



AQUARIS SILENT

Fan coil unit




OPERATING CONDITIONS

- Coolant or heating fluid: water / water-glycol mixture
- Maximum operating pressure of the register: 8 bar
- Maximum air outlet temperature: 40 °C
- Maximum relative humidity in the environment: 60%
- Power supply: 230 V AC 50 Hz
- Control voltage: 0-10 V DC signal

ADVANTAGES

- Flexible mounting and installation possibilities
- High cooling and heating capacities
- Control technology adapted to any demand
- Low noise generation or reduced sound pressure
- Energy-efficient, decentralised air-conditioning
- Solid compact design
- Easy mounting and maintenance
- Attractive appearance (device with housing)
- EC motors with highest efficiency and continuous control 0-10 V

PERFORMANCE DATA

	Size = 1	2	3	4	5	
	$V_L = 675$	999	1068	2352	2376	m ³ /h
	$p_s = 112$	91	91	152	152	Pa
	$L_{WA} = 60$	56	58	68	70	dB(A)
	$W = 53$	51	56	240	235	W
	$Q = 3.2$	4.3	5.0	6.6	7.3	kW
	$Q = 3.5$	4.3	4.9	5.6	6.1	kW
	$Q_S = 2.7$	3.7	4.1	5.6	6.1	kW

Heating: $t_{w1} = 65$ °C, $t_{w2} = 55$ °C, $t_R = 20$ °C

Cooling: $t_{w1} = 7$ °C, $t_{w2} = 12$ °C, $t_R = 27$ °C, HR = 47 %

Maximum values of the device according to (EU) 2016/2281 for 4-pipe design and air filter ISO Coarse < 40%.

INTENDED USE

For decentralised conditioning of room air in compliance with Commission Regulation (EU) 2016/2281 of 30 November 2016.

CONTENTS

General description	3
Device description	3
Models, dimensions and weights	5
Water connection	8
Position of electrical connection	10
Condensate drain.....	10
Duct connection.....	12
Supply air and return air boxes.....	14
Transition piece for air diffuser	18
Device casing	20
Accessories supplied loose	21
Installation	24
Circuit diagrams.....	25
Maintenance.....	31
Technical data.....	33
Legend	45
Aquaris Silent order code	46
Flexible connection order code	48
Order code of frame for mineral/glass wool air duct	49
Plenum box order code	50
Order code of transition piece for air diffuser.....	52
Device casing order code.....	53
Order code for accessories supplied loose	54
Specification text	56

GENERAL DESCRIPTION

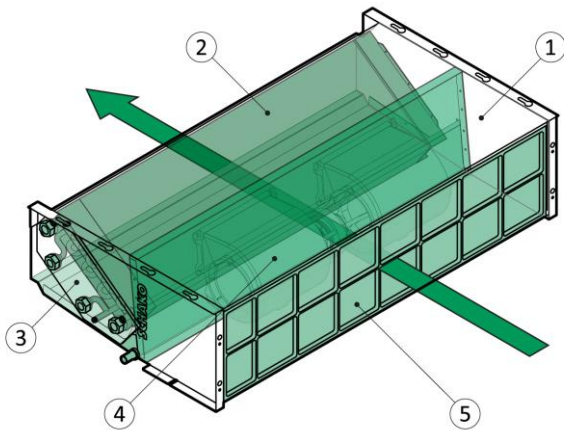
The fan convectors Aquaris Silent are especially designed for decentralised air treatment (offices, sales rooms, hotels, etc.).

The new generation of fan convectors with EC fans is also significantly more energy-efficient, easier to install and easier to maintain.

Based on the ambition to provide maximum adaptation to the architectural situation of the room to be air conditioned, the fan convectors are produced in different models – ranging from devices to be installed in false ceilings or floors (horizontal model) to devices for visible mounting with device casing (vertical and horizontal models).

OPERATION

The secondary air to be treated is taken in by the fan (4), filtered in the filter section (5) and conditioned in the heat exchanger (2).



DEVICE DESCRIPTION

1 Housing

The housing of the device consists of profiles and covers made of galvanized sheet steel with a 6 mm thick and oxygen diffusion-tight insulation.

2 Heat exchanger

The heat exchanger unit can consist of a single register with 3 pipe rows for cooling or heating operation (for connection to a 2-pipe system), only 1 pipe register for heating (for connection to a 2-pipe system) or of two registers with 3 and 1 pipe rows (for connection to a 4-pipe system). The registers have been designed for operation with water or with a water-glycol mixture.

The registers consist of copper pipes, aluminum ribs, a manual ventilation and drainage system as well as a frame made of galvanized sheet steel.

The length of the register depends on the required performance (size of the device). The water connections can be attached to the register either on the left- or right-hand side.

3 Condensate pan

The condensate pan can be mounted horizontally or vertically and is used for collecting the condensation water below the cooling register.

The condensate pan is made of stainless-steel sheet in accordance with VDI 6022 and has a thermal insulation (polyethylene with a thickness of 6 mm) to prevent the formation of condensation water.

The condensation water drain is located on the same side as the hydraulic connections and can be connected to the on-site drain system.

4 Motorised fan

The highly efficient fan with EC motor consists of double-sided, intake-operated, dynamically balanced centrifugal blowers with forward directed blades and direct drive. With a maintenance-free ball bearing for a long service life.

The EC fan can be activated by 0-10 V and is infinitely variable. The fan group of each device size has been selected for the highest possible static pressure at a low sound power level.

5 Filter

The standard filter is reusable and consists of synthetic filter medium in a plastic frame. Classification ISO Coarse < 40% according to ISO 16890.

Thanks to the holding clips, the filters can be dismantled without using tools.

MODELS

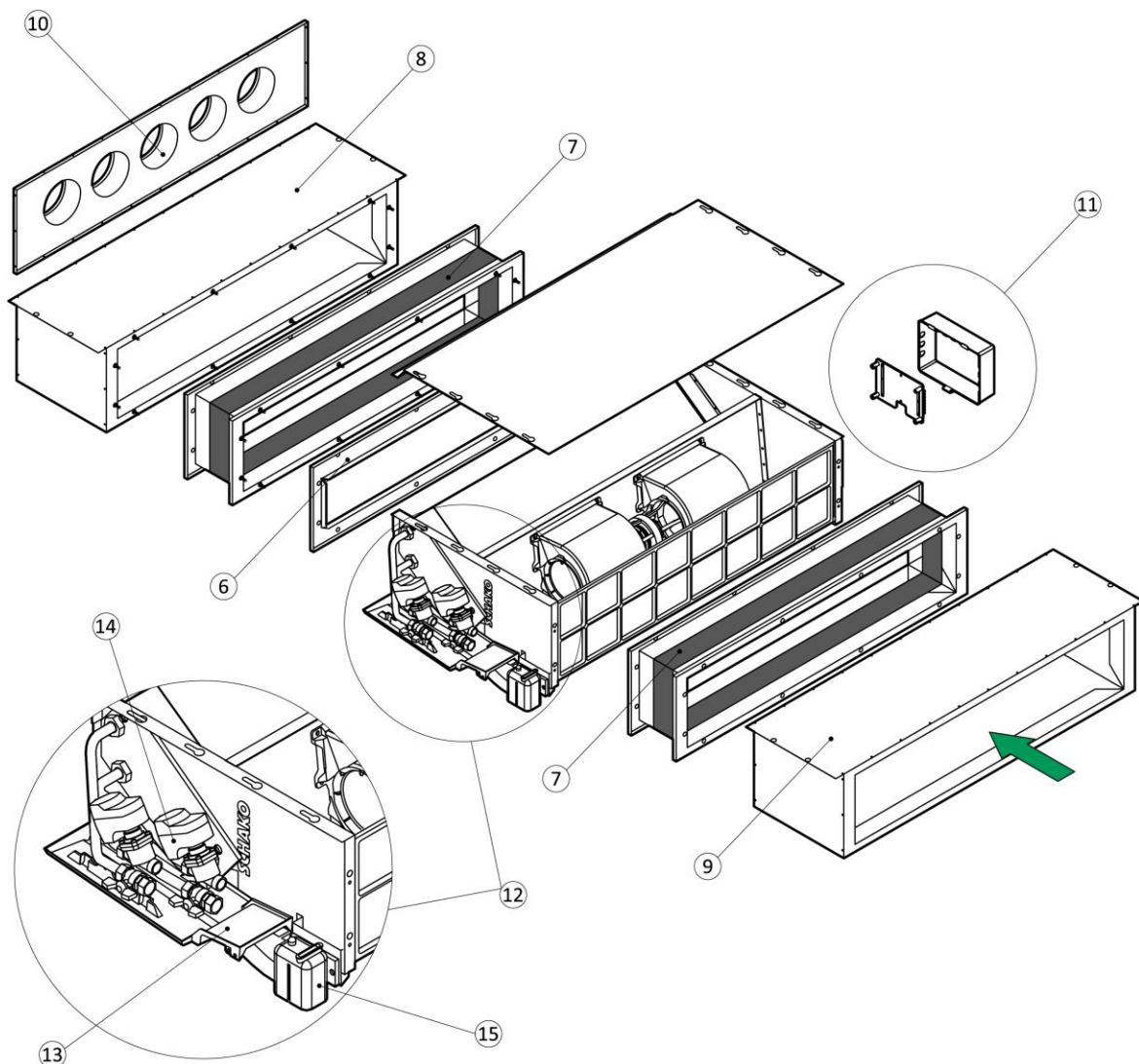
AQS-EC-...	Fan convector Aquaris Silent with EC motor
AQS-...-1-...	Size 1
AQS-...-2-...	Size 2
AQS-...-3-...	Size 3
AQS-...-4-...	Size 4
AQS-...-5-...	Size 5
AQS-...-L4-...	4-pipe register 3 and 1 pipe rows
AQS-...-R1-...	2-pipe register 1 pipe row
AQS-...-R3-...	2-pipe register 3 pipe rows
AQS-...-H-...	Horizontal – ceiling
AQS-...-B-...	Horizontal – floor
AQS-...-V-...	Vertical – wall
AQS-...-C1-...	Air filter ISO Coarse < 40%
AQS-...-C4-...	Air filter ISO Coarse 40%
AQS-...-1-...	Secondary air intake, straight

OPTIONS

- Flange ⑥
- Electric connection position left or right ⑪
- Hydraulic connection position left or right ⑫
- With offset electrical connection box
- Additional control and regulation elements
- Additional condensate pan for valves ⑬
- Hydraulic regulation mounted ex works ⑭
- Attached condensate pump ⑮

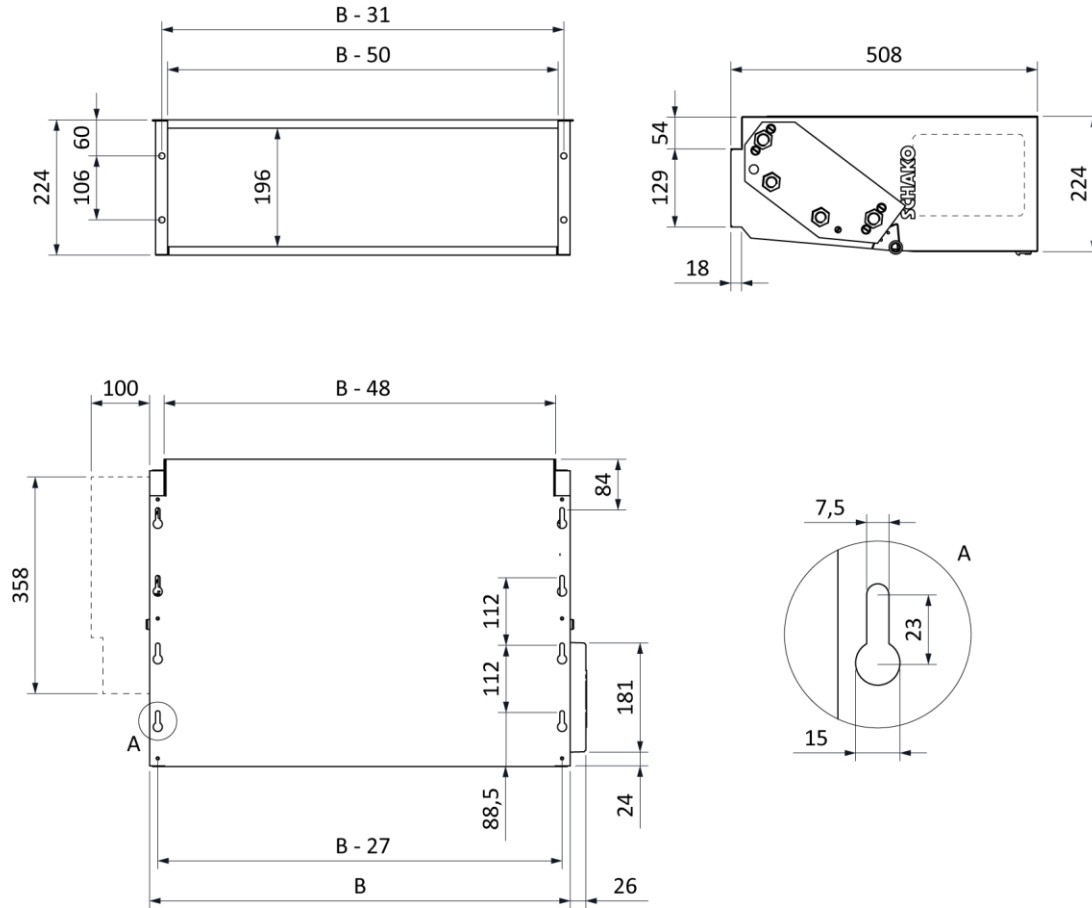
ACCESSORIES SUPPLIED LOOSE

- Flexible connection ⑦
- Frame for mineral/glass wool air duct
- Plenum box for supply air ⑧ and return air ⑨ with spigot ⑩
- Transition piece with air diffuser
- Device casing
- Flexible hydraulic connection
- Combination control valves and actuators
- Room thermostat



MODELS, DIMENSIONS AND WEIGHTS

Available in 5 sizes with 1 fan (size 1), 2 fans (sizes 2 and 3) or 3 fans (sizes 4 and 5).

