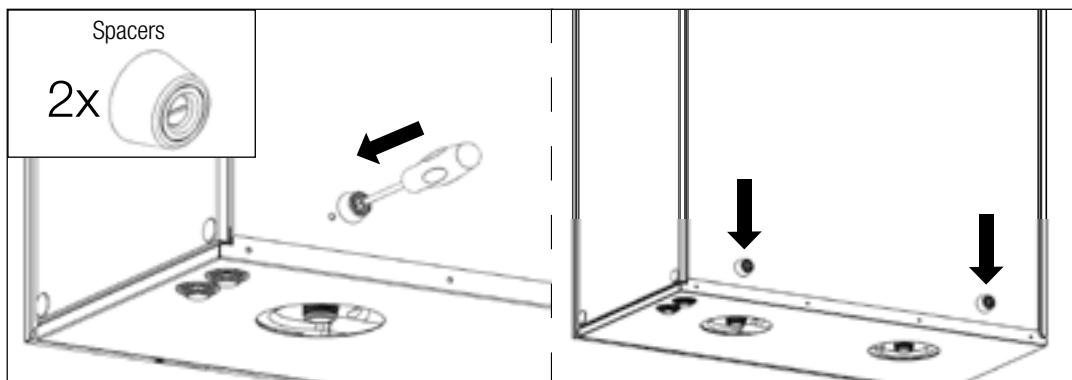


Fig. 5.k

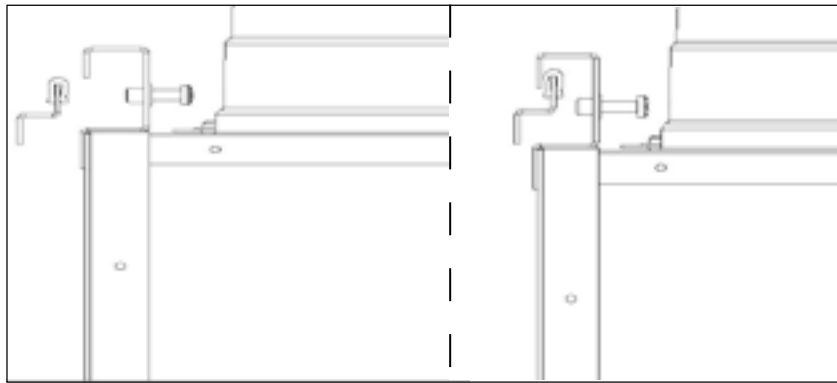


Fig. 5.l

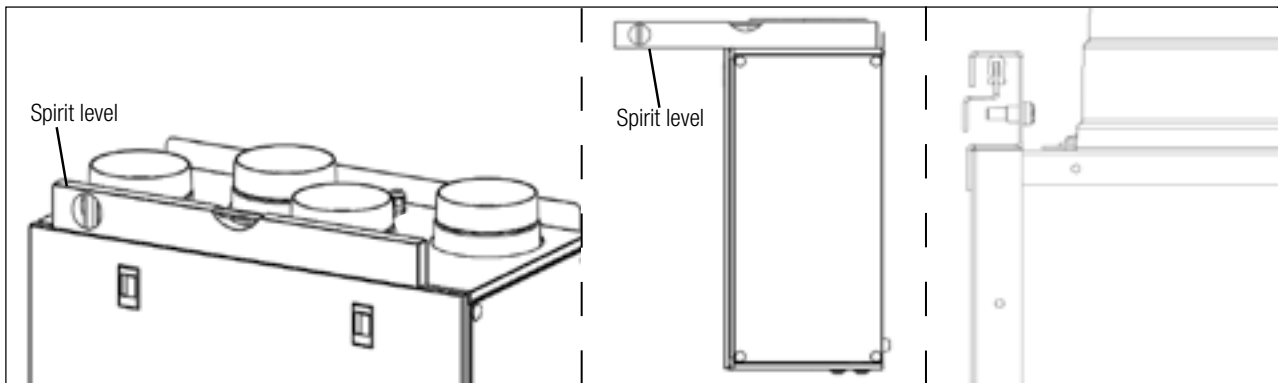


Fig. 5.m

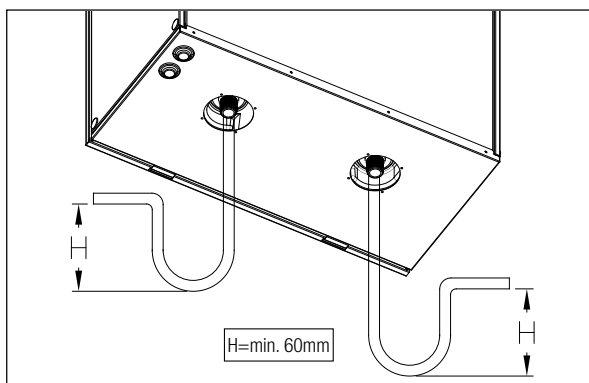


Fig. 5.n

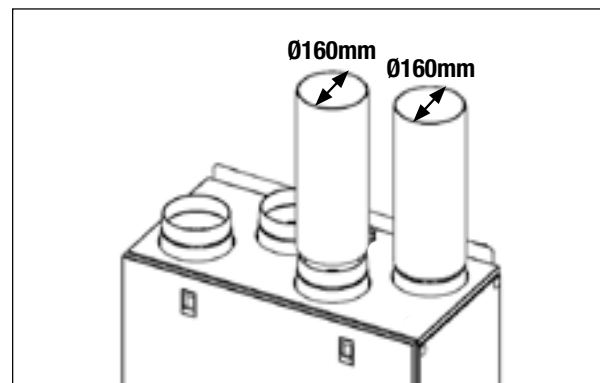


Fig. 5.o

- 5.j** Prepare the surface where the unit is to be mounted. Make sure that the surface is flat, levelled and that it supports the weight of the unit. Perform the installation in accordance with local rules and regulations. Use the wall fixing bracket as template to indicate where to drill the holes in the wall: make sure it is at spirit level. Use appropriate screws and wall plugs (not supplied) to fix the wall fixing bracket.
- 5.k** Fix the 2 spacers on the back of the unit.
- 5.l** Hook the unit at its bracket.
- 5.m** Make sure it is at spirit level and fix it by means of the safety screw.
- 5.n** Connect the condensation drain joints (G 3/4" M) placed in the bottom side of the unit to a U-bend (or similar) on the condensation drainage pipe. In case close the non-used joint by means of the supplied drain stopper. Make sure this operation is well done in accordance to the best practice in order to assure water and air tightness.
- 5.o** Connect the unit to the duct system. Make sure that all necessary accessories are used to create a functional ventilation solution.
Connect the unit electrically according to § 5.4. Check that it starts up correctly.

5.4 Precabled electric connections

WARNING

Make sure that the mains supply to the unit is disconnected before performing any installation, service, maintenance or electrical work!

WARNING

The installation and service of the unit and complete ventilation system must be performed by an authorized installer and in accordance with local rules and regulations.

The unit must be earthed.

The units are wired internally from factory.

To connect the the CTRL-DSP to the mother board use a 4 poles twisted-pair cable: 30m max length.

Unit comes pre-wired with:

- mains supply cable (3-core: brown, blue, yellow/green).
- control cable, for connection to CTRL-DSP (4-core: green, brown, yellow, white).
- cable for connection to remote sensor (2-core: blue, brown).

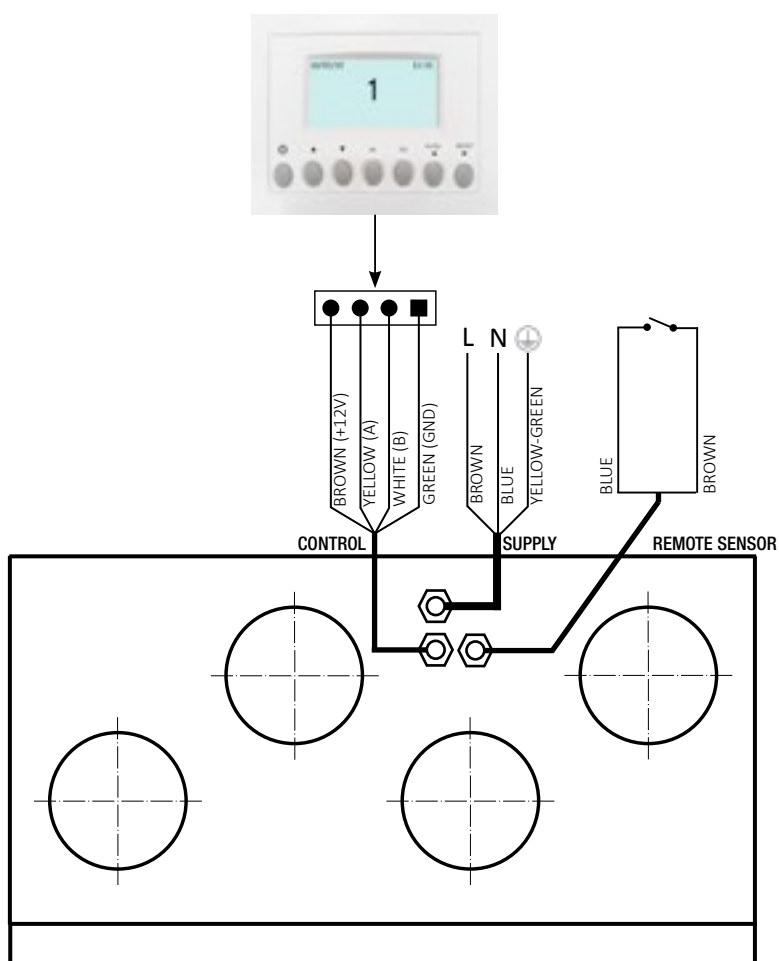


Fig. 5.p Electric connections

5.5 Additional electric connections

WARNING

Make sure that the mains supply to the unit is disconnected before performing any installation, service, maintenance or electrical work!

WARNING

The installation and service of the unit and complete ventilation system must be performed by an authorized installer and in accordance with local rules and regulations.

The units must be earthed.

The units are wired internally from factory.

To connect the the CTRL-DSP to the motherboard use a 4 poles twisted-pair cable: 30m max length.

Figures below show the wiring diagram.

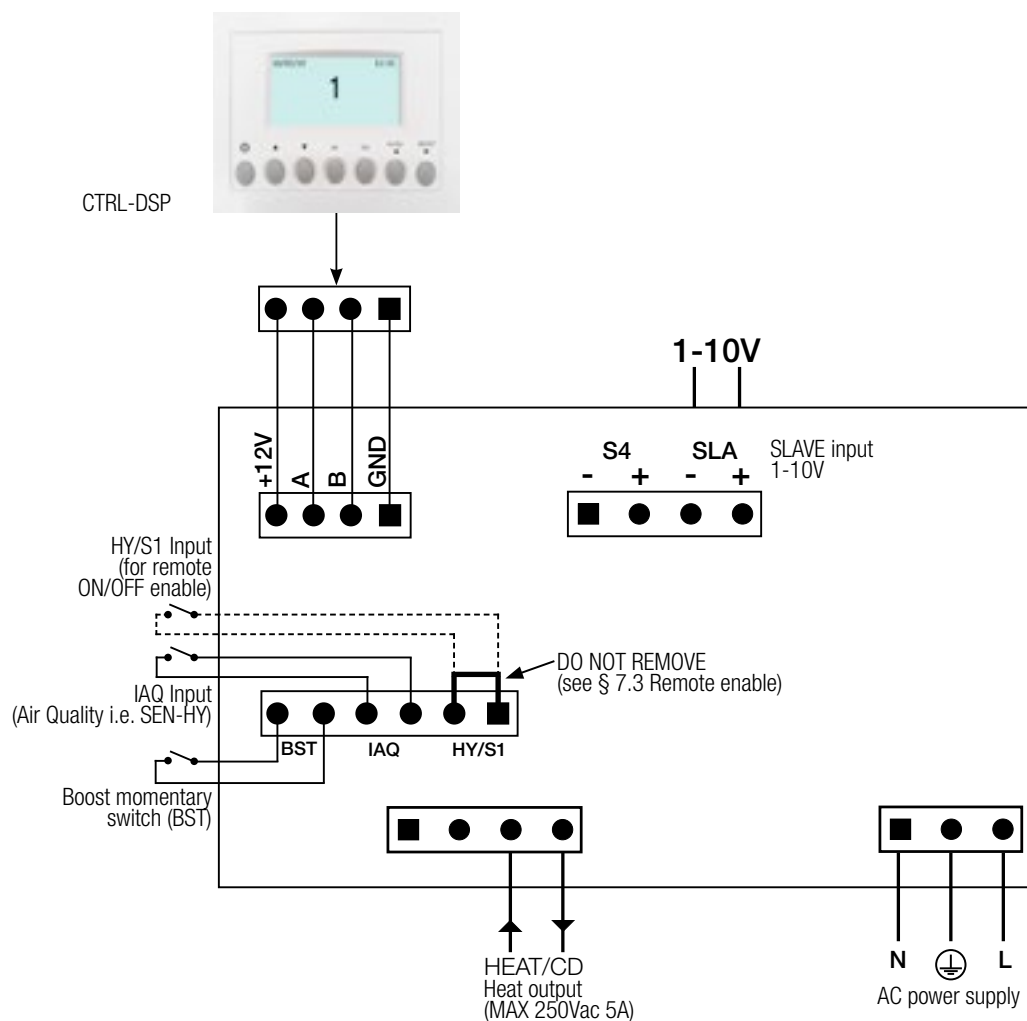


Fig. 5.q Electrical connections on the motherboard fitted in the terminal box.