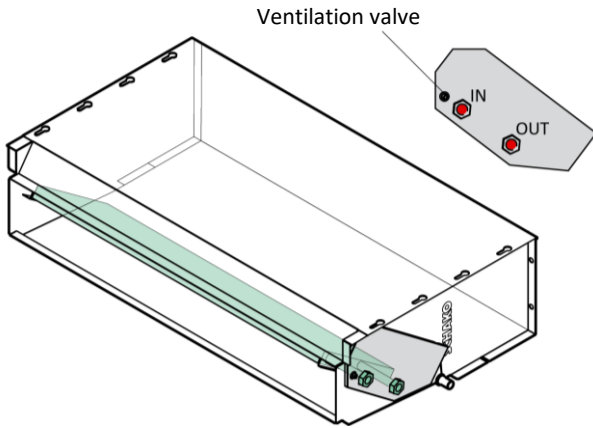


Size	Dimensions B (mm)	Weight (kg) Base unit	Water capacity of the registers (l)	
			3 rows of pipes	1 duct row
1	697	14	1.2	0.3
2	912	20	1.6	0.4
3	1247	25	2.3	0.6
4	1352	32	2.5	0.7
5	1597	35	3.0	0.9

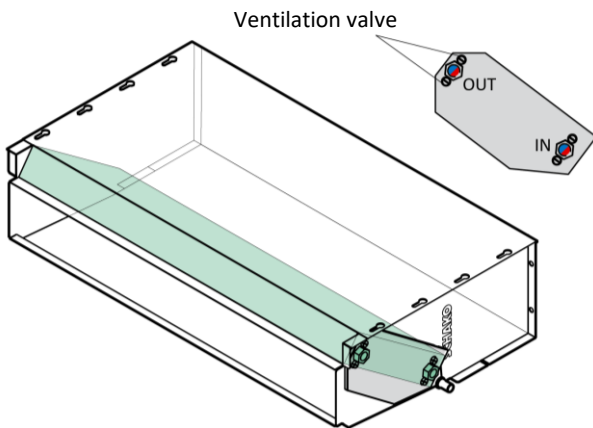
HEAT EXCHANGER

The device can be ordered with 1 register for a 2-pipe system or with 2 registers for a 4-pipe system.

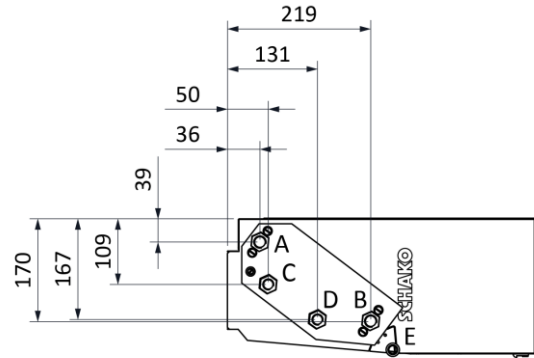
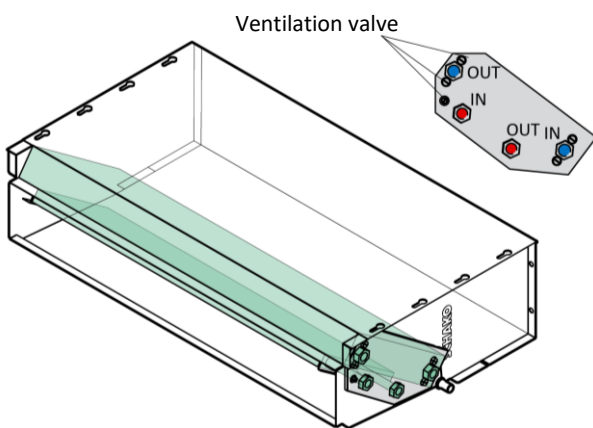
R1 = 2-pipe register 1 pipe row
 (heating)



R3 = 2-pipe register 3 pipe rows
 (cooling or heating)



L4 = 4-pipe register 3 and 1 pipe rows
 (heating and cooling)



NOTE

Register thread: cylindrical internal thread Rp 1/2 according to EN 10226 standard:

- C = Heating water inlet
- D = Heating water outlet
- A = Cooling water outlet
- B = Cooling water inlet
- E = Condensate drain \varnothing 16 mm (external)

NOTE

To prevent deposits and corrosion, the quality of the water for filling the registers must comply with the VDI 2035 regulations.

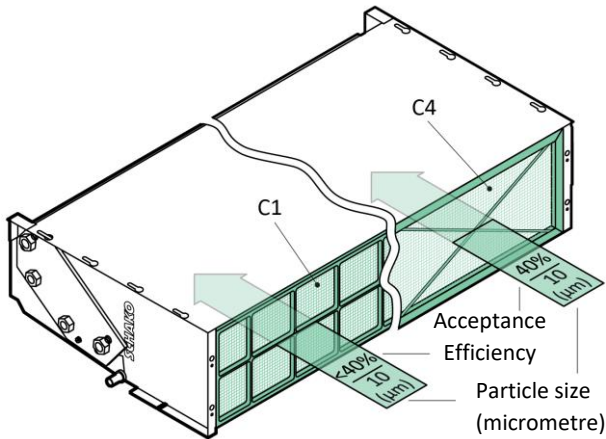
NOTE

The registers are equipped ex works with a manual bleed valve. Use the air vents always in top position. Before filling the system, check all air vents for tight fit.

AIR FILTER

The standard filter consists of synthetic fleece on a plastic frame with a filter efficiency ISO Coarse < 40%. Optionally, a synthetic fleece filter in a sheet steel frame with a filter efficiency ISO Coarse 40% can be ordered.

- C1** = ISO Coarse < 40% (standard)
- C4** = ISO Coarse 40 %



MOUNTING

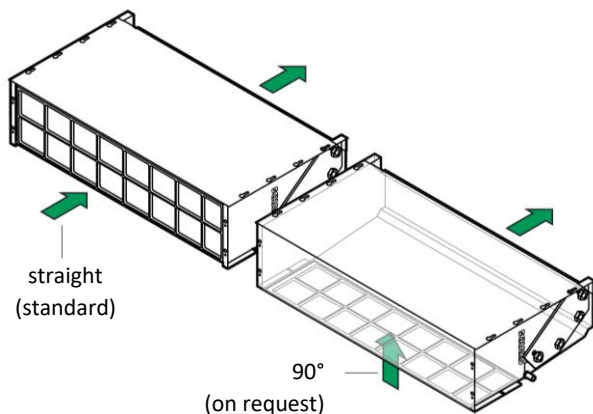
There are models for horizontal installation in ceilings and floor as well as for vertical installation on the wall.

- H** = Horizontal – ceiling (standard)
- B** = Horizontal – floor (not compatible with device casing GV)
- V** = Vertical – wall

EXTRACTION POSITION

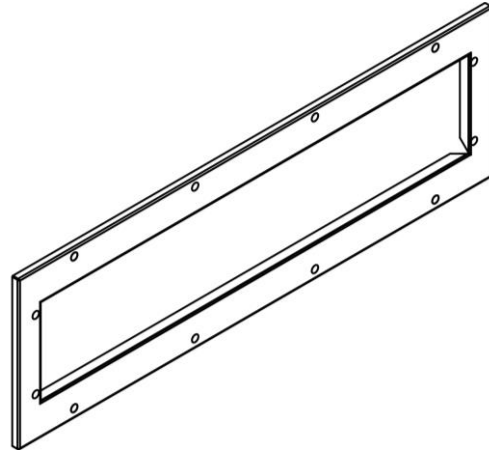
The extraction moves in the same direction as the supply air and is located at the rear of the device. Other models can be ordered.

- 1** = Secondary air intake, straight

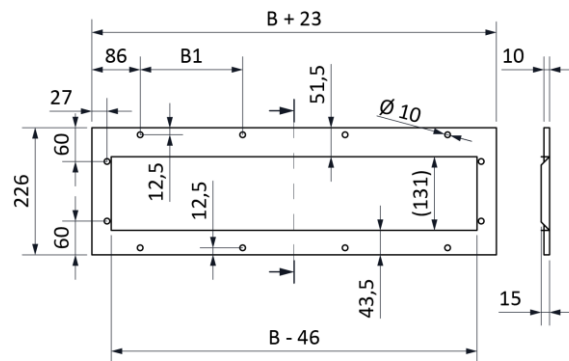


FLANGE

The flange is made of sheet steel with perforations, for connecting the device to the plenum box and connection accessories.



- F0** = without flange (standard)
- FZ** = with supply air flange

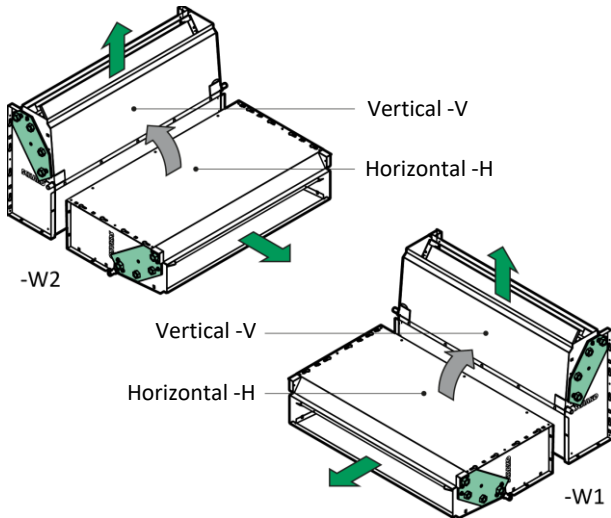


Size	B (mm)	B1 (mm)	bores	Weight (kg)
1	697	548	8	0.88
2	912	382	10	1.11
3	1247	549	10	1.48
4	1352	401	12	1.59
5	1597	483	12	1.86

B = Device width (see page 5)

WATER CONNECTION

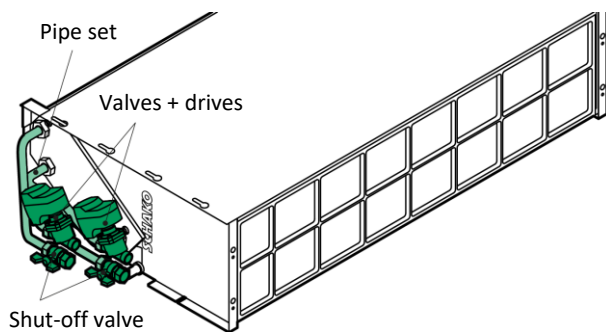
The hydraulic connection can be made on both sides of the device.



- W1** = in air flow direction on the left (not possible for electrical connection position -S1) (standard)
- W2** = in air flow direction on the right (not possible for electrical connection position -S2)

MOUNTING OF HYDRAULIC REGULATION

The valves and drives for hydraulic regulation can be ordered as already installed or supplied loose for installation on site. The valve and the actuators can be adjusted on site without tools.



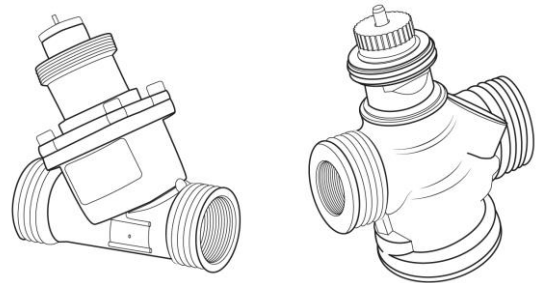
- 00** = without valves, without drives, without pipe set, without shut-off valves (standard)
- xx** = with valves, drives, pipe sets and shut-off valves mounted ex works (not compatible with valves with connection $\geq 1"$)

NOTE

All accessories can be ordered separately by specifying -00 and ordering them with their own code (see Order code for accessories supplied loose).

Pressure independent control valves

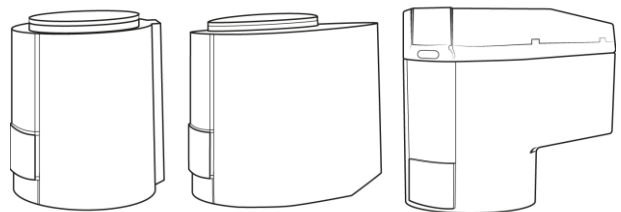
Valves with pressure-independent flow control and automatic compensation function. For water-side control and automatic hydraulic adjustment of air after-treatment devices for heating and cooling.



- Control and compensation in one valve.
- Presetting range with linear valve characteristics.
- Can be fitted with electrothermal or electromotive actuators.
- PN 25.
- Water temperature from 1 °C to 100 °C.
- Ambient temperature from 1 °C to 50 °C.
- Operating differential pressure up to 600 kPa.
- For application in closed circuits.

Actuators

Actuators for the operation of control valves in heating and cooling systems.



- Compact construction, small dimensions.
- "Snap-on" installation without tools.
- Suitable valve adapters for 99% of all valves worldwide.
- Low power consumption (1 W).
- Silent and maintenance-free.
- Fast response time.
- 360° mounting position.
- Patented 100% protection for leaking valves IP54.
- Certified according to TÜV and NRTL.
- Housing colour signal white RAL 9003.
- In the variants with valve travel detection, the valve travel is automatically detected for optimum use of the active control voltage range.

Selection

The volumetric flow [l/h] can be found in the technical documentation or in the SCHAKO design program. Selection of the optimum valve: the valve must be operated at approx. 80% of its V_{Wmax} .

Valves	Model	DN	Connection (inch)	Pressure measurement points	Stroke (mm)	$V_{W,min}$ (l/h)	$V_{W,max}$ (l/h)
01	VPP46.10L0.2	10	G 1/2	No	2.5	30	200
02	VPP46.10L0.4	10	G 1/2	No	4.5 5.0	65 65	333 370
03	VPP46.15L0.2	15	G 3/4	No	2.5	30	200
04	VPP46.15L0.6	15	G 3/4	No	2.5	100	575
05	VPP46.20F1.4	20	G 1	No	4.5 5.0	200 220	1190 1330
25	AB-QM-003Z8221	15	G 3/4 A	No	4.0	65	650
26	AB-QM-003Z8220	15 LF	G 3/4 A	No	4.0	20	200
27	AB-QM-003Z8222	15 HF	G 3/4 A	No	4.0	120	1200
31	AB-QM-003Z8223	20	G 1 A	No	4.0	110	1100

Maximum allowed differential pressure = 600 kPa | G = Male thread | DN = Nominal width | V_w = Water volumetric flow | LF = LowFlow version | HF = HighFlow version

NOTE

Valves $\geq 1"$ are supplied loose and without screw connections.

NOTE

The device is preset ex works to the maximum flow unless otherwise specified.

NOTE

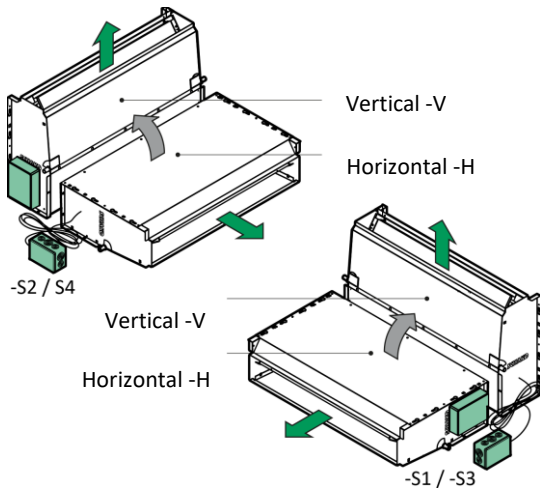
If the valve kit is installed without an additional condensate pan, the connection pipes and valves must be thermally insulated.

Drives	Model	Type	Actuator signal	VWE	FS	Operating voltage	Direction of action	Travel distance (mm)	Running time	Actuating power (N)
T01	SAST127474	T	ON/OFF	-	-	230 V AC	NC	5.0	≈4 min	100
T02	SAST127475	T	ON/OFF	-	-	24 V AC/DC	NC	5.0	≈4 min	100
T03	SAPV127957	T	0-10 V	✓	-	24 V AC	NC	5.0	≈4 min	100
T04	SAPV128561	T	0-10 V	✓	-	24 V DC	NC	5.0	≈4 min	100
T05	SAPV129150	T	0-10 V	✓	✓	24 V AC/DC	NC	6.5	≈5 min	125
M01	SMPV132351	M	0-10 V	✓	-	24 V AC/DC	-	8.5	255 s	100
M02	SMPO132353	M	0-10 V	✓	✓	24 V AC/DC	-	8.5	255 s	100
M03	SMPO132352	M	0-10 V	✓	✓	24 V AC/DC	-	8.5	255 s	125

T = Thermal | M = Motorised | NC = Normally closed
 VWE = Valve travel detection | FS = Feedback signal

POSITION OF ELECTRICAL CONNECTION

The electrical connection can be made on the right or left. To place the electrical connection on the same side as the hydraulic connection, the option with offset electrical connection box with 1.5 m cable must be ordered.



- S1** = in air flow direction on the left (not possible for water connection position -W1)
- S2** = in air flow direction on the right (not possible for water connection position -W2) (standard)
- S3** = with offset electrical connection box in air flow direction on the left 1.5 m (not possible for combination of vertical mounting -V and water connection position -W1)
- S4** = with offset electrical connection box in air flow direction on the right 1.5 m (not possible for combination of vertical mounting -V and water connection position -W2)

ADDITIONAL CONTROL AND REGULATION ELEMENTS

A fault message output can be selected as an option. If the fan convector stops due to a fault, the temperature control receives an alarm signal from the device. One temperature control RDG160T can control up to 3 fan convectors with alarm display.

On the other hand, the EC interface enables the fan convector to be controlled via analogue 3-stage controllers. This allows older devices to be directly replaced by the new high-efficiency EC devices without the need for any changes to the control.

These elements are in additional electrical boxes. Further information on the connection can be found on pages 29 and 30.

- 0** = without additional control and regulation elements
- 1** = with fault message output
- 2** = with EC interface for 3-stage controller

AQS-EC-1-R3-C1-H-1-F0-W1-00-00-000-S2-0-K0-0

Construction subject to change.
 No return possible.

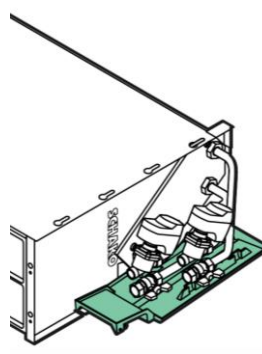
CONDENSATE DRAIN

ADDITIONAL VALVE CONDENSATE PAN

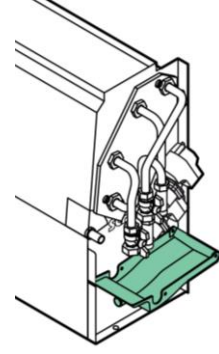
The additional condensate pan is made of plastic and is suitable for the horizontal and the vertical version. The condensate pan collects the possible condensate produced in the valve kit and removes the formed condensate water from the cooling register. The valve condensate pan is installed on the side of the hydraulic connection.

- K0** = without valve condensate pan (standard)
- KH** = with valve condensate pan on the side of the hydraulic connection

Horizontal mounting

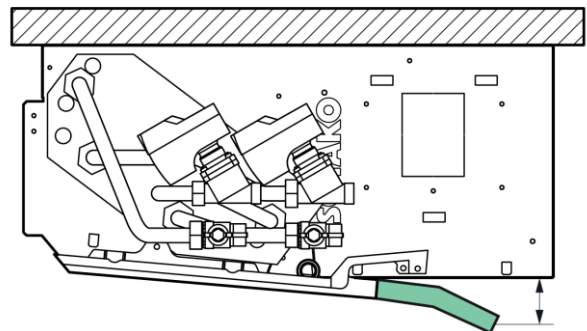


Vertical mounting



ATTENTION

The condensate water should be drained below the lowest level of the fan convector. The valve condensate pan must not be used by third-party systems.



Connection diameter 16 mm (inside)

NOTE

If the valve kit is installed without an additional condensate pan, the connection pipes and valves must be thermally insulated.

CONDENSATE PUMP

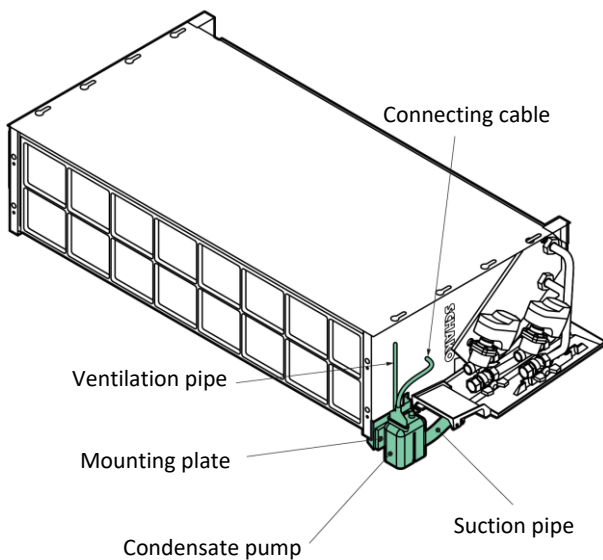
The installation of a condensate pump allows the condensate water produced to be drained when the level of the wastewater duct is higher than the level of the condensate water drain. The condensate pump is fastened to the housing by means of a vibration-reducing rubber plate.

The condensate pump is equipped with a potential-free fault message contact NC with a max. switching power of 8 A/250 V resistive load.

ATTENTION

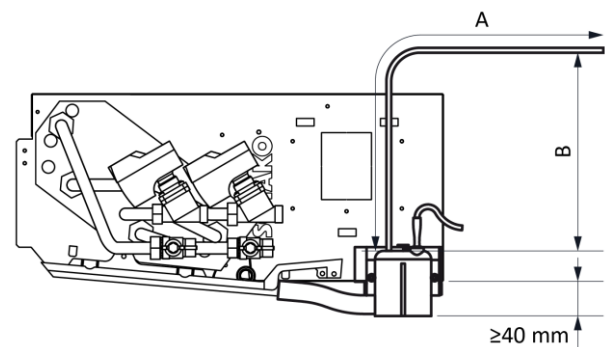
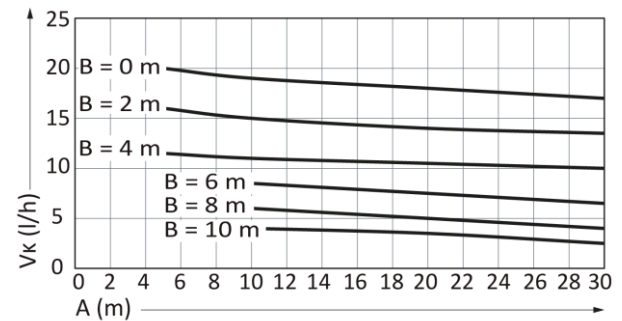
To avoid any risk of condensate overflow, it is mandatory to connect the contact for safety function.

- 0 = without condensate pump (standard)
- 1 = with condensate pump Si-10, mounted ex works



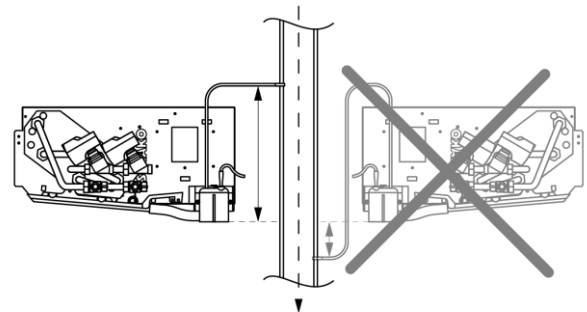
Model	Si-10
Maximum volumetric flow	20 l/h
Maximum delivery height	10 m
Maximum pressure	14 m
Sound level at 1 m	≤ 28 dB(A)
Power supply	230 V AC - 50/60 Hz - 14 W
Float switch	ON: 18 mm OFF: 12 mm ALARM: 21 mm
Safety contact	NC 8 A resistive load 250 V
Thermal protection	115 °C (automatic restart)
Operating cycle	100% continuous
Protection	IP54
Dimensions	43.5 x 66 x 77 mm

Functional diagrams



ATTENTION

The drain must be located above the level of the condensate outlet.