Inputs/commands

N°1 AC supply connector.

N°3 on/off inputs (volt-free contacts), N°1 for ambient sensors (named IAQ), N°1 for boost momentary switch (named BST) and N°1 for remote ON/OFF enable (named HY/S1).

N°1 1-10V analog input (named SLAVE).

N°1 4-pole connector for CTRL-DSP (RS485 plus 12Vdc supply).

Outputs

N°1 on/off output for pre-heating/post-heating (relay contact – 250Vac 5A).

6 COMMISSIONING

6.1 Setting Fan speed

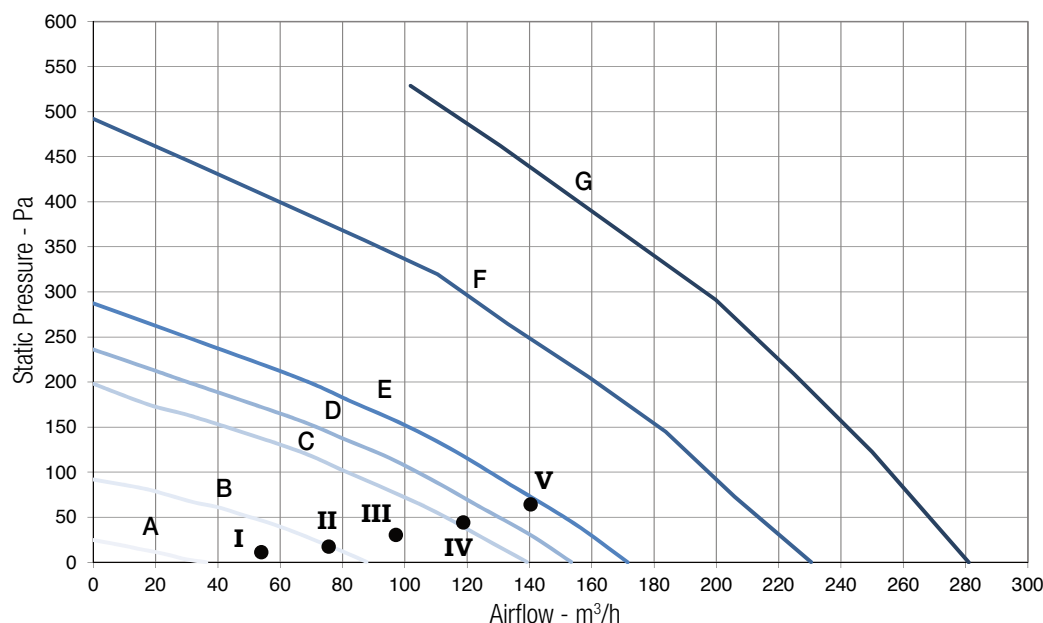
The speed of the unit can be adjusted during installation according to required ventilation rate.

Figures 6. a-d-g below show performance curve at different settings of the 0-10V signal to the motors. Consumption refers to the 2 motors.

Tables 6. b-e-h indicate the efficiency of the heat exchanger and of the condensation produced in different climatic conditions, to help the installer or the designer of the ventilation system to decide if to connect one or both condensation drainages. High production of condensation is the direct consequence of a high efficiency level as well as of the humidity rate.

Tables 6. c-f-i indicate the sound level at the different speeds.

QR280A



Curve	Speed %	W max	m³/h max
A (min)	23	9	36
B	30	17	88
C	46	33	139
D	60	41	153
E	77	51	172
F	92	100	230
G (max)	100	160	281

Fig. 6.a Intake curve according to Reg. 1253/2014 (ErP).

Working point	W	m³/h	SPI (W/m³/h)	ηt % ⁽¹⁾
I	11,9	54	0,2204	86
II	16,5	76	0,2183	86
III	23,4	97	0,2407	85
IV	32,8	119	0,2761	84
V	47,7	140	0,3397	83

⁽¹⁾ Thermal efficiency of the unit.

EXTERNAL		INTERNAL		50m³/h		100m³/h		150m³/h		200m³/h		250m³/h	
T (°C)	R.H. (%)	T (°C)	R.H. (%)	η (%)	H ₂ O (kg/h)	η (%)	H ₂ O (kg/h)	η (%)	H ₂ O (kg/h)	η (%)	H ₂ O (kg/h)	η (%)	H ₂ O (kg/h)
-18	60	20	30	95,3	0,16	92,2	0,29	89,0	0,41	85,0	0,51	81,5	0,58
-18	70	20	40	96,0	0,22	92,6	0,42	90,0	0,61	86,8	0,78	83,3	0,88
-18	80	20	50	96,8	0,28	94,0	0,55	90,6	0,79	88,0	1,02	84,5	1,16
-10	60	20	30	95,1	0,10	91,3	0,18	87,6	0,24	83,6	0,29	80,1	0,32
-10	70	20	40	96,1	0,16	92,5	0,30	89,6	0,42	87,1	0,53	83,6	0,60
-10	80	20	50	96,8	0,21	93,6	0,41	91,2	0,59	88,1	0,76	84,6	0,86
0	50	20	30	94,6	0,01	88,8	0	84,6	0	80,1	0	76,6	0
0	60	20	40	95,3	0,06	90,4	0,10	86,6	0,13	83,4	0,13	79,9	0,15
0	70	20	50	95,8	0,11	92,8	0,20	89,5	0,28	86,7	0,34	83,2	0,38
10	50	20	40	94,0	0	88,8	0	84,3	0	80,3	0	76,8	0
10	60	20	50	93,9	0	88,9	0	84,4	0	81,2	0	77,7	0
10	70	20	60	94,8	0,02	90,3	0,03	85,1	0,03	80,9	0,01	77,4	0,01
35	60	26	50	94,4	0	88,8	0	84,4	0	82,0	0	78,5	0
35	70	26	55	95,7	0,04	92,2	0,08	88,9	0,10	85,4	0,11	81,9	0,12
35	80	26	60	97,4	0,09	95,0	0,18	93,1	0,26	91,6	0,33	88,1	0,37
40	60	26	50	96,4	0,08	92,6	0,15	89,9	0,19	85,7	0,23	82,2	0,26
40	70	26	55	97,5	0,14	94,9	0,27	92,6	0,39	91,0	0,50	87,5	0,56
40	80	26	60	98,5	0,20	97,2	0,38	95,4	0,57	93,3	0,73	89,8	0,83

Table 6.b Thermal efficiency of the heat exchanger and average production of condensation water. Preliminary data.

Speed 100%		Lw dB - SOUND POWER OCTAVE BAND									Lp dB(A)
		63	125	250	500	1K	2K	4K	8K	Tot	@3m
Intake		76	64	70	72	62	59	53	46	78	50
Supply		75	64	66	68	59	53	44	34	77	46
Extract		76	63	66	68	60	54	45	34	77	47
Exhaust		76	64	69	70	61	58	52	44	78	49
Breakout		74	67	65	70	62	56	48	36	77	48

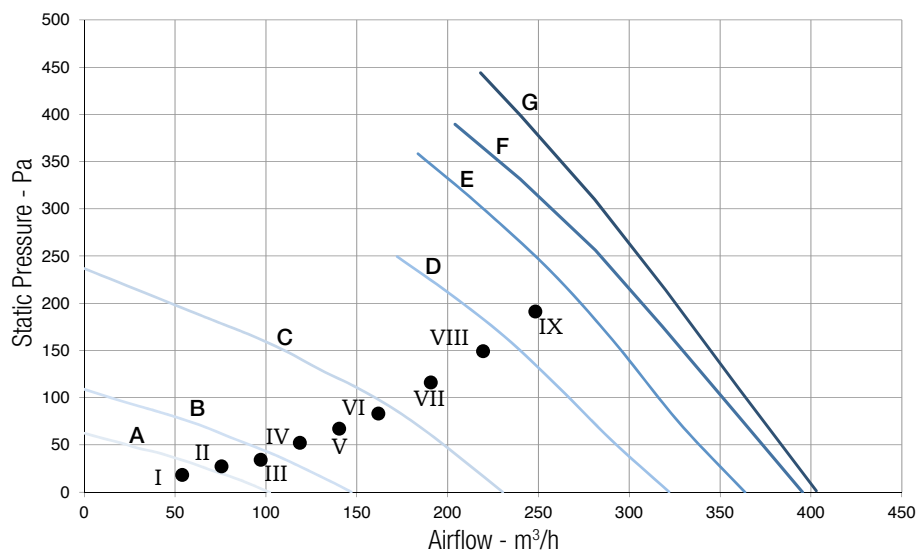
Speed 80%		Lw dB - SOUND POWER OCTAVE BAND									Lp dB(A)
		63	125	250	500	1K	2K	4K	8K	Tot	@3m
Intake		67	63	70	69	60	58	51	43	74	48
Supply		65	61	65	66	57	51	42	31	71	44
Extract		66	61	65	65	58	53	43	32	71	44
Exhaust		66	62	68	69	59	56	50	43	71	47
Breakout		61	66	65	67	57	53	45	33	71	45

Speed 60%		Lw dB - SOUND POWER OCTAVE BAND									Lp dB(A)
		63	125	250	500	1K	2K	4K	8K	Tot	@3m
Intake		57	57	69	57	51	49	42	33	70	41
Supply		55	55	64	54	49	43	34	24	65	37
Extract		60	54	62	53	49	44	34	24	65	36
Exhaust		57	56	68	57	51	49	42	33	69	41
Breakout		56	55	61	54	50	45	35	25	64	36

Speed 40%		Lw dB - SOUND POWER OCTAVE BAND									Lp dB(A)
		63	125	250	500	1K	2K	4K	8K	Tot	@3m
Intake		51	51	58	47	40	38	28	21	60	31
Supply		53	51	57	44	37	31	23	16	59	29
Extract		53	48	55	44	38	32	22	16	58	27
Exhaust		52	50	56	48	40	37	29	22	59	30
Breakout		53	48	53	45	39	32	22	16	57	27

Table 6.c Sound level: dBA figures are average spherical free-field, for comparative use only.

QR400A



Curve	Speed %	W max	m³/h max
A (min)	23	12	102
B	30	19	149
C	46	43	230
D	60	88	322
E	77	134	364
F	92	149	395
G (max)	100	160	403

Fig. 6.d Intake curve according to Reg. 1253/2014 (ErP). Product tested without filter F7.

Working point	W	m³/h	SPI (W/m³/h)	ηt % ⁽¹⁾
I	8,9	54	0,1648	92
II	11,2	76	0,1481	92
III	14,2	97	0,1461	91
IV	19,4	119	0,1633	90
V	25,3	140	0,1802	89
VI	32,7	162	0,2019	89
VII	47,4	191	0,2484	88
VIII	64,7	220	0,2946	87
IX	87,8	248	0,3535	86

⁽¹⁾ Thermal efficiency of the unit.