ATTENTION

If the condensate pump is not used for a longer period, it is recommended to seal the drain of the pan to prevent the penetration of dirt.

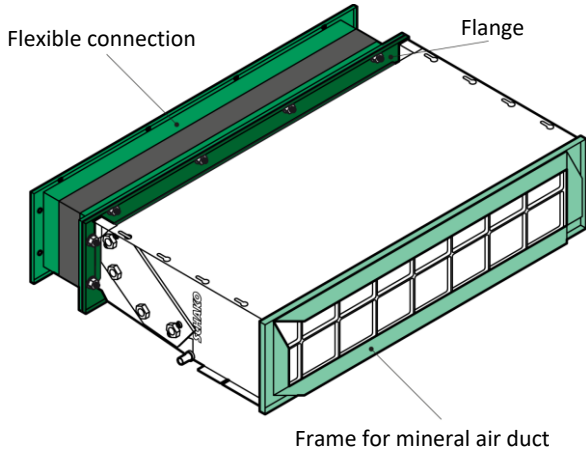
ATTENTION

Before commissioning, check the correct functioning and drainage of the condensate water by slowly pouring in approx. 0.5 l of water.

DUCT CONNECTION

NOTE

All connection parts except for the flange are supplied loose for installation on site.



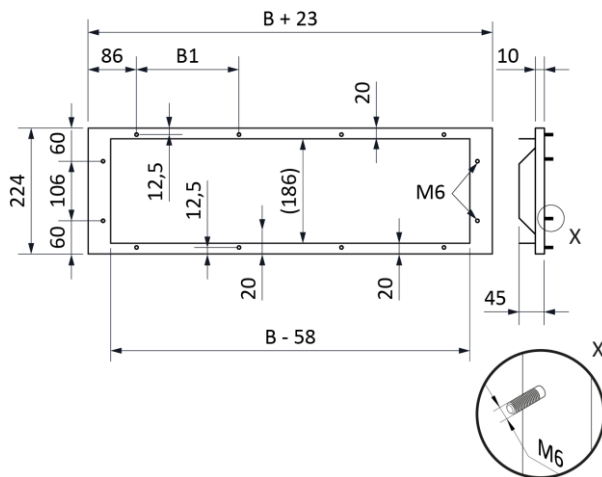
FRAME FOR MINERAL/GLASS WOOL AIR DUCT

This frame facilitates installation and filter removal in systems with ventilation ducts made of mineral wool or glass fibre.

Z = for supply air
 A = for return air

NOTE

The frame for mineral air duct for supply air is only required for installation of the flexible connection in supply air.



Size	B (mm)	B1 (mm)	Inserts (pc)	Weight (kg)
1	697	548	8	1.48
2	912	382	10	1.86
3	1247	549	10	2.45
4	1352	401	12	2.64
5	1597	483	12	3.07

B = Device width (see page 5)

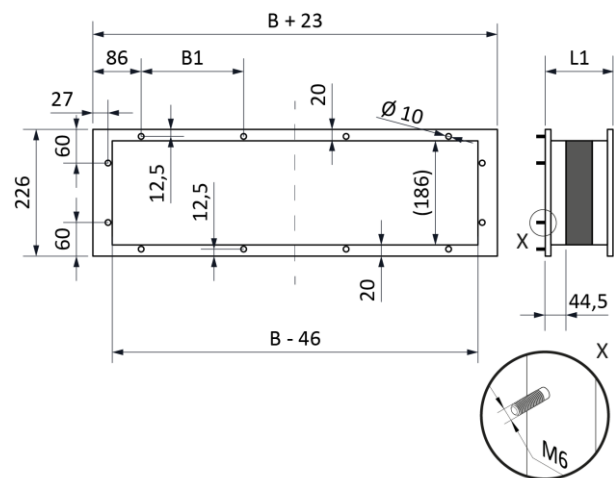
FLEXIBLE CONNECTION

Accessories to prevent transmission of vibrations between the device and air ducts or acoustic boxes. Available in lengths of 150 mm and 290 mm.

NOTE

To attach the flexible connection for supply air, the fan convector requires a flange.

Z1 = 150 mm for supply air
 Z2 = 290 mm for supply air
 A1 = 150 mm for return air
 A2 = 290 mm for return air



Size	B (mm)	B1 (mm)	L1 (mm)	Inserts (pc)	Weight (kg)
1	697	548	150/290	8	1.90
2	912	382		10	2.38
3	1247	549		10	3.13
4	1352	401		12	3.36
5	1597	483		12	3.91

B = Device width (see page 5)

ATTENTION

In case of operating conditions with increased humidity and air temperatures below the dew point, connection fittings and flexible connections on the supply air side must be insulated from the outside after installation on site.

EXAMPLES OF CONNECTIONS TO DUCTS

	without flexible connection	with flexible connection
Mineral/glass wool air duct	<p>Frame for mineral/glass wool air duct</p>	<p>Frame for mineral/glass wool air duct</p> <p>Flange</p> <p>Flexible connection</p>
Plenum box	<p>Flange</p>	<p>Flange</p> <p>Flexible connection</p>
Supply air via mineral/glass wool air duct, free intake		<p>Frame for mineral/glass wool air duct</p> <p>Flange</p> <p>Flexible connection</p>
Supply air via plenum box, free intake	<p>Flange</p>	<p>Flange</p> <p>Flexible connection</p>
Supply air via plenum box, extraction via mineral air duct	<p>Frame for mineral/glass wool air duct</p> <p>Flange</p>	<p>Frame for mineral/glass wool air duct</p> <p>Flange</p> <p>Flexible connection</p>

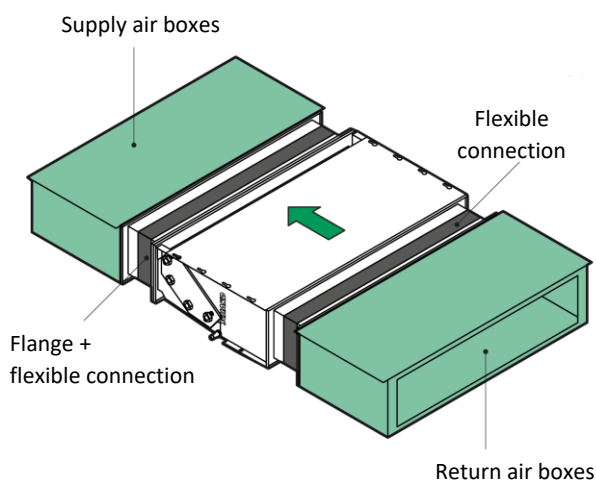
SUPPLY AIR AND RETURN AIR BOXES

NOTE

Plenum boxes are ordered and supplied separately.

The plenum boxes are made of galvanised sheet steel and can be ordered with several connection versions and lengths from 200 mm to 1100 mm.

The flange should be selected for the connection between the device and the supply air box. To avoid structure-borne sound transmission, the installation of flexible connections is recommended.



- Z** = Supply air box (only with flange or flexible connection, not compatible with frame for mineral/glass wool air duct) (standard)
- A** = Return air box (not compatible with frame for mineral/glass wool air duct)

INSULATIONS

The boxes have several heat and sound level options.

- I0** = without insulation (standard)
- I1** = Thermal insulation made of flexible elastomer foam of 10 mm in thickness, particularly suitable for avoiding condensate formation in the supply air box (cooling)
- I2** = Thermoacoustic insulation made of mineral wool of 20 mm in thickness (90 kg/m³), particularly suitable for reducing sound pressure and avoiding condensate formation
- I4** = Thermoacoustic insulation made of mineral wool of 40 mm in thickness (55 kg/m³), particularly suitable for reducing sound pressure at frequencies below 100 Hz and avoiding condensate formation

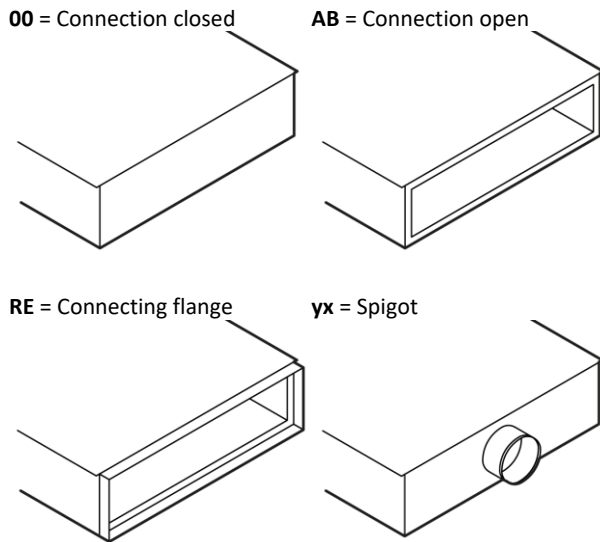
Insulation made of mineral wool with glass fleece coating. Euroclass certification A1, VDI 6022 and Eurofins Gold.

Attenuation per metre (dB/m)

Insulation	f (Hz)							
	63	125	250	500	1000	2000	4000	8000
Size 1								
I1	1.4	1.1	1.3	2.5	14.2	12.7	8.9	6.9
I2	1.6	1.6	2.3	5.1	14.2	12.7	8.9	6.9
I4	2.0	2.4	4.5	10.5	14.2	12.7	8.9	6.9
Size 2								
I1	1.4	1.1	1.3	2.4	13.6	12.2	8.6	6.8
I2	1.6	1.5	2.2	4.9	13.6	12.2	8.6	6.8
I4	1.9	2.3	4.3	10.2	13.6	12.2	8.6	6.8
Size 3								
I1	1.4	1.1	1.2	2.4	13.1	11.6	8.4	6.7
I2	1.6	1.5	2.2	4.8	13.1	11.6	8.4	6.7
I4	1.9	2.2	4.2	9.9	13.1	11.6	8.4	6.7
Size 4								
I1	1.4	1.1	1.2	2.4	13.0	11.5	8.4	6.7
I2	1.6	1.4	2.2	4.8	13.0	11.5	8.4	6.7
I4	1.9	2.1	4.1	9.9	13.0	11.5	8.4	6.7
Size 5								
I1	1.4	1.1	1.2	2.3	12.8	11.3	8.3	6.7
I2	1.6	1.4	2.1	4.7	12.8	11.3	8.3	6.7
I4	1.8	2.1	4.1	9.8	12.8	11.3	8.3	6.7

CONNECTION TYPE

Several connection options can be selected in flow direction. Air spigots of different diameters can be selected on the sides.



The box is ordered with height 226 mm or 280 mm depending on the selected spigot diameter and insulation.

Insulation	Spigot diameter		
	DN123	DN158	DN198
0 mm	226 mm		
10 mm			
20 mm			
40 mm			280 mm

DIMENSIONS AND WEIGHTS

Size	Weight (kg)
10	2.1 kg + 15.6 kg/m
20	2.6 kg + 19.0 kg/m
30	3.4 kg + 24.3 kg/m
40	3.7 kg + 25.9 kg/m
50	4.3 kg + 29.7 kg/m

Max. number of spigots

Size	Max. number of spigots in air flow direction		
	DN123	DN158	DN198
1	3	3	2
2	5	4	3
3	7	6	4
4	8	6	5
5	9	7	6

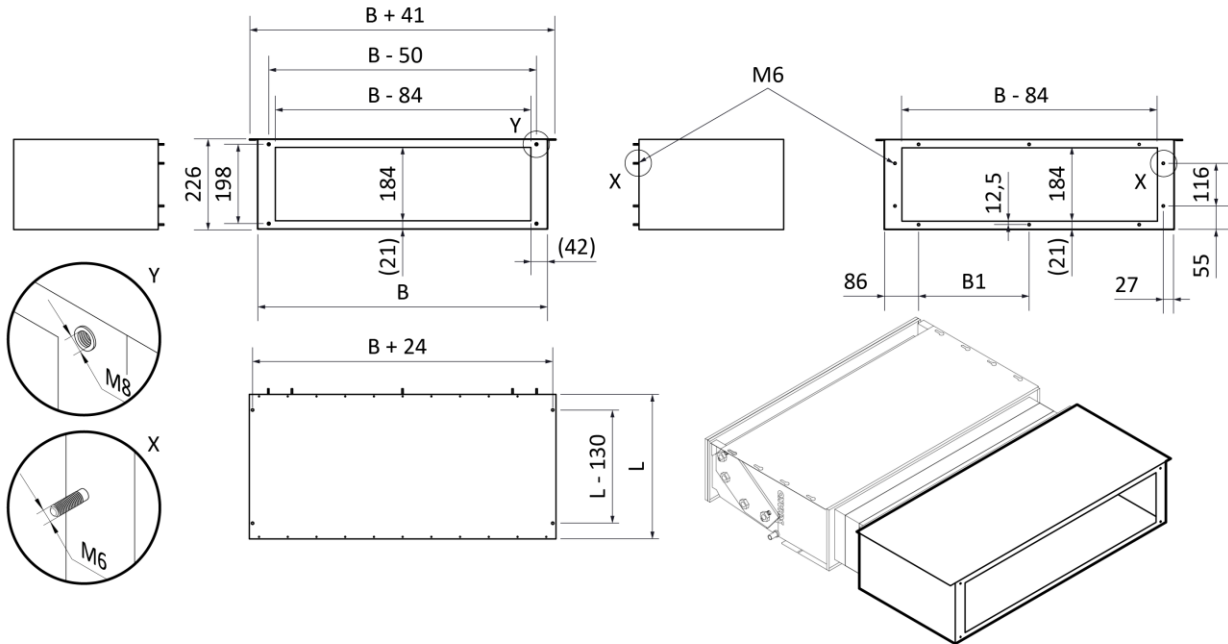
Length of box	Max. number of spigots right/left		
	DN123	DN158	DN198
200	-	-	-
300	1	1	-
400	1	1	1
500	2	2	1
600	3	2	2
700	3	3	2
800	4	3	3
900	5	4	3
1000	5	4	3
1100	6	5	4

NOTE

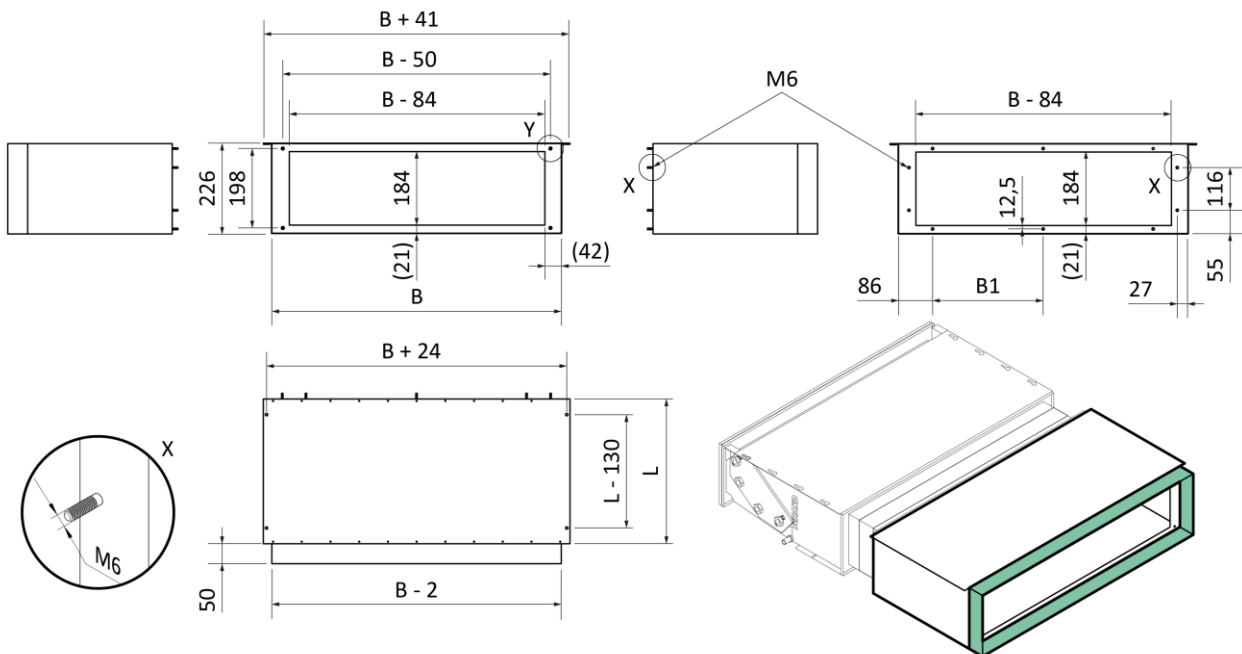
SCHAKO recommends not to exceed a flow rate of 2.5 m/s in the spigot. Higher values can lead to increased sound levels and pressure loss.

Size	B (mm)	B1 (mm)	Number of threaded inserts X
1	720	548	8
2	935	382	10
3	1270	549	10
4	1375	401	12
5	1620	483	12

Open plenum box

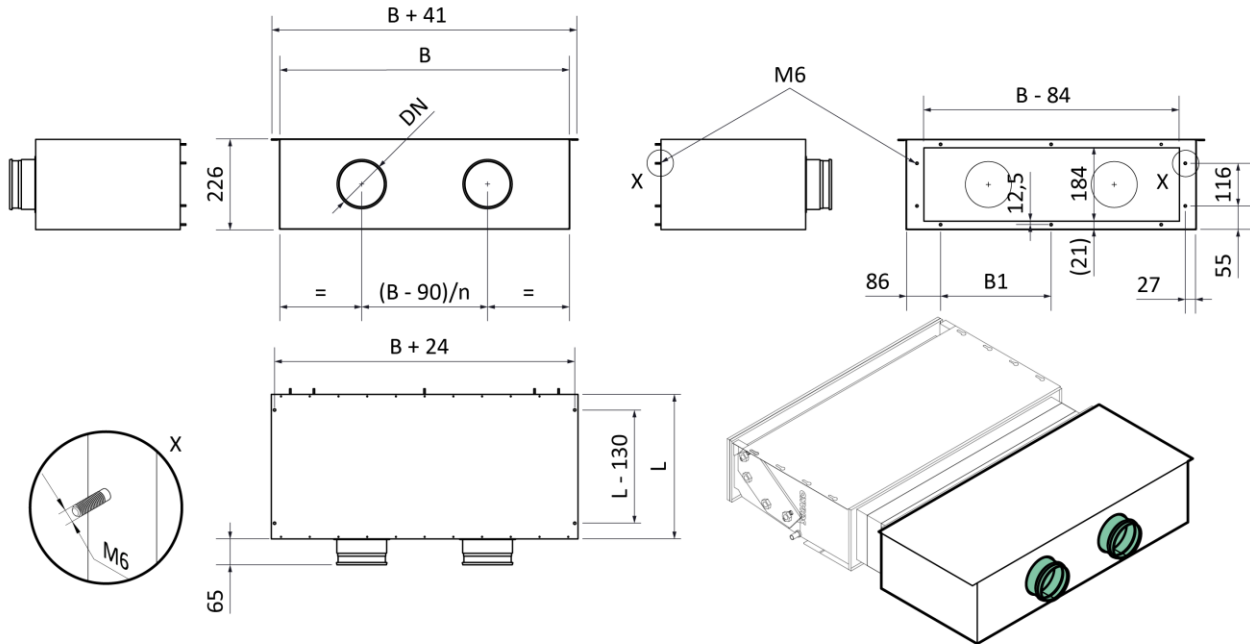


Connecting flange

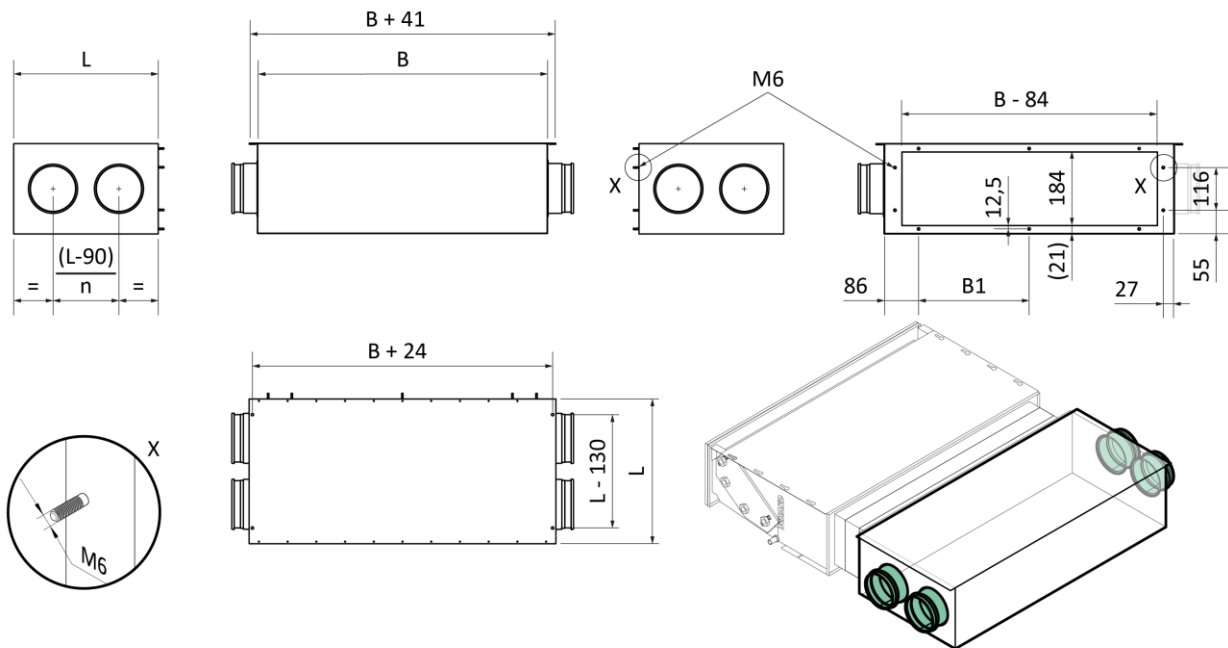


Size	B (mm)	B1 (mm)	Number of threaded inserts X
1	720	548	8
2	935	382	10
3	1270	549	10
4	1375	401	12
5	1620	483	12

Connection with spigot in air flow direction



Connection with spigot right/left

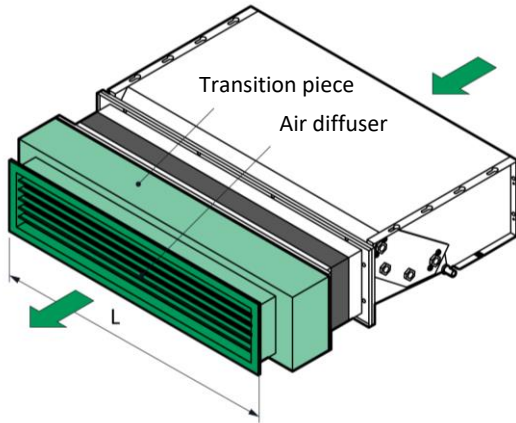


TRANSITION PIECE FOR AIR DIFFUSER

NOTE

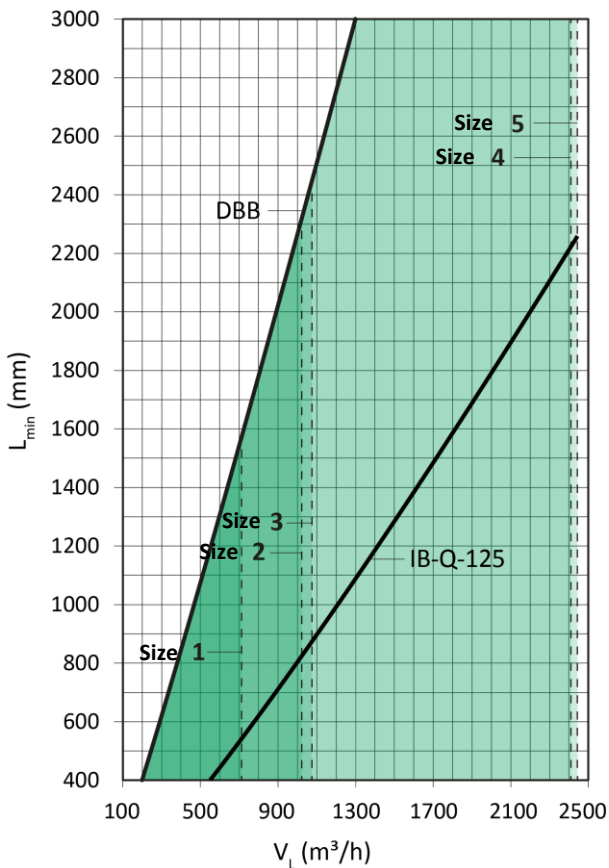
Transition piece and air diffuser are ordered and supplied separately.

The transition piece allows the installation of a supply air diffuser on the Aquaris Silent, this complete and compact solution is suitable for installation in a wide range of applications.