EXTERNAL		INTERNAL		100m³/h		200m³/h		300m³/h		400m³/h	
T (°C)	R.H. (%)	T (°C)	R.H. (%)	η (%)	H ₂ O (kg/h)	η (%)	H ₂ O (kg/h)	η (%)	H ₂ O (kg/h)	η (%)	H ₂ O (kg/h)
-18	60	20	30	95,9	0,31	92,3	0,59	89,2	0,83	86,4	1,05
-18	70	20	40	96,4	0,44	93,3	0,85	90,6	1,23	88,2	1,58
-18	80	20	50	96,9	0,56	94,2	1,10	91,9	1,60	89,8	2,08
-10	60	20	30	95,7	0,20	91,8	0,36	88,3	0,49	85,2	0,58
-10	70	20	40	96,3	0,32	93	0,60	90,1	0,85	87,5	1,07
-10	80	20	50	96,8	0,43	94	0,82	91,6	1,19	89,4	1,54
0	50	20	30	94,7	0,02	89,8	0	85,6	0	82	0
0	60	20	40	95,5	0,12	91,5	0,20	87,8	0,25	84,3	0,27
0	70	20	50	96,3	0,22	93	0,40	90	0,56	87,3	0,69
10	50	20	40	94,5	0	89,8	0	85,6	0	82	0
10	60	20	50	94,5	0	89,8	0	85,6	0	82	0
10	70	20	60	95,3	0,04	90,9	0,06	86,6	0,06	82,5	0,03
35	60	26	50	94,6	0	89,9	0	85,9	0	82,3	0
35	70	26	55	96,3	0,09	92,8	0,15	89,4	0,20	86,2	0,22
35	80	26	60	97,7	0,19	95,7	0,36	93,9	0,52	92,2	0,67
40	60	26	50	96,5	0,16	93,3	0,29	90,2	0,39	87,3	0,46
40	70	26	55	97,7	0,28	95,6	0,54	93,7	0,78	91,6	1
40	80	26	60	98,5	0,39	97,2	0,77	96,1	1,13	95	1,49

Table 6.e Thermal efficiency of the heat exchanger and average production of condensation water. Data supplied by the manufacturer of the heat exchanger. The heat exchanger is tested at the University of Luzern (Hochschule Lezern).

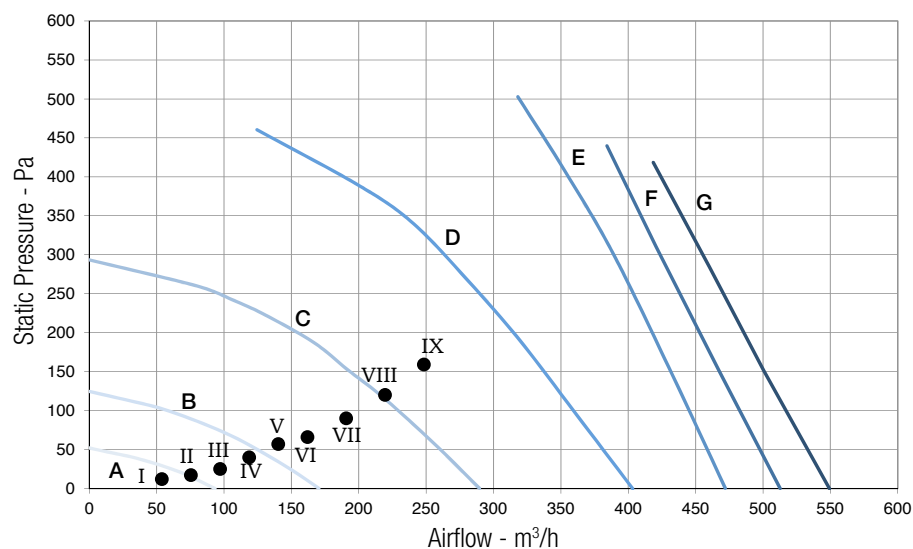
Speed 100%	Lw dB - SOUND POWER OCTAVE BAND									Lp dB(A)
	63	125	250	500	1 K	2 K	4 K	8K	Tot	@3m
Intake	73	61	67	69	59	56	50	43	75	47
Supply	72	61	63	65	56	50	41	31	74	43
Extract	73	60	63	65	57	51	42	31	74	44
Exhaust	73	61	66	67	58	55	49	41	75	46
Breakout	71	64	62	67	59	53	45	33	74	45

Speed 80%	Lw dB - SOUND POWER OCTAVE BAND									Lp dB(A)
	63	125	250	500	1 K	2 K	4 K	8K	Tot	@3m
Intake	65	61	68	67	58	56	49	41	72	46
Supply	63	59	63	64	55	49	40	29	69	42
Extract	64	59	63	63	56	51	41	30	69	42
Exhaust	64	60	66	67	57	54	48	41	71	45
Breakout	59	64	63	65	57	51	43	31	70	44

Speed 60%	Lw dB - SOUND POWER OCTAVE BAND									Lp dB(A)
	63	125	250	500	1 K	2 K	4 K	8K	Tot	@3m
Intake	55	55	67	55	49	47	40	31	68	39
Supply	53	53	62	52	47	41	32	22	63	35
Extract	58	52	60	51	47	42	32	22	63	34
Exhaust	55	54	66	55	49	47	40	31	67	39
Breakout	54	53	59	52	48	43	33	23	62	34

Speed 40%	Lw dB - SOUND POWER OCTAVE BAND									Lp dB(A)
	63	125	250	500	1 K	2 K	4 K	8K	Tot	@3m
Intake	50	50	57	46	39	37	27	20	59	30
Supply	52	50	56	43	36	30	22	15	58	28
Extract	52	47	54	43	37	31	21	15	57	26
Exhaust	51	49	55	47	39	36	28	21	58	29
Breakout	52	47	52	44	38	31	21	15	56	26

Table 6.f Sound level: dBA figures are average spherical free-field, for comparative use only.



Curve	Speed %	W max	m³/h max
A (min)	23	10	94
B	32	24	170
C	46	68	289
D	60	150	403
E	75	286	472
F	90	311	513
G (max)	100	333	550

Fig. 6.g Intake curve according to Reg. 1253/2014 (ErP). Product tested without filter F7.

Working point	W	m³/h	SPI (W/m³/h)	η_t % ⁽¹⁾
I	8,6	54	0,1585	93
II	10,7	76	0,1413	93
III	13,9	97	0,1431	93
IV	19,3	119	0,1621	92
V	25,5	140	0,1818	91
VI	32,2	162	0,1990	91
VII	46,1	191	0,2414	90
VIII	63,4	220	0,2885	89
IX	84,5	248	0,3402	89

⁽¹⁾ Thermal efficiency of the unit.

EXTERNAL		INTERNAL		100m³/h		200m³/h		300m³/h		400m³/h		500m³/h	
T (°C)	R.H. (%)	T (°C)	R.H. (%)	η (%)	H ₂ O (kg/h)	η (%)	H ₂ O (kg/h)	η (%)	H ₂ O (kg/h)	η (%)	H ₂ O (kg/h)	η (%)	H ₂ O (kg/h)
-18	60	20	30	95,4	0,28	91,8	0,53	88,7	0,75	85,9	0,95	83,2	1,12
-18	70	20	40	95,9	0,4	92,8	0,77	90,1	1,11	87,7	1,42	85,5	1,72
-18	80	20	50	96,4	0,5	93,7	0,99	91,4	1,44	89,3	1,87	87,4	2,29
-10	60	20	30	95,2	0,18	91,3	0,32	87,8	0,44	84,7	0,52	81,7	0,59
-10	70	20	40	95,8	0,29	92,5	0,54	89,6	0,77	87	0,96	84,5	1,14
-10	80	20	50	96,3	0,39	93,5	0,74	91,1	1,07	88,9	1,39	86,9	1,67
0	50	20	30	94,2	0,02	89,3	0	85,1	0	81,5	0	78,2	0
0	60	20	40	95	0,11	91	0,18	87,3	0,23	83,8	0,24	80,4	0,23
0	70	20	50	95,8	0,2	92,5	0,36	89,5	0,5	86,8	0,62	84,2	0,72
10	50	20	40	94	0	89,3	0	85,1	0	81,5	0	78,2	0
10	60	20	50	94	0	89,3	0	85,1	0	81,5	0	78,2	0
10	70	20	60	94,8	0,04	90,4	0,05	86,1	0,05	82	0,03	78,2	0
35	60	26	50	94,1	0	89,4	0	85,4	0	81,8	0	78,5	0
35	70	26	55	95,8	0,08	92,3	0,14	88,9	0,18	85,7	0,2	82,4	0,2
35	80	26	60	97,2	0,17	95,2	0,32	93,4	0,47	91,7	0,6	90,1	0,73
40	60	26	50	96	0,14	92,8	0,26	89,7	0,35	86,8	0,41	83,9	0,44
40	70	26	55	97,2	0,25	95,1	0,49	93,2	0,7	91,4	0,9	89,7	1,09
40	80	26	60	98	0,35	96,7	0,69	95,6	1,02	94,5	1,34	93,6	1,65

Table 6.h Thermal efficiency of the heat exchanger and average production of condensation water.
Data supplied by the manufacturer of the heat exchanger.

Speed 100%	Lw dB - SOUND POWER OCTAVE BAND									Lp dB(A)
	63	125	250	500	1 K	2 K	4 K	8K	Tot	@3m
Intake	83	65	70	73	62	58	53	47	84	51
Supply	81	65	65	66	57	51	42	33	81	45
Extract	80	63	66	68	60	54	45	34	78	47
Exhaust	78	65	70	71	62	59	53	45	80	50
Breakout	81	69	67	69	62	56	48	36	82	48

Speed 80%	Lw dB - SOUND POWER OCTAVE BAND									Lp dB(A)
	63	125	250	500	1 K	2 K	4 K	8K	Tot	@3m
Intake	73	61	67	69	59	56	50	43	75	47
Supply	72	61	63	65	56	50	41	31	74	43
Extract	73	60	63	65	57	51	42	31	74	44
Exhaust	73	61	66	67	58	55	49	41	75	46
Breakout	71	64	62	67	59	53	45	33	74	45

Speed 60%	Lw dB - SOUND POWER OCTAVE BAND									Lp dB(A)
	63	125	250	500	1 K	2 K	4 K	8K	Tot	@3m
Intake	65	61	68	67	58	56	49	41	72	46
Supply	63	59	63	64	55	49	40	29	69	42
Extract	64	59	63	63	56	51	41	30	69	42
Exhaust	64	60	66	67	57	54	48	41	71	45
Breakout	59	64	63	65	57	51	43	31	70	44

Speed 40%	Lw dB - SOUND POWER OCTAVE BAND									Lp dB(A)
	63	125	250	500	1 K	2 K	4 K	8K	Tot	@3m
Intake	55	55	67	55	49	47	40	31	68	39
Supply	53	53	62	52	47	41	32	22	63	35
Extract	58	52	60	51	47	42	32	22	63	34
Exhaust	55	54	66	55	49	47	40	31	67	39
Breakout	54	53	59	52	48	43	33	23	62	34

Table 6.i Sound level: dBA figures are average spherical free-field, for comparative use only.

6.2 Before starting the system

When the installation is finished, check that:

- Filters are mounted correctly.
- The unit is installed in accordance with the instructions.
- The unit is correctly wired.
- Eventual outdoor and exhaust air dampers and silencers are installed and that the duct system is correctly connected to the unit.
- All ducts are sufficiently insulated and installed according to local rules and regulations.
- Outdoor air intake is positioned with sufficient distance to pollution sources (kitchen ventilator exhaust, central vacuum system exhaust or similar).
- The unit is correctly set and commissioned.

7 OPERATION

WARNING

Make sure that specific warnings and cautions in Chapter 2 “Precautions” are carefully read, understood and applied!

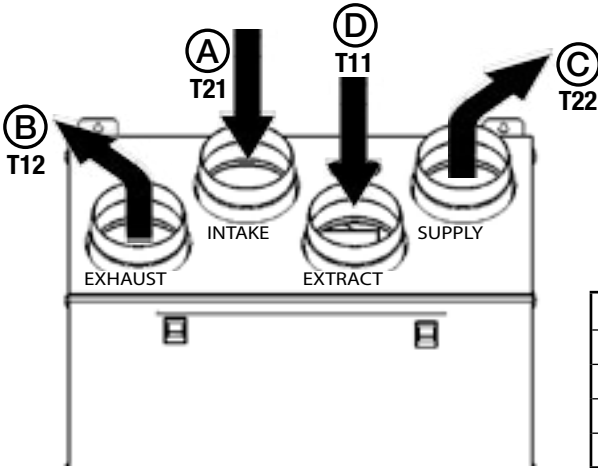


Fig. 7.a QR280A temperature probes.

LEFT ORIENTATION	
A	Intake air from outside
B	Exhaust air to outside
C	Supply air to inside
D	Extract air from inside

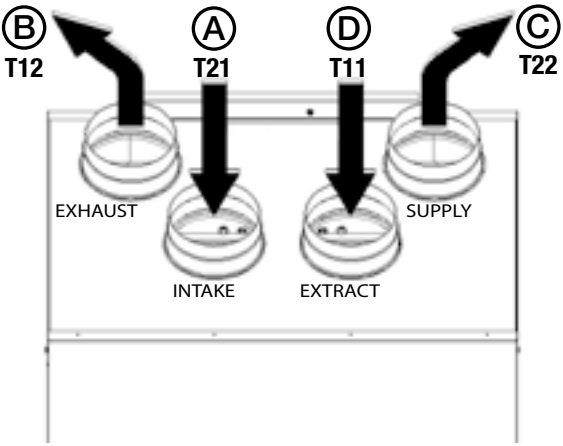


Fig. 7.b QR400A e QR550A temperature probes.