NOTE

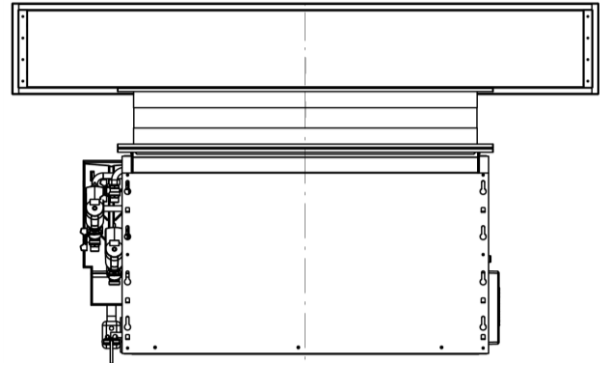
The diagram shows the minimum length (L) at which the air diffuser does not generate the sound level above 35 dB(A).



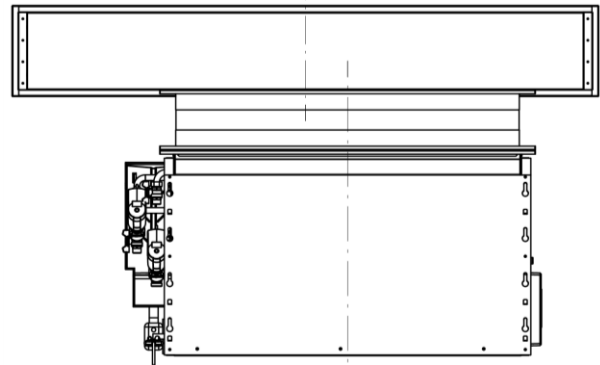
FAN CONVECTOR POSITION

The fan convector can be installed in different positions at the transition piece.

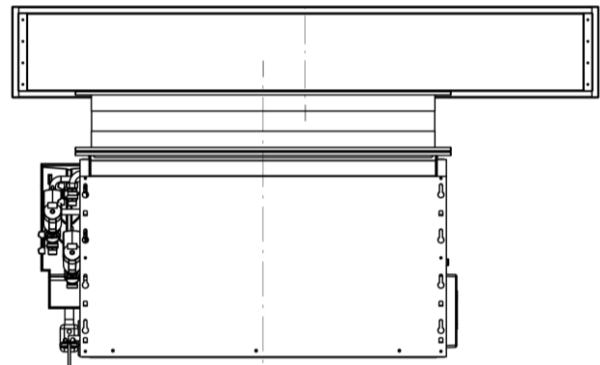
M = fan convector centred (standard)



R = fan convector offset to the right



L = fan convector offset to the left



INSULATION

The transition piece can be insulated on the inside with 10 mm flexible elastomer foam.

I0 = without insulation (standard)

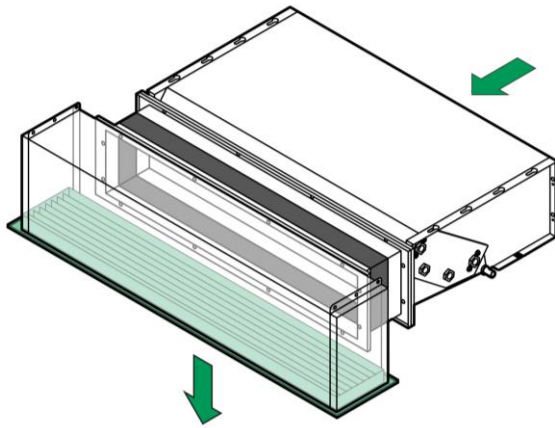
I1 = thermal insulation of 10 mm

AIR FLOW DIRECTION

The air flow direction passing through the transition piece to the air diffuser is straight as standard. The secondary air intake is also straight as standard.

1 = intake straight (standard)

Special designs upon request



AIR DIFFUSER

The transition piece can be selected with the ceiling air diffuser DBB made of sheet steel with individually adjustable regulating blades made of plastic material or with the air grille IB-Q with individually adjustable blades made of sheet steel. Other diffusers are possible upon special order.

D1 = with ceiling air diffuser DBB

R1 = with ventilation grille IB-Q

The diffusers are available in several colours. The standard colour is white RAL 9010 and the plastic parts are like RAL 9010. Further colours are available upon request.

22 = white like RAL 9010 (standard)

xy = colour of air diffuser xy according to table

x y	Colour	Plate DBB	Blades DBB	Grille IB-Q ¹⁾
0	unpainted	-	✓	-
1	black RAL 9005	■	✓	*
2	white RAL 9010	■	✓	*
3	white RAL 9016	■	✓	-
4	grey RAL 9006	■	✓	-

✓ = available | - = not available

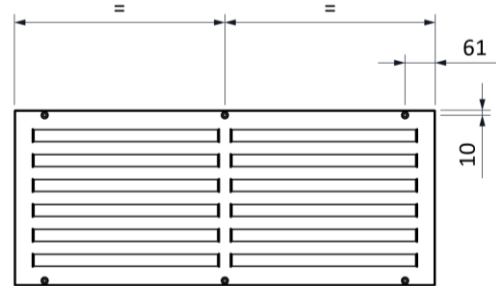
* The colour of plastic materials is like the specified RAL colour.

1) The grilles x and y have the same colour.

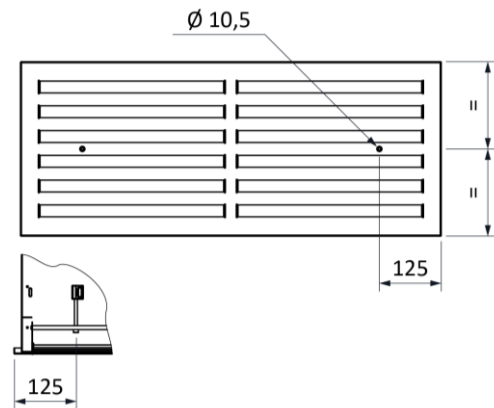
MOUNTING

The air diffusers can be fastened to the transition piece by means of visible or concealed mounting.

SM = visible mounting (standard)

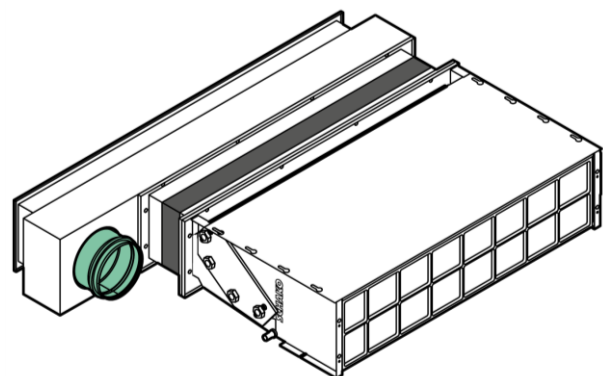


VM = concealed mounting



PRIMARY AIR

Integrated primary air spigots in the transition piece can be ordered optionally. The module for primary air then has a separation of primary and secondary air. In this way, the air jet remains stable even without fan convector operation.



DEVICE CASING

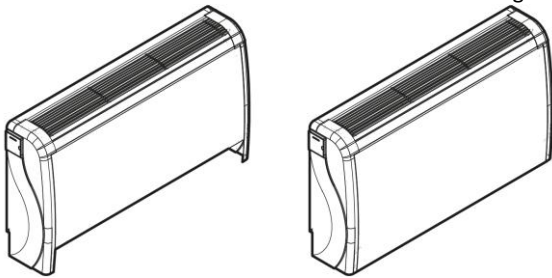
NOTE

The device casing is ordered and supplied separately.

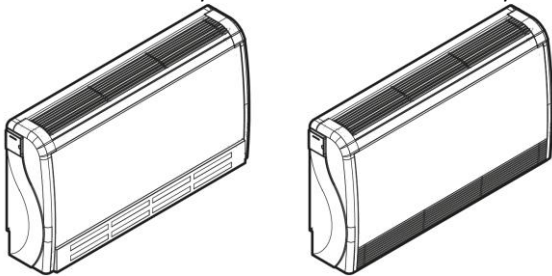
For installation in open space, SCHAKO offers an elegant device casing consisting of plastic material side walls, galvanized steel sheet and aluminum parts. Thanks to the decorative design of the casing, it fits perfectly with the various room furnishings.

The series is available in different versions for all sizes and colours:

R0 = with secondary air open **R1** = with secondary air closed without grille



R2 = with secondary air DBB **R3** = with secondary air PA



Colour	
1	Black colour like RAL 9005
2	White colour like RAL 9010
3	White colour like RAL 9016
4	Grey colour like RAL 9006

RESTRICTIONS OF THE CASING

With horizontal casing design and additional condensate pan, type DBB with grille must be ordered. A condensate pump must be obligatorily installed for this.

The device casing is not compatible with horizontal floor mounting (-B).

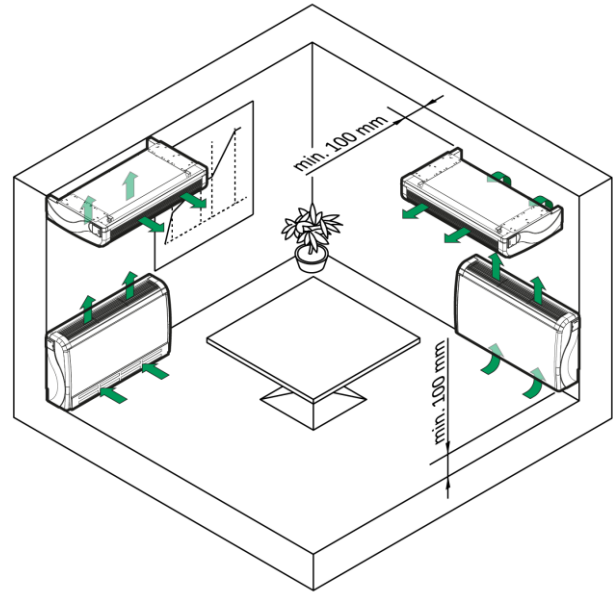
For horizontal casing with secondary air open, with PA grille or with secondary air closed, a condensate pump can be mounted but no additional condensate pan can be installed. With these models, the circuit elements for cooling must always be thermally insulated.

GV-AQS-1-H-R0-2-M1

Construction subject to change.

No return possible.

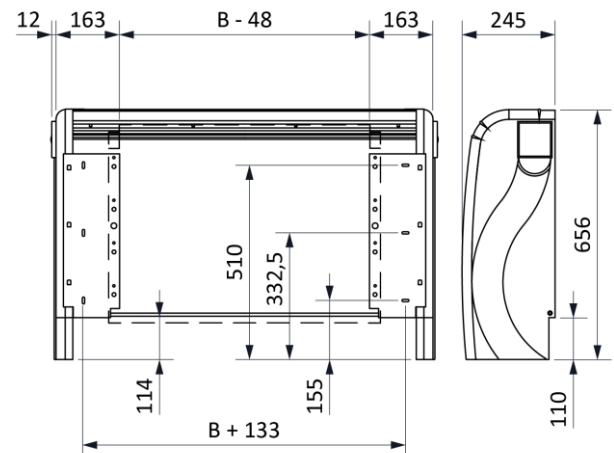
ASSEMBLY EXAMPLE



NOTE

The device casing can be ordered with or without mounting kit. The mounting kit is always required for new orders. The option without mounting kit is only available for the replacement orders.

DIMENSIONS



Size	B (mm)	Weight* (kg)
1	697	10.3
2	912	11.7
3	1247	14.0
4	1352	14.7
5	1597	16.3

*The weight includes the device casing -GV, fastening elements and screws

B = Device width (see page 5)

ACCESSORIES SUPPLIED LOOSE

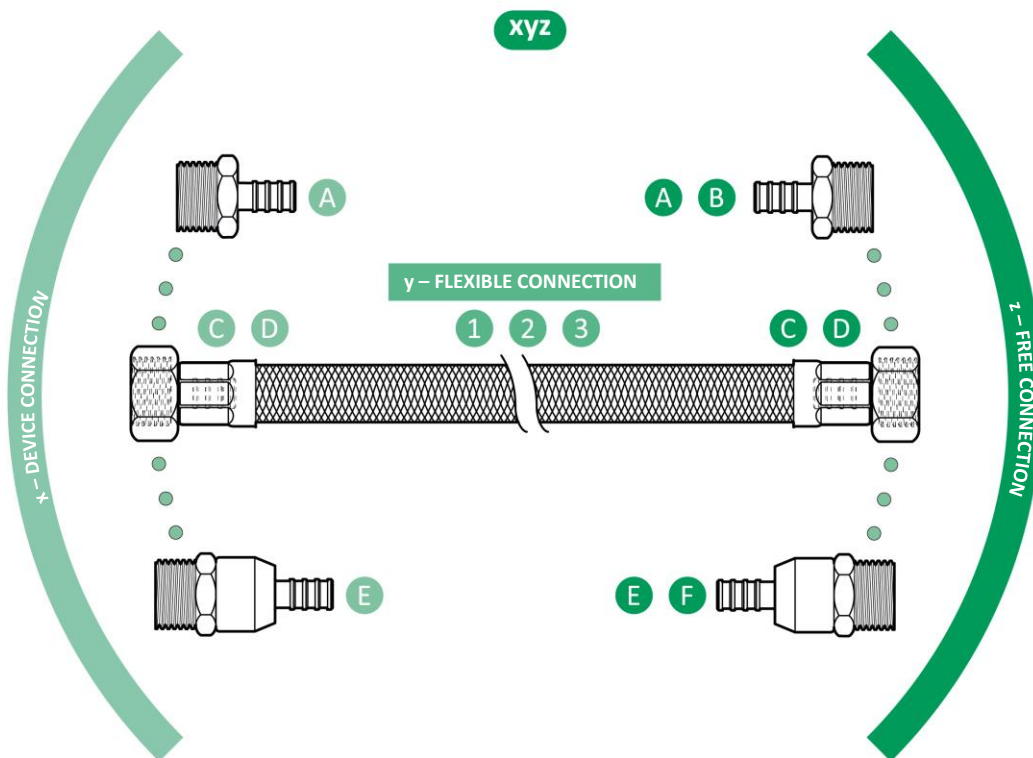
NOTE

All accessories are supplied loose for mounting on site outside the Aquaris Silent.