In case of RIGHT orientation, follows instructions as per § 3.3 - Fig. 3.a and Fig. 3.b in order to get the temperature probes operate correctly.

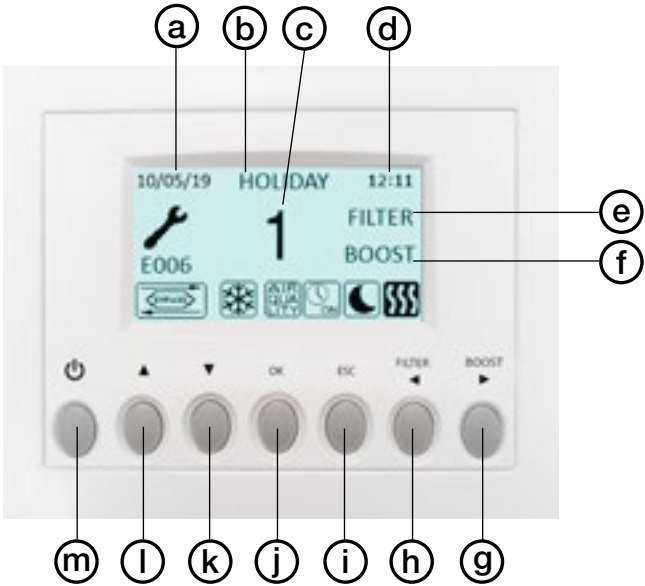


Fig. 7.c CTRL-DSP

- (a) DATE: shows the current date
- (b) MODE: shows the operation mode
- (c) SPEED: shows the selected speed
- (d) TIME: shows the time
- (e) FILTER ALARM: shows that filters need to be maintained/replaced
- (f) BOOST: shows that BOOST speed is activated
- DISABLED: shows that the CTRL-DSP is disabled
- (g) BOOST: to manually activate the BOOST speed
- to move to the right when setting the Weekly Timer
- (h) FILTRO: to reset the Filter Alarm
- to move to the left when setting the Weekly Timer
- (i) ESC: to exit and go back to the previous menu
- (j) OK: to enter the selected menu
- (k) to go DOWN with the menu selection
- (l) to go UP with the menu selection
- (m) to power on/off the ventilation unit
- shows ERROR ALARM (see §7.3 to check the type of error)
- shows that the Bypass is active
- shows that ANTI-FROST is active
- shows that the IAQ input is activated (i.e. HY, CO2)
- shows that NIGHT MODE is activated
- shows that Heating output is activated
- shows that the Boost is active
- shows that the weekly timer is activated
- shows that the weekly timer is deactivated
- shows that the SLAVE functionality is activated

Some operations can be selected either from the CTRL-DSP buttons or from the menu.

When powered on, the CTRL-DSP displays as follows:



Fig. 7.d CTRL-DSP operation screen

The speed (1-2-3) can be manually changed using ▲ or ▼.

7.1 User Menu on CTRL-DSP

To enter the User Menu press OK or ESC.
To exit the User Menu press ESC or wait for about 60 seconds.

User Menu
1 Mode Selection
2 Boost
3 Boost Duration
4 Reset FILTER Alarm
5 Night Mode
6 Weekly timer
7 Installer Menu

Select the menu item using ▲ or ▼.
Press OK to enter.

User Menu
1 Mode Selection
2 Boost
3 Boost Duration
4 Reset FILTER Alarm
5 Night Mode
6 Weekly timer
7 Installer Menu

Mode selection allows the choice among “Normal Mode” and “Holiday”.
Press OK to enter.
Choose the mode using ▲ or ▼.
Press OK to select.
Press ESC or wait for about 60 seconds to go back to the previous menu.

Normal Mode 3V (DEFAULT)
Once powered on, the unit runs at the speed selected during the installation.
The speed number (1-2-3) is displayed on the LCD.
Factory setting (DEFAULT): speed 1.
The speed (1-2-3) can be manually changed using ▲ or ▼.
In case the IAQ sensor input is activated as per Fig. 5q (e.g. HY or IAQ sensor), the unit speed increases by 15%, and the icon  is displayed. Once the IAQ input is deactivated, the unit reverts back to selected speed.
In case the Night Mode is activated ( - User Menu 5), the sensor logic described above is ignored (the sensors have no effect and the unit runs at speed 1).

Holiday mode
The unit works at Holiday speed, adjusted during the installation.
The IAQ sensor logic described above is ignored (the sensors have no effect).
The word HOLIDAY is displayed.

User Menu
1 Mode Selection
2 Boost
3 Boost Duration
4 Reset FILTER Alarm
5 Night Mode
6 Weekly timer
7 Installer Menu

It allows to select the maximum speed (Boost).

Press OK to select.

Choose NO or YES using ▲ or ▼.

Press OK to select and go back to the previous menu.

Factory setting (DEFAULT): NO.

Boost speed can be adjusted during the installation.

Boost speed can be activated if the Mode selection is 3V, Holiday or Slave.

Boost function can be enabled in these ways:

- from the User Menu (2 Boost function).
- pressing the BOOST button on the CTRL-DSP for at least 2 seconds (Fig. 7.c - ).
- using a remote momentary switch connected to the BST input (Fig. 5.q).

If Boost is active, the icon  is displayed and the unit runs at the selected Boost speed, for the duration time set in the User Menu "3 Boost duration"; afterwards the unit reverts to selected speed.

Boost can be deactivated before time only by pressing the BOOST button on the CTRL-DSP for at least 2 seconds (Fig. 7.c - ).

If the Weekly timer is activated  the Boost functionality can be activated.

If the Weekly timer is deactivated  the Boost functionality cannot be activated.

User Menu
1 Mode Selection
2 Boost
3 Boost Duration
4 Reset FILTER Alarm
5 Night Mode
6 Weekly timer
7 Installer Menu

It allows to set the duration of the Boost speed.

Press OK to select.

Time setting options are 15 - 30 - 45 - 60 minutes.

Increase/decrease the minutes using ▲ or ▼.

Press OK to select and go back to the previous menu.

Factory setting (DEFAULT): 15 minutes.

User Menu
1 Mode Selection
2 Boost
3 Boost Duration
4 Reset FILTER Alarm
5 Night Mode
6 Weekly timer
7 Installer Menu

It allows to reset the Filter Alarm after maintenance/replacement, only when FILTER is displayed (Fig. 7.c - ).

Timing can be set during the installation.

Factory setting (DEFAULT): 3 months.

Press OK to select and reset.

Press ESC to go back to the previous menu.

FILTER is no more displayed.

The Filter Alarm can be also reset pressing the FILTER button on the CTRL-DSP (Fig. 7.c - ).

User Menu
1 Mode Selection
2 Boost
3 Boost Duration
4 Reset FILTER Alarm
5 Night Mode
6 Weekly timer
7 Installer Menu

It allows to deactivate the automatic operation of the speed increased via remote IAQ sensors: the unit operates at speed 1. When the "ending time" is elapsed, the unit returns to operate at the selected speed.

Press OK to select.

Select the submenu item using ▲ or ▼:

1 Enabling: select ON or OFF - Factory setting (DEFAULT): OFF

2 Starting Time: set the time - Factory setting (DEFAULT): 20:00 o'clock (8 p.m.)

3 Ending Timer: set the time - Factory setting (DEFAULT): 08:00 o'clock (8 a.m.)

Change the time using ▲ or ▼: switch from hour to minute pressing OK.

Press OK to confirm.

Press ESC to go back to the previous menu.

If the Night Mode is activated, the icon  is displayed.

If both the Night Mode and the Weekly Timer are activated   the unit speed is the one set in the Weekly Timer program while any remote IAQ sensor is deactivated.

If the Night Mode is activated  while the Weekly Timer is deactivated  the unit operates in Night Mode (speed 1 and remote IAQ sensors disabled).

If the user changes manually the speed using ▲ or ▼, or push the BOOST button (Fig. 7.c - ), the Night Mode is disabled and the icon  vanishes.

User Menu
1 Mode Selection
2 Boost
3 Boost Duration
4 Reset FILTER Alarm
5 Night Mode
6 Weekly timer
7 Installer Menu

It allows to set the time slots and the operating speeds throughout the week when the unit is set to Normal Mode 3V.
 Press OK to select.
 Choose NO or YES using ▲ or ▼.
 Press OK to select.
 Factory setting (DEFAULT): NO.

If “YES” is chosen, pressing OK the Monday time program is displayed.
 Change the days using ◀ or ▶.
 Press OK to set the daily time program (max 4 time slots).
 Switch from hours-minutes-speeds using ◀ or ▶.
 Change hours-minutes-speeds using ▲ or ▼.
 The daily program can be copied in the following days pressing OK.
 Save the setting pressing ESC and then OK.

If the Weekly Timer is activated, the icon  is displayed.
 Note: in the intervals not included in the programmed time slots the unit is OFF. The icon  is displayed.

In case both the Weekly Timer and the Night Mode need to be used, make reference to the User Menu “5 Night Mode” for more details.
 In case both the Weekly Timer and the Boost functionality need to be used, make reference to the User Menu “2 Boost” for more details.

User Menu
1 Mode Selection
2 Boost
3 Boost Duration
4 Reset FILTER Alarm
5 Night Mode
6 Weekly timer
7 Installer Menu

It allows to select the Installer menu.



Press OK to enter the Installer menu.
 Press ESC to go back to the previous menu.

7.2 Installer Menu on CTRL-DSP

The Installer menu can be selected either by selecting point 7 in the User Menu or by pressing OK+ESC for about 7 seconds. To exit the Installer Menu press ESC or wait for about 60 seconds.

Installer Menu
1 Language
2 Date/time
3 Machine orientation
4 Normal Mode
6 Bypass settings
8 Heating
10 Speed setting
11 Airflow Balancing
12 F7 filter
13 Filter Alarm interval
15 Constant Pressure
17 Periodic purge
18 Working Hours Counter
19 ModBus settings
20 Save settings
21 Load Settings
22 Restore Default Settings
23 Contrast
24 Debug page

Select the menu item using ▲ or ▼.

Installer Menu	
1	Language
2	Date/time
3	Machine orientation
4	Normal Mode
6	Bypass settings

It allows to select one language among English, Italiano, Deutsch, Čeština, Slovenský, Français, Español, Nederlandse, 中国, Magyar and Русский.

Press OK to enter.

Select the language using ▲ or ▼.

Press OK to select.

Factory setting (DEFAULT): English.

Installer Menu	
1	Language
2	Date/time
3	Machine orientation
4	Normal Mode
6	Bypass settings

It allows to set the date and the time.

Press OK to enter.

Select the item using ▲ or ▼ and press OK.

Set the date and the time using ▲ or ▼ and press OK to confirm.

Press ESC to go back to the previous menu.

Installer Menu	
1	Language
2	Date/time
3	Machine orientation
4	Normal Mode
6	Bypass settings

It allows to select the orientation of the duct connections from and to outside (LEFT or RIGHT hand configuration as per § 3.3).

Press OK to enter.

Choose “Left” or “Right” using ▲ or ▼.

Press OK to select.

Factory setting (DEFAULT): Left.

Installer Menu	
1	Language
2	Date/time
3	Machine orientation
4	Normal Mode
6	Bypass settings

It allows to select one operation among Normal Mode 3V, Slave or Constant Pressure.

Press OK to enter.

Choose the operation mode using ▲ or ▼. Press OK to select.

Factory setting (DEFAULT): 3V

3V Mode

To adjust the speeds, refer to the paragraph “10 Speed setting” in the Installer Menu.

Slave Mode

It allows to control the speed by means of the 0-10V analogic input: any other operation logic is ignored.

If the Slave mode is activated, the icon  and the word Slave are displayed.

Constant Pressure Mode

Currently not available.

Installer Menu	
1	Language
2	Date/time
3	Machine orientation
4	Normal Mode
6	Bypass settings

It allows to set the Bypass operation parameters.

Press OK to enter.

Select the submenu item using ▲ or ▼ and press OK to confirm:

1 Desired Temperature: it is the ambient temperature desired by the user.

2 Tmax Free Heating: it is the maximum allowed outside temperature for free heating operation.

3 Tmin Free Cooling: it is the minimum allowed outside temperature for free cooling operation.

The setting ranges are:

Desired Temperature: 15°C ÷ 30°C. Factory setting (DEFAULT): 23°C.

Tmax Free Heating: 25°C ÷ 30°C. Factory setting (DEFAULT): 28°C.

Tmin Free Cooling: 15°C ÷ 20°C. Factory setting (DEFAULT): 18°C.

Increase/decrease the temperature using ▲ or ▼.

Press OK to select.