FLEXIBLE HYDRAULIC CONNECTION

The flexible hydraulic connection allows the connection to the hydraulic network and reduces the transmission of noise and kinetic energy from the network.

Hxyz = with device connection (x), flexible connection (y) and free connection to the hydraulic network (z) (for x, y, z, see diagram)



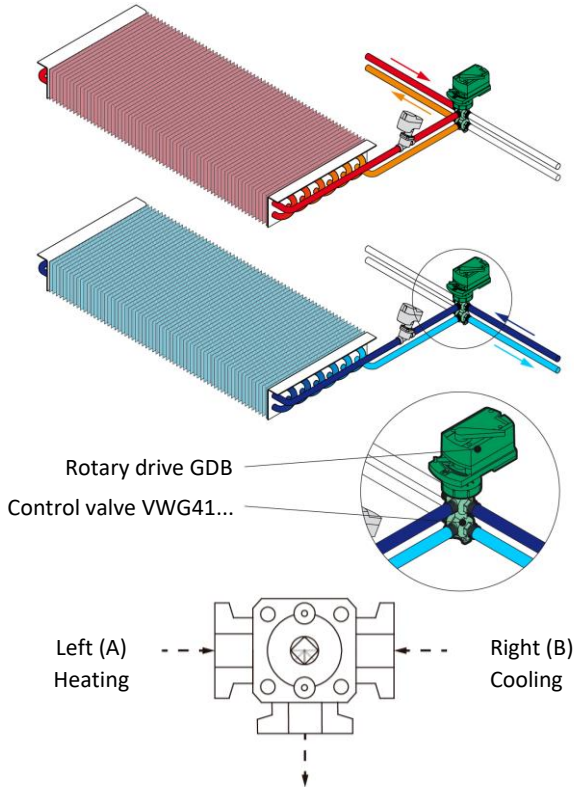
x, z	Connection	Type	Connection	
			(mm)	(Inch)
A	AG	External thread	-	AG 1/2
B	AG	External thread	-	AG 3/4
C	ÜMF	Flat seal spigot nut	-	IG 1/2
D	ÜMF	Flat seal spigot nut	-	IG 3/4
E	R-AG-D	Rotating male thread	-	AG 1/2
F	R-AG-D	Rotating male thread	-	AG 3/4

y	Flexible connection	Length (mm)	NW (mm)
1	EDE-13	500	13
2	EDE-13	800	13
3	EDE-13	1200	13

Flexible connection according to DIN 4726

6-WAY BALL VALVE AND ROTARY DRIVE

The 6-way control valves with drive enable the use of devices with a single register in 4-pipe systems. The 6-way control valves are always supplied loose for mounting on site.



- 1 The water volumetric flow [m³/h] can be found in the technical data or design program for heating and cooling.
- 2 Determination of the differential pressure Δp_{v100} above the completely opened valve. Experience shows that a differential pressure of 0.05 to 0.2 bar is sufficient in most systems.
- 3 Calculation of the volumetric flow k_v [m³/h]

$$k_v = \frac{V_w}{\sqrt{\Delta p_{v100}}}$$

- 4 Select the valve y and the drive according to the following tables.

Legend of the table

✓ = Nominal value of volumetric flow possible | - = Nominal value of volumetric flow not possible | * = Volumetric flow is limited. For DN15 = 1.6 m³/h, for DN20 = 3.45 m³/h, for DN25 = 4.0 m³/h | DN = Nominal width | k_{vs} = Nominal value of volumetric flow of cold water (5-30 °C) through the fully open ball valve at a differential pressure of 100 kPa / 1 bar.

Code	Rotary drive	Type	Actuator signal
AR01	GDB341.9E	AC 100-240 V ~	2-point switchover
AR02	GDB161.9E	AC 24 V ~ DC 24-48 V =	2-10 V; regulation
AR03	GDB111.9E	AC 24 V	KNX-TP; regulation

Code	Control valve	DN	k_{vs} A (m ³ /h)	k_{vs} B (m ³ /h)	Adapter DN		
					15	20	25
V601	VWG41.10-0.25-0.40	10	0.25	0.40	✓	-	-
V602	VWG41.10-0.25-0.65	10	0.25	0.65	✓	-	-
V603	VWG41.10-0.25-1.00	10	0.25	1.00	✓	-	-
V604	VWG41.10-0.40-0.65	10	0.40	0.65	✓	-	-
V605	VWG41.10-0.40-1.00	10	0.40	1.00	✓	-	-
V606	VWG41.10-0.40-1.30	10	0.40	1.30	✓	-	-
V607	VWG41.10-0.40-1.60	10	0.40	1.60	✓	-	-
V608	VWG41.10-0.65-1.00	10	0.65	1.00	✓	-	-
V609	VWG41.10-0.65-1.30	10	0.65	1.30	✓	-	-
V610	VWG41.10-0.65-1.60	10	0.65	1.60	✓	-	-
V611	VWG41.10-1.00-1.30	10	1.00	1.30	✓	-	-
V612	VWG41.10-1.00-1.60	10	1.00	1.60	✓	-	-
V613	VWG41.10-1.00-1.90	10	1.00	1.90	✓	-	-
V614	VWG41.10-1.30-1.60	10	1.30	1.60	✓	-	-
V615	VWG41.10-1.30-1.90	10	1.30	1.90	✓	-	-
V616	VWG41.10-1.60-1.90	10	1.60	1.90	✓	-	-
V617	VWG41.10-1.90-1.90	10	1.90	1.90	✓	-	-
V618	VWG41.10-0.25-1.30	10	0.25	1.30	✓	-	-
V619	VWG41.10-0.25-1.60	10	0.25	1.60	✓	-	-
V620	VWG41.10-0.25-1.90	10	0.25	1.90	✓	-	-
V621	VWG41.10-0.40-0.40	10	0.40	0.40	✓	-	-
V622	VWG41.10-0.40-1.90	10	0.40	1.90	✓	-	-
V623	VWG41.10-0.65-0.65	10	0.65	0.65	✓	-	-
V624	VWG41.10-0.65-1.90	10	0.65	1.90	✓	-	-
V625	VWG41.10-1.00-1.00	10	1.00	1.00	✓	-	-
V626	VWG41.10-1.30-1.30	10	1.30	1.30	✓	-	-
V627	VWG41.10-1.60-1.60	10	1.60	1.60	✓	-	-
V628	VWG41.20-0.65-2.50	20	0.65	2.50	*	✓	✓
V629	VWG41.20-1.00-2.50	20	1.00	2.50	*	✓	✓
V630	VWG41.20-1.60-2.50	20	1.60	2.50	*	✓	✓
V631	VWG41.20-1.60-3.45	20	1.60	3.45	*	✓	✓
V632	VWG41.20-2.50-3.45	20	2.50	3.45	*	✓	✓
V633	VWG41.20-2.50-4.25	20	2.50	4.25	*	*	*
V634	VWG41.20-4.25-4.25	20	4.25	4.25	*	*	*
V635	VWG41.20-0.25-2.50	20	0.25	2.50	*	✓	✓
V636	VWG41.20-0.25-3.45	20	0.25	3.45	*	✓	✓
V637	VWG41.20-0.25-4.25	20	0.25	4.25	*	*	*
V638	VWG41.20-0.40-2.50	20	0.40	2.50	*	✓	✓
V639	VWG41.20-0.40-3.45	20	0.40	3.45	*	✓	✓
V640	VWG41.20-0.40-4.25	20	0.40	4.25	*	*	*
V641	VWG41.20-0.65-3.45	20	0.65	3.45	*	✓	✓
V642	VWG41.20-0.65-4.25	20	0.65	4.25	*	*	*
V643	VWG41.20-1.00-3.45	20	1.00	3.45	*	✓	✓
V644	VWG41.20-1.00-4.25	20	1.00	4.25	*	*	*
V645	VWG41.20-1.30-2.50	20	1.30	2.50	*	✓	✓
V646	VWG41.20-1.30-3.45	20	1.30	3.45	*	✓	✓
V647	VWG41.20-1.30-4.25	20	1.30	4.25	*	*	*
V648	VWG41.20-1.60-4.25	20	1.60	4.25	*	*	*
V649	VWG41.20-2.50-2.50	20	2.50	2.50	*	✓	✓
V650	VWG41.20-3.45-3.45	20	3.45	3.45	*	✓	✓

ROOM THERMOSTAT

A room thermostat can be used both to actuate the actuators and to control the fans.

Code	Model	Operating voltage	Control outputs				Fan DC 0-10 V
			ON/OFF	PWM	3-point	DC 0-10 V	
TR05	RDG160T	AC/DC 24 V	2	-	-	2	✓
TK02	RDG160KN	AC 24 V	2	-	-	2	✓
TK04	RDG260KN	AC/DC 24 V	2	-	-	3	✓

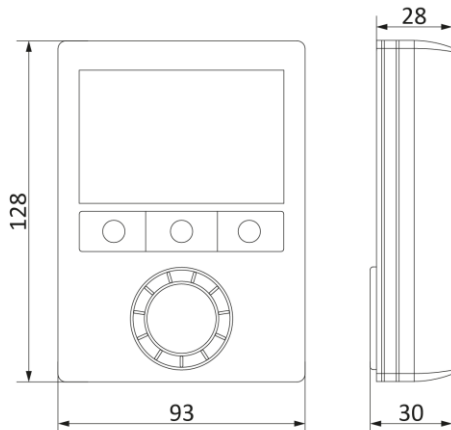
2 control outputs in total, On/Off (relay output) or DC

ATTENTION

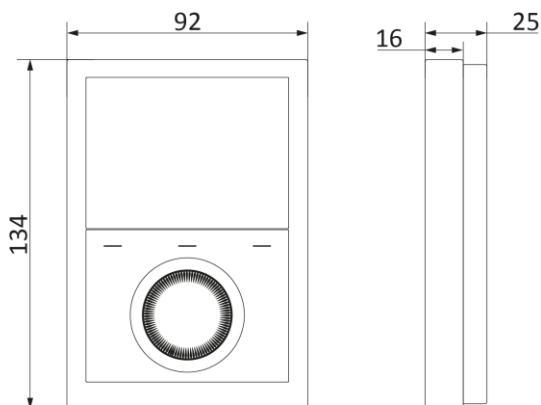
When operating the fan convectors in parallel, the load limits of the control and power consumption of the fan convectors must be considered.