Press ESC to go back to the previous menu.

If the Bypass functionality is activated, the icon  is displayed.

Installer Menu
8 Heating
10 Speed setting
11 Airflow Balancing
12 F7 filter
13 Filter Alarm interval

To be selected only in case an external heating element (not supplied with the unit) is used.
Press OK to enter.

“1 Heater”

Press OK to enter.

Choose NO/PRE/POST using ▲ or ▼.

Press OK to select.

Factory setting (DEFAULT): NO.

If “NO”: the HEAT output (Fig. 5h) is never activated.

If “PRE”: the heater is installed to the “intake air side - T21” (Fig. 7.a and 7.b) and the HEAT output (Fig. 5q) is activated.

“2 Heating threshold PRE”:

it allows to set the heating threshold.

The setting range is: -20°C ÷ +10°C.

Increase/decrease the temperature using ▲ or ▼.

Press OK to select.

Factory setting (DEFAULT): 0°C.

If the heater is activated, the icon  is displayed.

If “POST”: the heater is installed to the “supply air side T22” or “extract air side T11” (Fig. 7.a and 7.b); use the submenu “4 POST Temperature input” to select the side. The HEAT output (Fig. 5q) is activated.

“3 Heating threshold POST”:

it allows to set the heating threshold.

The setting range is: +15°C ÷ +25°C.

Increase/decrease the temperature using ▲ or ▼.

Press OK to select.

Factory setting (DEFAULT): +20°C.

If the heater is activated, the icon  is displayed.

Installer Menu
8 Heating
10 Speed setting
11 Airflow Balancing
12 F7 filter
13 Filter Alarm interval

It allows to adjust the speeds in Normal Mode 3V, Boost or Holiday.

Press OK to enter.

Choose speed 1, speed 2, speed 3, Boost or Holiday using ▲ or ▼.

Press OK to select.

The setting ranges are:

Speed 1: 10% ÷ 80%. Factory setting (DEFAULT): 40%.

Speed 2: 20% ÷ 90%. Factory setting (DEFAULT): 60%.

Speed 3: 30% ÷ 100%. Factory setting (DEFAULT): 80%.

Boost: Speed 3 ÷ 100%. Factory setting (DEFAULT): 100%.

Holiday: 10% ÷ 40%. Factory setting (DEFAULT): 20%.

Increase/decrease the speed using ▲ or ▼.

Press OK to select.

Press ESC to go back to the previous menu.

Installer Menu
8 Heating
10 Speed setting
11 Airflow Balancing
12 F7 filter
13 Filter Alarm interval

It allows to adjust the balancing of the two airflows.
Press OK to enter.
Select the submenu item using ▲ or ▼: press OK to confirm.

1 Advanced Balancing

It allows to set the airflow balancing at speed 1-2-3-Boost, in supply and extract, only if the unit operates in Normal Mode 3V.
Choose NO or YES using ▲ or ▼.
Press OK to confirm.
Factory setting (DEFAULT): NO

If “NO”, the submenu “2 Supply Airflow” is displayed.
It allows to adjust the supply airflow against the extract airflow: the selected value is applied to any speed.
The setting range is: -30% ÷ +30%.
Factory setting (DEFAULT): 0%.
Increase/decrease the speed using ▲ or ▼.
Press OK to select.
Press ESC to go back to the previous menu.

If “YES”, new submenu items are displayed which allows to set the airflow balancing for each speed (1-2-3-Boost) and for each motor (supply/extract).
The setting range for any speed is: -30% ÷ +30%.
Factory setting for any speed (DEFAULT): 0%.
Increase/decrease the speed using ▲ or ▼.
Press OK to select.
Press ESC to go back to the previous menu.

Installer Menu
8 Heating
10 Speed setting
11 Airflow Balancing
12 F7 filter
13 Filter Alarm interval

It allows to select the F7 filter in case the unit is not equipped with it from factory.
The F7 filter should be installed to the “supply air side T22” (Fig. 7 a and 7.b).
Press OK to enter.
Choose NO or YES using ▲ or ▼.
Press OK to select.
Factory setting (DEFAULT) for QR400 and QR500: Yes.
Factory setting (DEFAULT) for QR280: NO.

Installer Menu
8 Heating
10 Speed setting
11 Airflow Balancing
12 F7 filter
13 Filter Alarm interval

It allows to set the Filter Alarm period: the system has a timer which activates the Filter warning (Fig. 7c - ) on the LCD at regular intervals.
Press OK to enter.
Choose among 2-3-4-5-6 months using ▲ or ▼.
Press OK to select.
Factory setting (DEFAULT): 3 months

Installer Menu
15 Constant Pressure
17 Periodic purge
18 Working Hours Counter
19 ModBus settings
20 Save settings

Currently not available.

Installer Menu
15 Constant Pressure
17 Periodic purge
18 Working Hours Counter
19 ModBus settings
20 Save settings

It allows to activate a short operation cycle of the fans at 100% speed for twice in a day.
Press OK to enter.
Choose NO or YES using ▲ or ▼.
Factory setting (DEFAULT): NO.

If "YES" the following submenu items are displayed:
1 Periodic purge length
It allows to set the purge duration.
Press Ok to select.
The setting range is: 1 ÷ 5 minutes.
Increase/decrease the minutes using ▲ or ▼.
Press OK to confirm.
Factory setting (DEFAULT): 2 minutes.

2 Activation time
It allows to set two times to activate the cycle.
Press OK to select.
Increase/decrease the hours/minutes using ▲ or ▼.
Press Ok to switch from hours to minutes.
Press OK to confirm.
Factory setting (DEFAULT): ore 8:00 (8 a.m.) e ore 20:00 (8 p.m.).

When activated, the BOOST word flushes on the LCD. (Fig. 7c - ⑨).

Press ESC to go back to the previous menu.

Installer Menu
15 Constant Pressure
17 Periodic purge
18 Working Hours Counter
19 ModBus settings
20 Save settings

The system keeps trace of the actual working hours of the unit. This value cannot be changed.
Data is saved both on the motherboard and on the control panel CTRL-DSP, to be safe in case of fault.

The counter stops if the unit is powered OFF and if the Weekly Timer is OFF ☐.
Press OK to enter.
Press ESC to go back to the previous menu.

Installer Menu
15 Constant Pressure
17 Periodic purge
18 Working Hours Counter
19 ModBus settings
20 Save settings

The unit can be controlled via ModBus (ModBus RTU over RS485).
For specification, contact our customer service.

Installer Menu
15 Constant Pressure
17 Periodic purge
18 Working Hours Counter
19 ModBus settings
20 Save settings

It allows to save the setting of the installation #1 (prototype) in the internal memory of the CTRL-DSP to be loaded afterwards on other units.
Press OK to enter.
Choose the position where to save the setting using ▲ or ▼.
Up to 8 different settings can be saved.
Press OK to select.
Press OK to confirm.
Press ESC to go back to the previous menu.

Installer Menu
21 Load Settings
22 Restore Default Settings
23 Contrast
24 Debug page

It allows to load the saved setting on the next unit.
Press OK to enter.
Choose the desired saved setting using ▲ or ▼.
Press OK to select.
Press OK to confirm.
Press ESC to go back to the previous menu.

Installer Menu
21 Load Settings
22 Restore Default Settings
23 Contrast
24 Debug page

It allows to restore all the factory settings (DEFAULT).
Press OK to enter.
Press OK to confirm.

Installer Menu
21 Load Settings
22 Restore Default Settings
23 Contrast
24 Debug page

It allows to set the LCD contrast.
Press OK to enter.
Increase/decrease the contrast using ▲ or ▼.
Press OK to confirm.

Installer Menu
21 Load Settings
22 Restore Default Settings
23 Contrast
24 Debug page

It shows the internal functional parameters of the unit.
Press OK to enter.
Press ESC to go back to the previous menu.

7.3 Additional functionalities

REMOTE ENABLE

It allows to activate/deactivate the unit from remote when the CTRL-DSP is not used (e.g. in case of ModBus). To enable this functionality, connect the HY/S1 input (Fig.5 q) removing the bridge. With open contact, DISABLED flushes on the LCD (Fig. 7c - ).

BYPASS
The QR units are equipped with a physical bypass which allows to mitigate the heat exchange when the indoor and outdoor temperature combinations are such that the heat exchange is not recommended. If activated the Bypass icon  is displayed (Fig. 7c).

ANTI-FROST
Intake fan speed is reduced during very cold weather in order to prevent ice inside the unit which could damage the heat exchanger. If activated, the ANTI-FROST icon  is displayed (Fig. 7c).

ERRORS WARNING DISPLAYED ON THE CTRL-DSP	
Code	error description (Fig. 7.c - )
E000	no RS485 connection between the CTRL-DSP and the motherboard
E001	no rotation of the exhaust air fan (Fig. 8.a -  and 8.b - 
E002	no rotation of the intake air fan (Fig. 8.a -  and 8.b - 
E003	thermistor T11 broken/disconnected (Fig. 7.a and 7.b)
E004	thermistor T12 broken/disconnected (Fig. 7.a and 7.b)
E005	thermistor T21 broken/disconnected (Fig. 7.a and 7.b)
E006	thermistor T22 broken/disconnected (Fig. 7.a and 7.b)
E007	dehumidifier alarm (BST INPUT)
E008	CTRL-DSP internal error

NOTE: if CTRL-DSP is absent (or faulty), the unit operates in the previously set mode.
The Weekly Timer, Night Mode and Filter Alarm functionalities do not work.

8 MAINTENANCE AND SERVICE

WARNING

Make sure that specific warnings and cautions in Chapter 2 “Precautions” are carefully read, understood and applied!

Maintenance can be carried out by the user.

Service must be performed only by an authorized installer and in accordance with local rules and regulations.

Questions regarding installation, use, maintenance and service of the unit should be answered by your installer or place of purchase!

8.1 Components list

QR280A

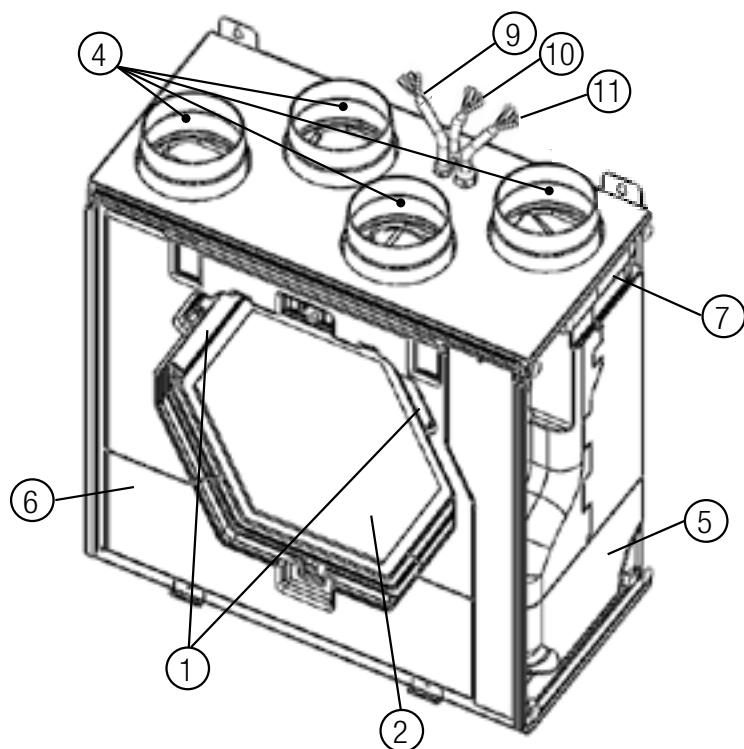
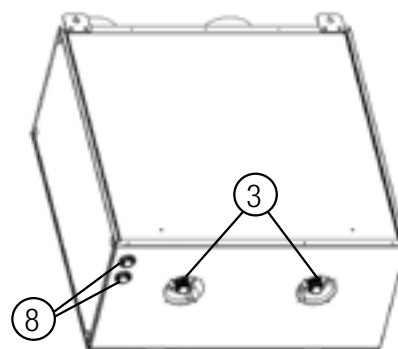


Fig. 8.a QR280A internal components



- ① G4 FILTER
- ② HEAT EXCHANGER
- ③ CONDENSATION DRAINS
- ④ THERMISTOR
- ⑤ FAN, INTAKE AIR
- ⑥ FAN, EXHAUST AIR
- ⑦ ELECTRICAL CONNECTION CARD
- ⑧ ADDITIONAL CABLE ENTRY
- ⑨ CONTROL CABLE
- ⑩ SUPPLY CABLE
- ⑪ CABLE FOR REMOTE SENSOR

QR400A - QR550A

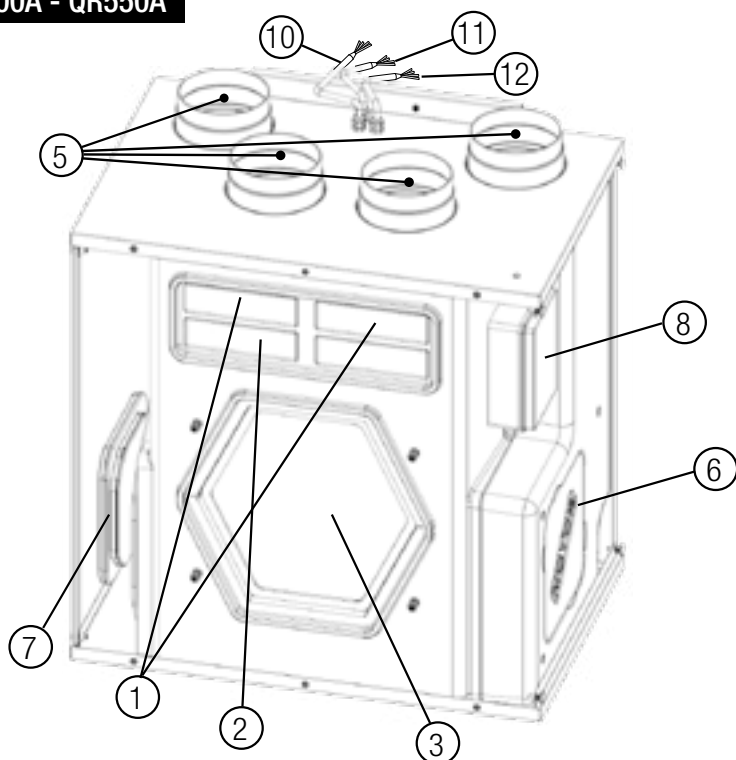
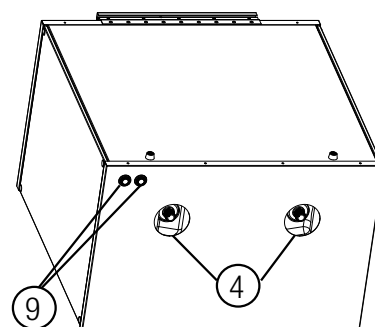


Fig. 8.b QR400A e QR550A internal components



- ① G4 FILTER
- ② F7 FILTER
- ③ HEAT EXCHANGER
- ④ CONDENSATION DRAINS
- ⑤ THERMISTOR
- ⑥ FAN, INTAKE AIR
- ⑦ FAN, EXHAUST AIR
- ⑧ ELECTRICAL CONNECTION CARD
- ⑨ ADDITIONAL CABLE ENTRY
- ⑩ CONTROL CABLE
- ⑪ SUPPLY CABLE
- ⑫ CABLE FOR REMOTE SENSOR

8.2 Description of Components

Fans

The fans have external rotor motors of EC type which can be steplessly controlled individually between 10-100%. The motor bearings are life time lubricated and maintenance free. It is possible to easily disconnect and replace the fans if necessary.

Filters

The filters are of filter quality G4 for both the supply air and extract air filter.

The QR400 and QR550 units are equipped with a F7 filter on the supply air.

The filters need to be cleaned regularly (and replaced when polluted) during maintenance. New sets of filters can be acquired from your installer or wholesaler.

Heat exchanger

The unit is equipped with a highly efficient, counter-flow plate heat exchanger. Supply air temperature is therefore normally maintained without adding additional heat. The heat exchanger is removable for cleaning and maintenance during service.

Condensation drainage

Depending on the relative humidity in the extract air, condensation may occur on the cold surfaces of the heat exchanger, on one side in winter time, on the other side in summer time (Table 6.b-e-h).

The condensate water is led out through drainage pipe.

Thermistors

Temperature probes to implement temperature dependent functions.

8.3 Maintenance

WARNING

Make sure that the mains supply to the unit is disconnected before performing any installation, service, maintenance or electrical work!

QR280A

- Keep the unit surface free from dust.
- Clean the filters with a vacuum cleaner following the below illustrations (Fig. 8.c-d-e-f) when the FILTER signal (Fig. 7.c - (e)) is displayed on LCD. The actual need to perform this operation may vary depending on indoor and outdoor ambient conditions.
- Press FILTER button (Fig. 7.c - (h)) to reset the Filter Alarm.
- Filters must be replaced every year.

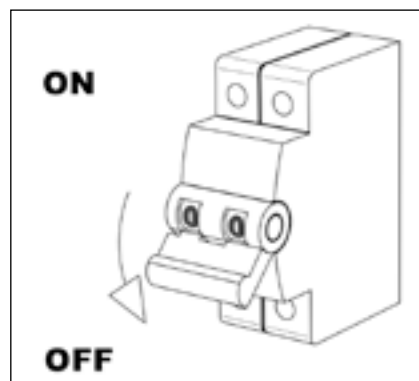


Fig. 8.c

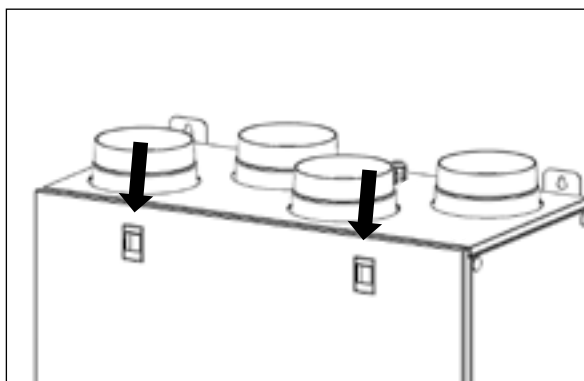


Fig. 8.d

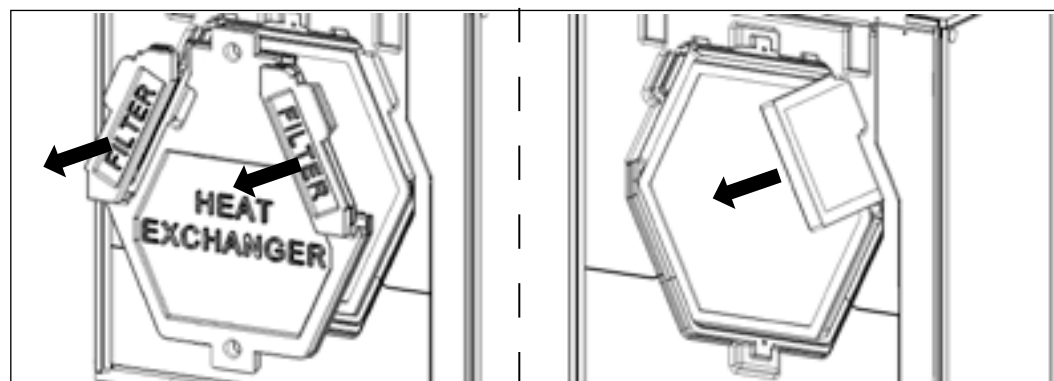
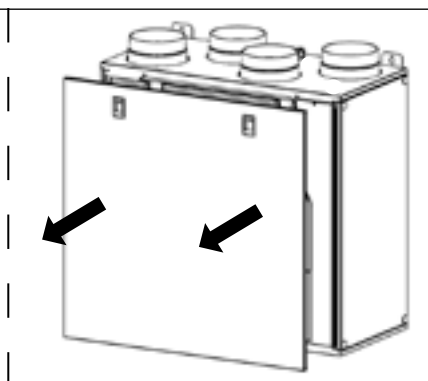


Fig. 8.e

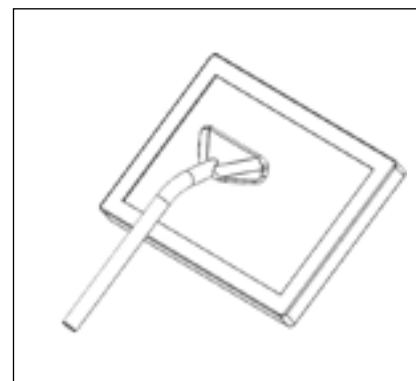


Fig. 8.f

QR400A - QR550A

- Keep the unit surface free from dust.
- Clean the filters with a vacuum cleaner following the below illustrations Fig. 8.g-i-j for the QR400A unit and Fig. 8.g-h-i-j for the QR550A unit when the FILTER signal (Fig. 7.c - (e)) is displayed on LCD. The actual need to perform this operation may vary depending on indoor and outdoor ambient conditions.
- Press FILTER button (Fig. 7.c - (h)) to reset the Filter Alarm.
- Filters must be replaced every year.

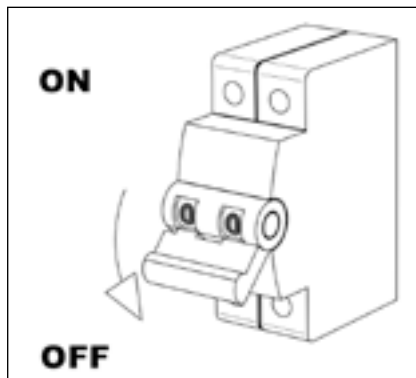


Fig. 8.g

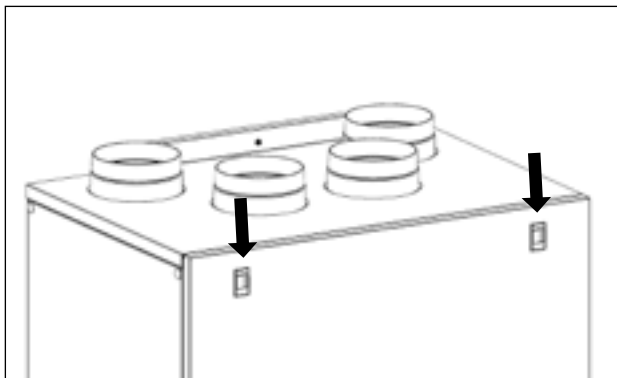


Fig. 8.h

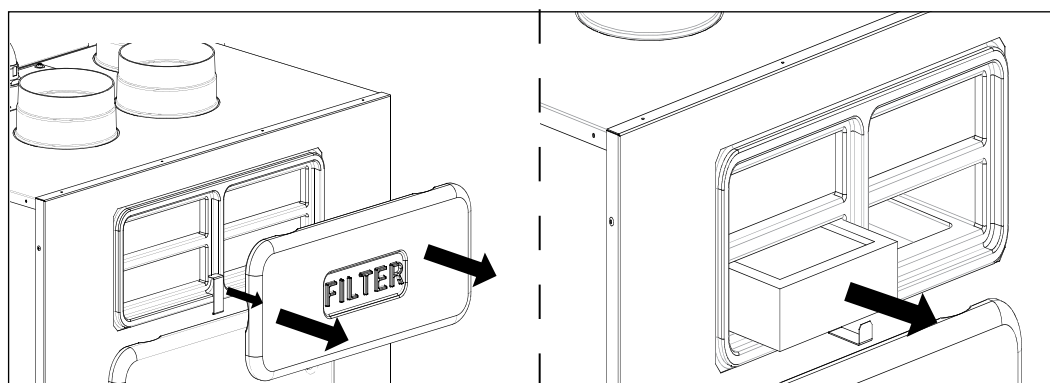
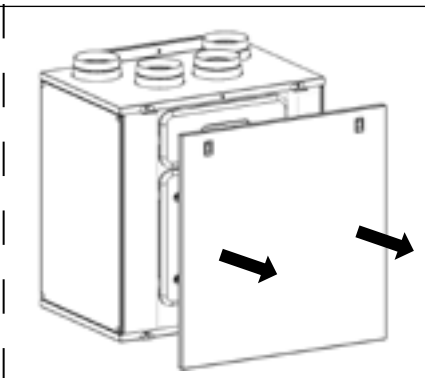


Fig. 8.i

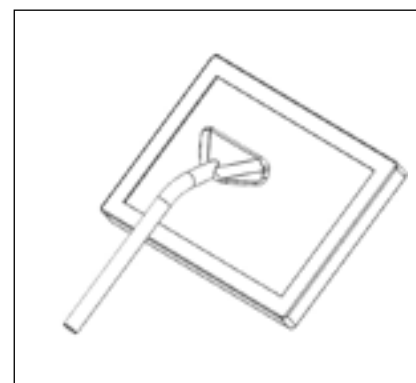


Fig. 8.j

8.4 Service

WARNING

Make sure that the mains supply to the unit is disconnected before performing any installation, service, maintenance or electrical work!

WARNING

The installation and service of the unit and complete ventilation system must be performed by an authorized installer and in accordance with local rules and regulations.

QR280A

- Keep the unit surface free from dust.
- Clean the filters with a vacuum cleaner following the below illustrations (Fig. 8.k-l-m-n) when the FILTER signal (Fig. 7.c - (e)) is displayed on LCD. The actual need to perform this operation may vary depending on indoor and outdoor ambient conditions.
- Press FILTER button (Fig. 7.c - (h)) to reset the Filter Alarm.
- Filters must be replaced every year.

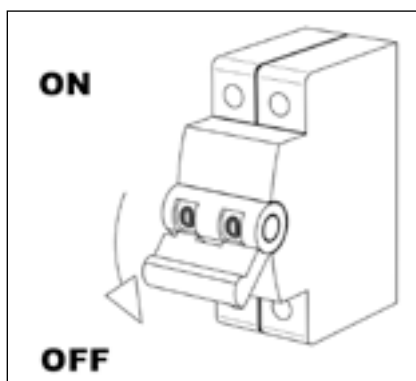


Fig. 8.k

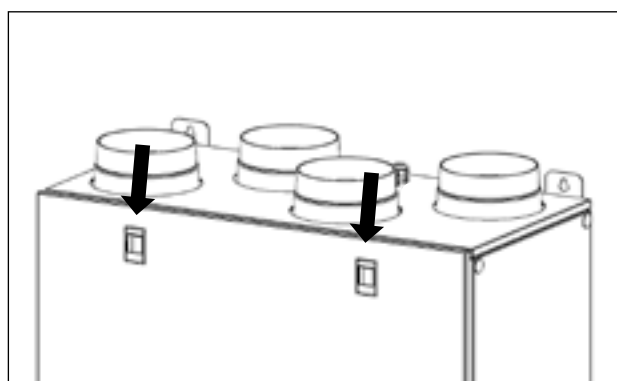
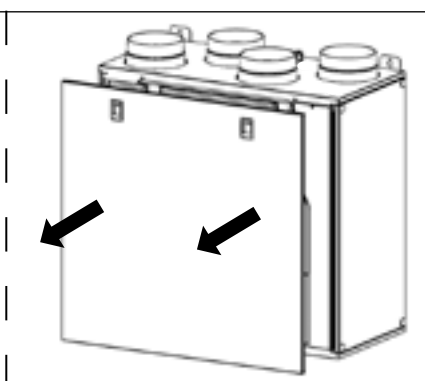


Fig. 8.l



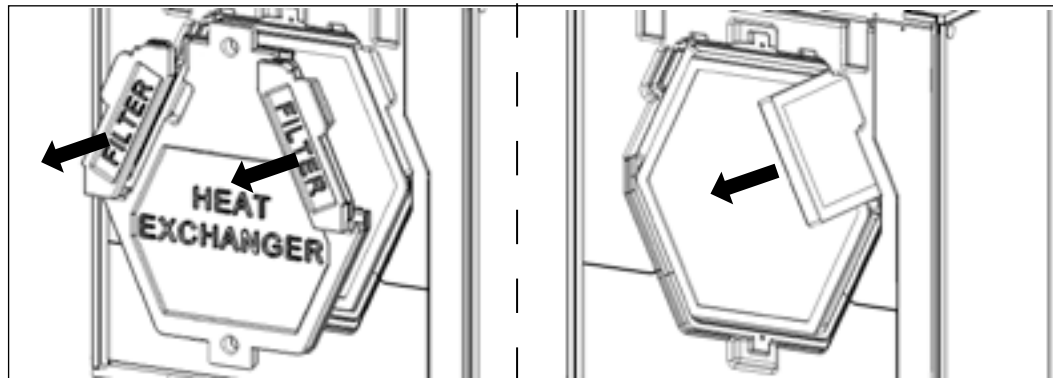


Fig. 8.m

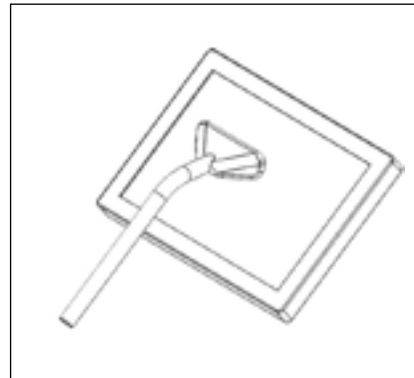


Fig. 8.n

- Clean the heat exchanger every year with a vacuum cleaner. The actual need to perform this operation may vary depending on indoor and outdoor ambient conditions and on frequency of filter cleaning (Fig. 8.k-l-o-p).

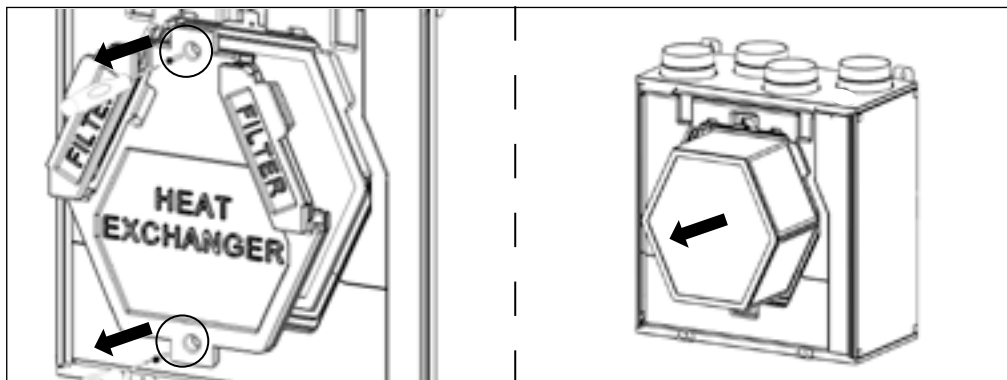


Fig. 8.o

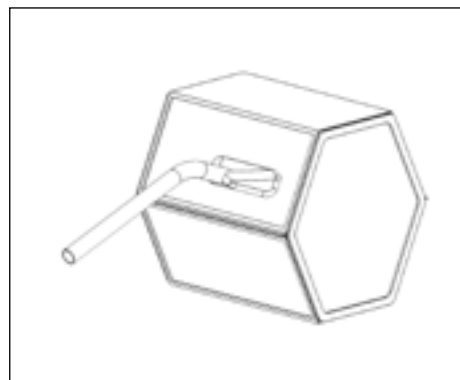


Fig. 8.p

- Clean the fans every year with a vacuum cleaner. The actual need to perform this operation may vary depending on indoor and outdoor ambient conditions and on frequency of filter cleaning. Do not move the motor balance clips (Fig. 8.k-l-o-q).

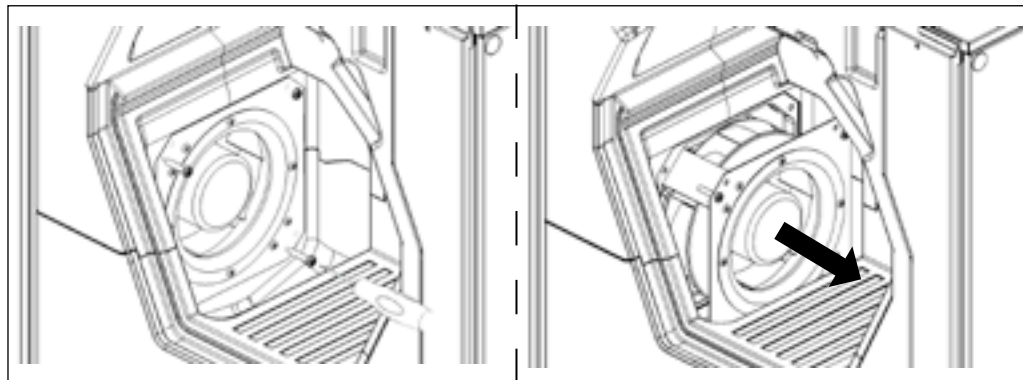
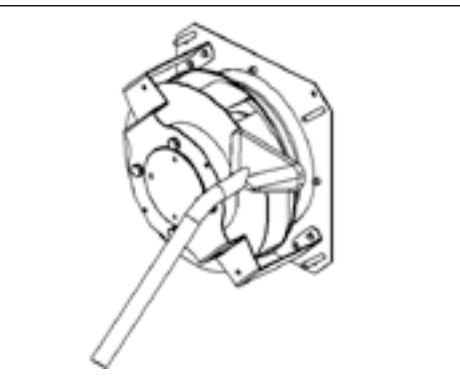


Fig. 8.q



QR400A - QR550A

- Keep the unit surface free from dust.
- Clean the filters with a vacuum cleaner following the below illustrations Fig. 8.r-t-u for the QR400A unit and Fig. 8.r-s-t-u for QR550A unit when the FILTER signal (Fig. 7.c - **e**) is displayed on LCD. The actual need to perform this operation may vary depending on indoor and outdoor ambient conditions.
- Press FILTER button (Fig. 7.c - **h**) to reset the Filter Alarm.
- Filters must be replaced every year.

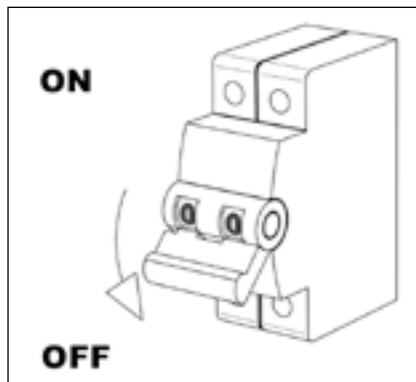


Fig. 8.r

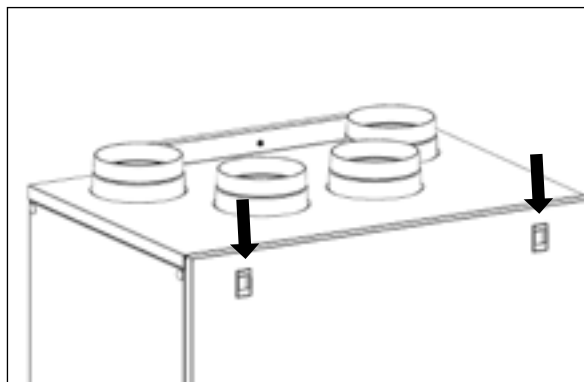


Fig. 8.s

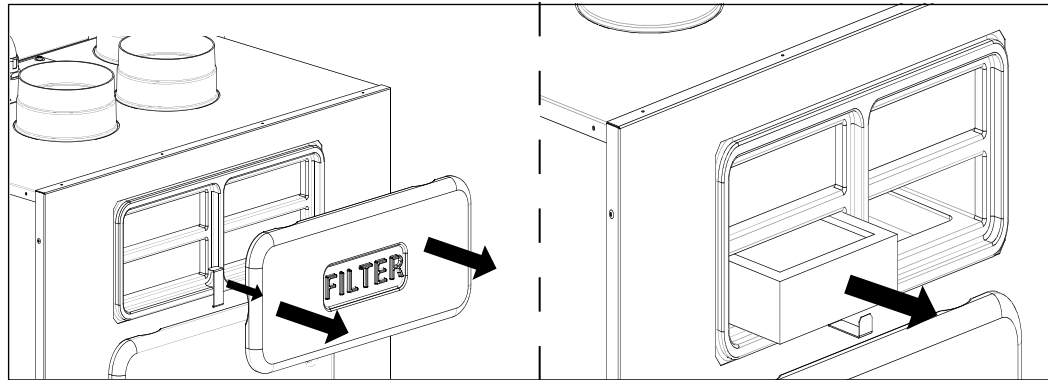
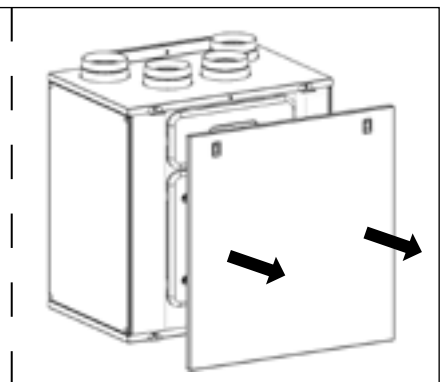


Fig. 8.t

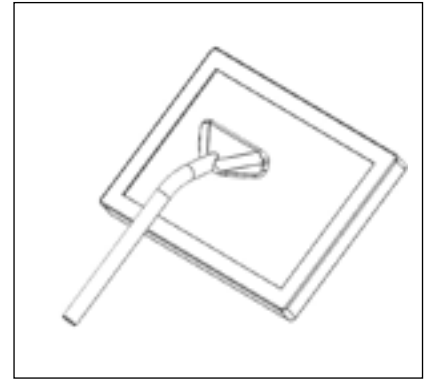


Fig. 8.u

- Clean the heat exchanger every year with a vacuum cleaner following the below illustrations Fig. 8.r-v for the QR400A unit and Fig. 8.r-s-v for the QR550A unit. The actual need to perform this operation may vary depending on indoor and outdoor ambient conditions and on frequency of filter cleaning.

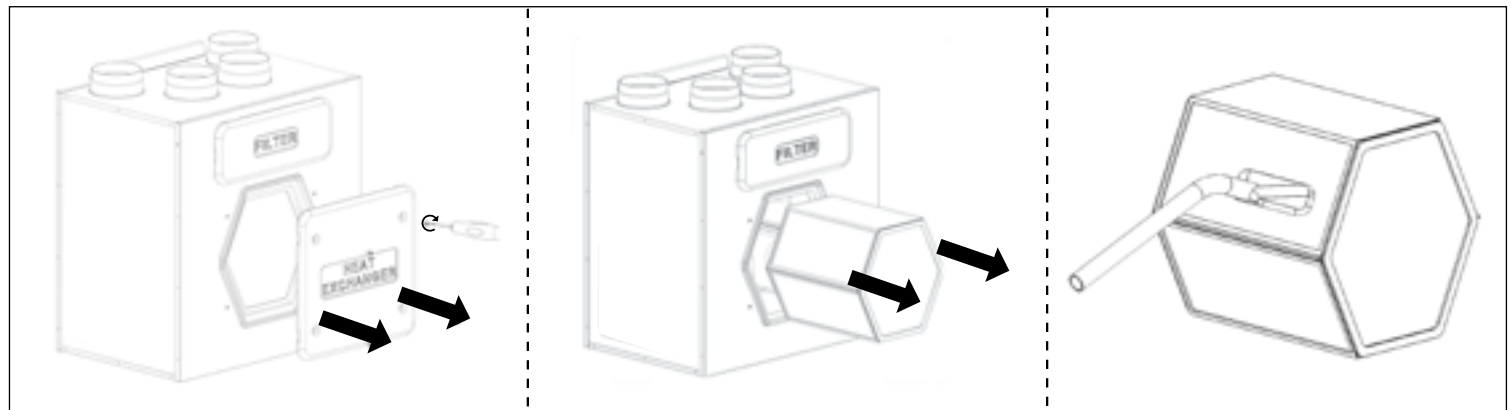


Fig. 8.v

- Clean the fans every year with a vacuum cleaner following the below illustrations Fig. 8.r-w for the QR400A unit and Fig. 8.r-s-w for the QR550A unit. The actual need to perform this operation may vary depending on indoor and outdoor ambient conditions and on frequency of filter cleaning. Do not move the motor balance clips.

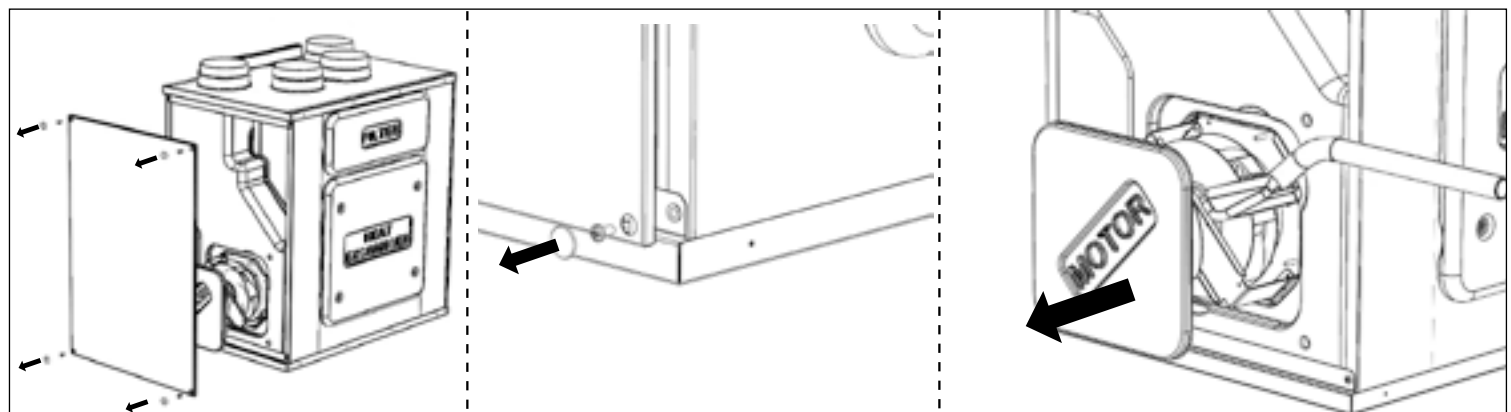


Fig. 8.w

8.5 Troubleshooting

Fans do not start

1. Check that main supply gets to the unit.
2. Check that all connections are working (all connections in terminal box and fast couplings of intake and exhaust air fans).

Reduced airflow

1. Check setting of fan speed on the CTRL-DSP (controller supplied).
2. Check filters. Change of filters required?
3. Check diffusers. Re-setting or cleaning of grilles and diffusers required?
4. Check fans and heat exchange block. Cleaning required?
5. Check if air intake and exhaust have been clogged.
6. Check ducting system for damage and/or dirt accumulation.
7. Check if Anti-frost icon  is displayed on LCD.

Fan noise/vibrations

1. Clean fan impellers. Cleaning required?
2. Check that the fans are firmly in place within the unit.

Excessive air noise

1. Check setting of fan speed on the CTRL-DSP (controller supplied).
2. Check grilles and diffusers. Re-setting or cleaning of grilles and diffusers required?

Gurgling noise

1. Drain connections have not been installed correctly.
2. Drain connection below the unit has a too low water level, fill it up with water.

Unpleasant smell

1. Drain connections have not been installed correctly.
2. Drain connection below the unit has a too low water level, fill it up with water.
3. Check filters. Change of filters required?
4. Check ducting system and grilles and diffusers. Cleaning required?

Water leakage near the unit

1. Drain connections have not been installed correctly. Checking necessary?
2. Drain connections are dirty. Cleaning necessary?

9 DISPOSAL AND RECYCLING



Information on disposal of units at the end of life.

This product complies with EU Directive 2002/96/EC.

The symbol of the crossed-out dustbin indicates that this product must be collected separately from other waste at the end of its life. The user must, therefore, dispose of the product in question at suitable electronic and electro-technical waste disposal collection centres, or else send the product back to the retailer when purchasing a new, equivalent type device.

Separate collection of decommissioned equipment for recycling, treatment and environmentally compatible disposal helps to prevent negative effects on the environment and on health and promotes the recycling of the materials that make up the equipment.

Improper disposal of the product by the user may result in administrative sanctions as provided by law.

10. Direttiva ErP - Regolamenti 1253/2014 - 1254/2014

ErP Directive - Regulations 1253/2014 - 1254/2014

a)	Marchio - <i>Mark</i>	-	AERAULIQA			AERAULIQA			AERAULIQA		
b)	Modello - <i>Model</i>	-	QR280A			QR400A			QR550A		
c)	Classe SEC - <i>SEC class</i>	-	A	A	B	A+	A	A	A	A	B
c1)	SEC climi caldi - <i>SEC warm climates</i>	kWh/m².a	-15,2	-11	-7,2	-17,3	-14,4	-11,8	-15	-10,7	-6,7
c2)	SEC climi temperati - <i>SEC average climates</i>	kWh/m².a	-39,3	-34,4	-30,1	-42,1	-38,7	-35,7	-39,4	-34,4	-30
c3)	SEC climi freddi - <i>SEC cold climates</i>	kWh/m².a	-76,8	-70,7	-65,5	-80,8	-76,6	-72,9	-77,4	-71,3	-66,1
	Etichetta energetica - <i>Energy label</i>	-	Si Yes			Si Yes			Si Yes		
d)	Tipologia unità - <i>Unit typology</i>	-	Residenziale - bidirezionale <i>Residential - bidirectional</i>			Residenziale - bidirezionale <i>Residential - bidirectional</i>			Residenziale - bidirezionale <i>Residential - bidirectional</i>		
e)	Tipo azionamento - <i>Type of drive</i>	-	Azionamento a velocità variabile <i>Variable speed drive</i>			Azionamento a velocità variabile <i>Variable speed drive</i>			Azionamento a velocità variabile <i>Variable speed drive</i>		
f)	Sistema di recupero calore <i>Type of Heat Recovery System</i>	-	A recupero <i>Heat recovery</i>			A recupero <i>Heat recovery</i>			A recupero <i>Heat recovery</i>		
g)	Efficienza termica - <i>Thermal efficiency of heat recovery</i>	%	80			86			82		
h)	Portata massima @100Pa - <i>Maximum flow rate @100Pa</i>	m³/h	256			363			520		
i)	Potenza elettrica (alla portata massima) <i>Electric power input at maximum flow rate</i>	W	160			160			333		
j)	Livello potenza sonora (L _{WA}) - <i>Sound power level (L_{WA})</i>	dBA	56			52			58		
k)	Portata di riferimento - <i>Reference flow rate</i>	m³/h	179			254			364		
l)	Differenza di pressione di riferimento <i>Reference pressure difference</i>	Pa	50			50			50		
m)	Potenza assorbita specifica (SPI) <i>Specific power input (SPI)</i>	W/(m³/h)	0,385			0,268			0,412		
n1)	Fattore di controllo - <i>Control factor</i>	-	0,65	0,85	1	0,65	0,85	1	0,65	0,85	1
n2)	Tipologia di controllo - <i>Control typology</i>	-	Controllo ambientale locale <i>Local demand control</i>	Controllo ambientale centrale <i>Central demand control</i>	Controllo manuale (no DCV) <i>Manual control (no DCV)</i>	Controllo ambientale locale <i>Local demand control</i>	Controllo ambientale centrale <i>Central demand control</i>	Controllo manuale (no DCV) <i>Manual control (no DCV)</i>	Controllo ambientale locale <i>Local demand control</i>	Controllo ambientale centrale <i>Central demand control</i>	Controllo manuale (no DCV) <i>Manual control (no DCV)</i>
o1)	Trafilamento interno massimo <i>Maximum internal leakage rate</i>	%	1,5			0,6			0,8		
o2)	Trafilamento esterno massimo <i>Maximum external leakage rate</i>	%	1,5			0,4			0,5		
p1)	Tasso di miscela interno - <i>Internal mixing rate</i>	%	N/A			N/A			N/A		
p2)	Tasso di miscela esterno - <i>External mixing rate</i>	%	N/A			N/A			N/A		
q)	Segnale avvertimento filtro - <i>Visual filter warning</i>	-	Avviso su display "FILTER" <i>Visual filter warning on display</i>			Avviso su display "FILTER" <i>Visual filter warning on display</i>			Avviso su display "FILTER" <i>Visual filter warning on display</i>		
r)	Istruzioni installazione griglie <i>Instructions to install regulated grilles</i>	-	N/A			N/A			N/A		
s)	Indirizzo Internet istruzioni di pre/disassemblaggio <i>Internet address for pre/disassembly instructions</i>	-	www.aerauliqa.it www.aerauliqa.com			www.aerauliqa.it www.aerauliqa.com			www.aerauliqa.it www.aerauliqa.com		
t)	Sensibilità del flusso alle variazioni di pressione <i>Airflow sensitivity to pressure variations</i>	%	N/A			N/A			N/A		
u)	Tenuta all'aria interna/esterna <i>Indoor/outdoor air tightness</i>	m³/h	N/A			N/A			N/A		
v1)	Consumo annuo di energia (AEC) climi caldi <i>AEC - Annual electricity consumption - warm climates</i>	kWh	2	3,5	4,8	1,4	2,4	3,4	2,2	3,7	5,2
v2)	Consumo annuo di energia (AEC) climi temperati <i>AEC - Annual electricity consumption - average climates</i>	kWh	2,5	3,9	5,3	1,9	2,9	3,8	2,6	4,2	5,6
v3)	Consumo annuo di energia (AEC) climi freddi <i>AEC - Annual electricity consumption - cold climates</i>	kWh	7,9	9,3	10,7	7,2	8,3	9,2	8	9,6	11
w1)	Risparmio di riscaldamento annuo (AHS) climi caldi <i>AHS - Annual heating saved - warm climates</i>	kWh	20,3	19,7	19,3	20,8	20,4	20,1	20,5	20	19,6
w2)	Risparmio di riscaldamento annuo (AHS) climi temperati <i>AHS - Annual heating saved - average climates</i>	kWh	44,9	43,6	42,6	46,1	45,2	44,5	45,3	44,2	43,4
w3)	Risparmio di riscaldamento annuo (AHS) climi freddi <i>AHS - Annual heating saved - cold climates</i>	kWh	87,8	85,3	83,4	90,2	88,5	87,1	88,7	86,5	84,8