Dimensions

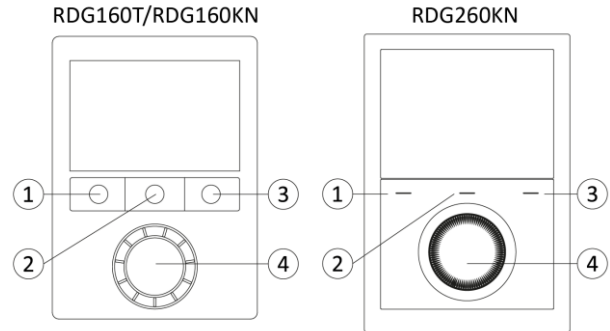
RDG160KN/RDG160T



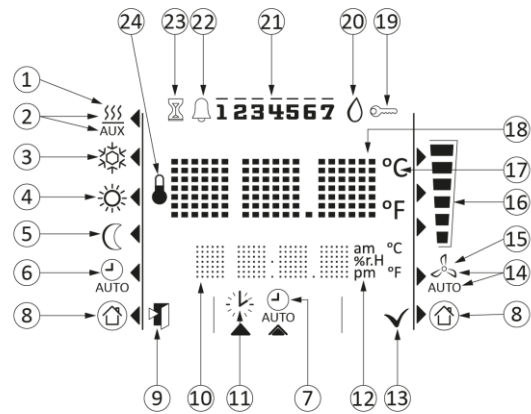
RDG260KN



Operation



- 1 = Operating mode selection button/back to normal operation
- 2 = Button to set time and switching times of the timer
- 3 = Fan operation selection button/OK
- 4 = Rotary knob to set nominal values and parameters



- 1 = Heating mode
- 2 = Heating mode additional heating on (level 2)
- 3 = Cooling mode
- 4 = Comfort mode
- 5 = Economy mode
- 6 = Automatic timer mode
- 7 = Display and setting the automatic timer program
- 8 = Protection mode
- 9 = Back to normal operation
- 10 = Display of time, room temperature, setpoint value, etc.
- 11 = Setting the time and the day of the week
- 12 = Morning/afternoon 12-hour format
- 13 = Applying parameters
- 14 = Fan automatic
- 15 = Fan manual
- 16 = Fan speed
- 17 = Degrees Celsius/degrees Fahrenheit
- 18 = Display of room temperature and setpoint value
- 19 = Keyboard lock
- 20 = Condensation in room (dew point sensor active)
- 21 = Day of the week 1...7: 1 = Monday/7 = Sunday
- 22 = Fault
- 23 = Temporary switch function
- 24 = Room temperature is displayed

INSTALLATION

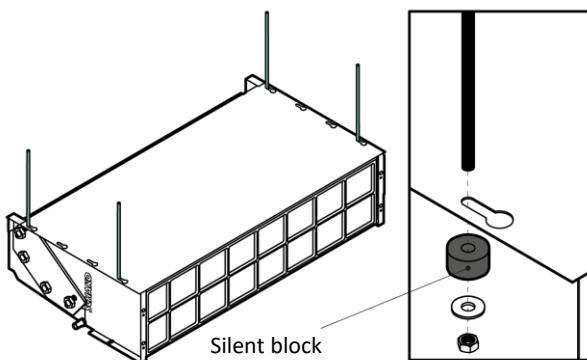
ATTENTION

For maintenance, service, retrofitting, etc., inspection openings in sufficient number and size must be provided on site.

When mounting the fan convector in a false ceiling, the device is fixed at a load-bearing ceiling using threaded bars or other fastening material and decoupling elements approved by the building supervisory authorities.

ATTENTION

Improper installation of the device results in high levels of structure-borne noise. Please install vibration damping elements. Please refer to the manufacturers' data sheets of the installation elements to dimension them according to the weight of the respective unit.

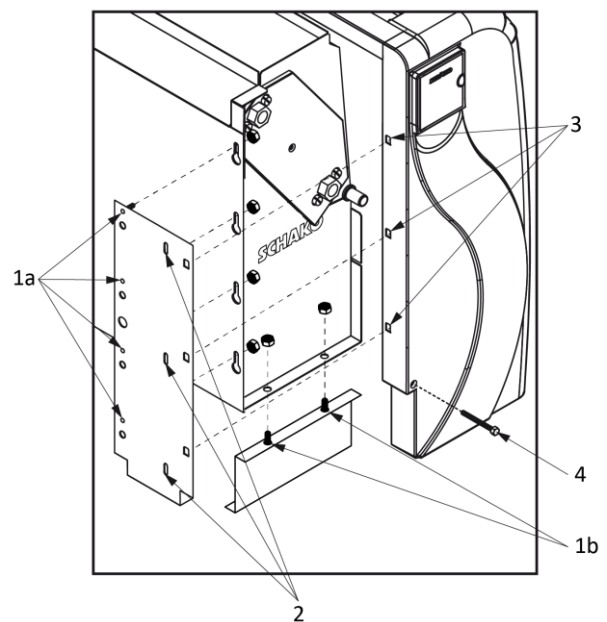
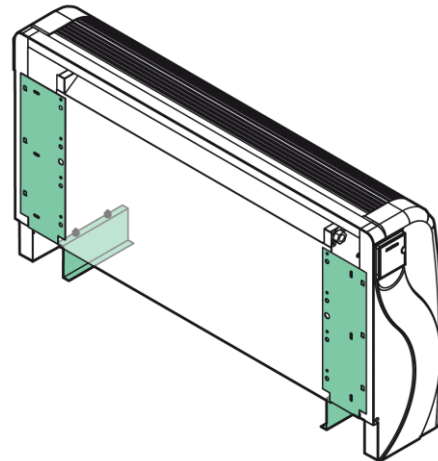


NOTE

The rods, screws or vibration damping devices required for installation are not included in the delivery.

INSTALLATION WITH DEVICE CASING

If the fan convector has a device casing, the latter is fastened to the sheet metal frame of the fan convector by means of the lugs.



- 1 Only if the device is not delivered mounted: screw the mounting plates to the housing (1a) and tighten the nuts (M6) of the mounting base (1b).
- 2 Fasten the Aquaris Silent to the wall/ceiling.
- 3 Position the housing and fasten it by means of the fastening hooks.
- 4 Fasten the housing on both sides of the Aquaris Silent using M6x60 screws.

CIRCUIT DIAGRAMS

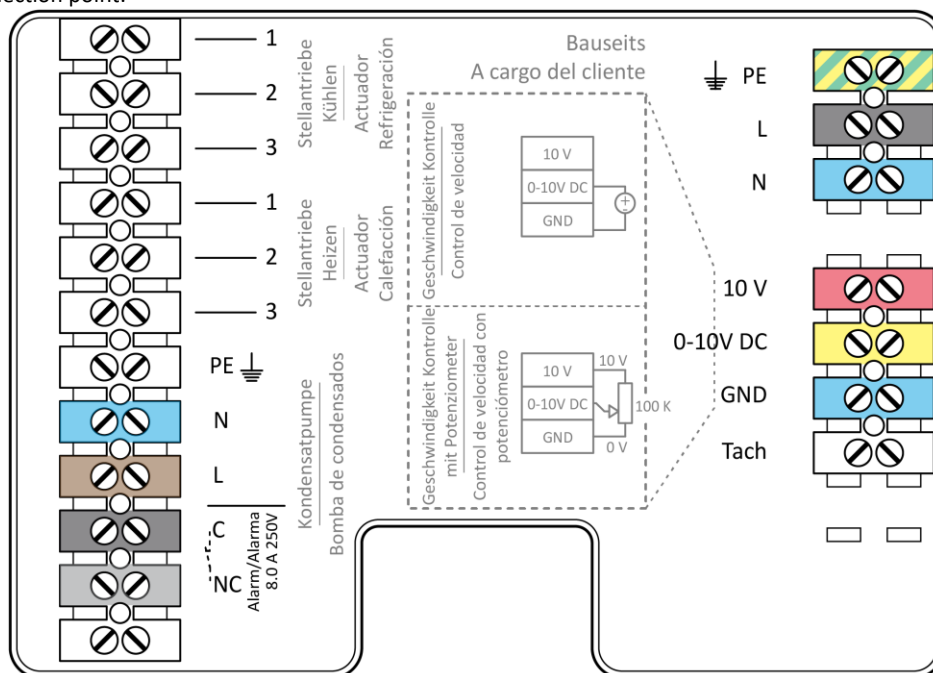
Prior to the electrical installation, you must make sure that the rated mains voltage is 230 V, 50/60 Hz and single-phase.

The delivered motors have insulation of type B and protection class I. The electrical connection must only be made by qualified personnel, observing the current regulations and the low-voltage regulations.

SCHAKO recommends the exclusive use of copper cables since the device connections have not been designed for accommodating other types of cables. If they are used nevertheless, galvanic corrosion or generation of heat could take place at the connection point.

ATTENTION

Connect the fan convector via an earthing cable. Interrupt the power supply, before carrying out any electrical connection work. SCHAKO cannot be held liable for faulty electrical connections or if the power supply cable is replaced with a different cable having different characteristics.



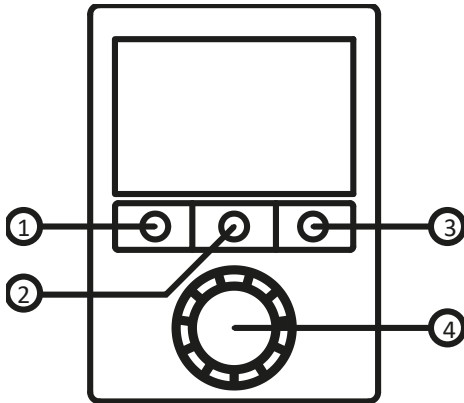
	Cable	Function/assignment	Cable colour
Fan	PE	Protective conductor	green/yellow
	L	Phase (230 V AC)	black
	N	Neutral conductor	blue
	10 V	Voltage output 10 V DC 1.1 mA, galvanically separated, short-circuit-proof	red
	0-10 V DC	Control input 0- 10 V or PWM, galvanically separated	yellow
	GND	GND connection of control interface	blue
	Tach	Speed output: Open Collector, 1 impulse per revolution, galvanically separated $I_{\text{sink, max.}} = 10 \text{ mA}$	white
Actuator	1	Power supply	according to actuator
	2	Neutral conductor	according to actuator
	3	Regulation	according to actuator
Condensate pump	N	Neutral conductor	blue
	L	Power supply	brown
	C	Safety contact NC 8 A resistive load – 250V	black
	NC	Safety contact NC 8 A resistive load – 250V	grey

PROGRAMMING THE RDG160T THERMOSTAT

NOTE

The following are the steps to install and configure the RDG160T thermostat with the Aquaris Silent device. For more information or for different thermostat models, please refer to the specific instructions of the manufacturer.

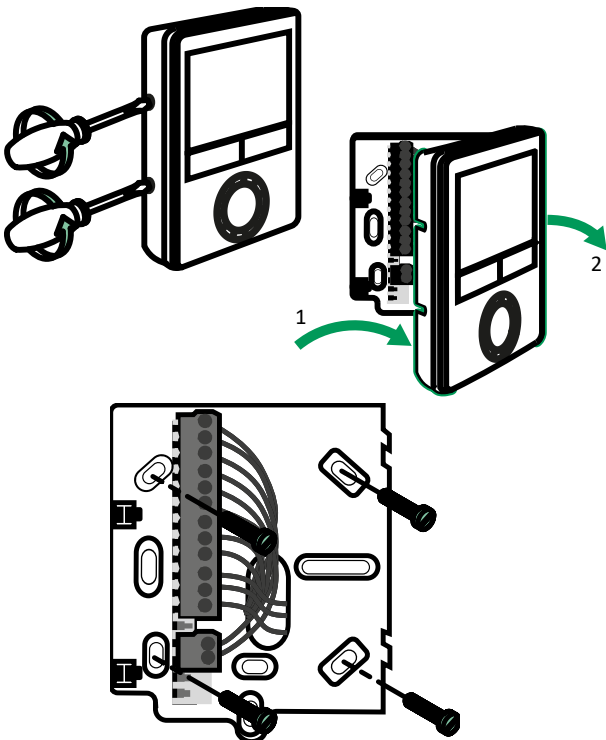
0 Device installation



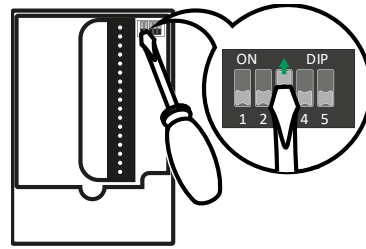
- 1 = Operating mode selection button/back to normal operation
- 2 = Button to set time and switching times of the timer
- 3 = Fan operation selection button/OK
- 4 = Rotary knob to set nominal values and parameters

1 Installation

Remove the housing and install the bottom part at the desired position.



2 DIP switch settings



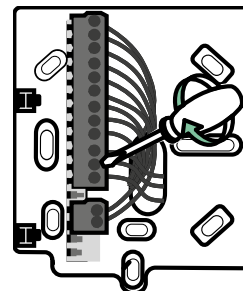
2a Set the function via switches 1-3. OFF by default.

2-pipe system					4-pipe system						
ON						ON					
OFF						OFF					
	1	2	3	4	5		1	2	3	4	5

2b Check whether switch 4 is set to OFF (OFF corresponds to 0-10 V DC fan). OFF by default.

2c Activate or deactivate the time functions with switch 5. OFF (activated) by default.

3 Wiring



Connect the devices according to the circuit diagrams on page 28.

4 Configuration of the parameters

4a To access parameter setting P01-15, press the left and right buttons simultaneously for 4 seconds, release them and press the right button again for 2 seconds. "P01" appears on the display. Select the desired parameter with the rotary knob and press OK.

To access the remaining parameters, press the left and right buttons simultaneously for 4 seconds. Release the left button and press it again for 2 seconds until the temperature display disappears. Turn the rotary knob 1/2 turn counterclockwise.

Select the desired parameter with the rotary knob. Press OK to access the parameter (flashes) and select the desired option with the rotary knob. Press OK to accept or Esc to exit.

4b Set the parameters according to the following table:

NOTE

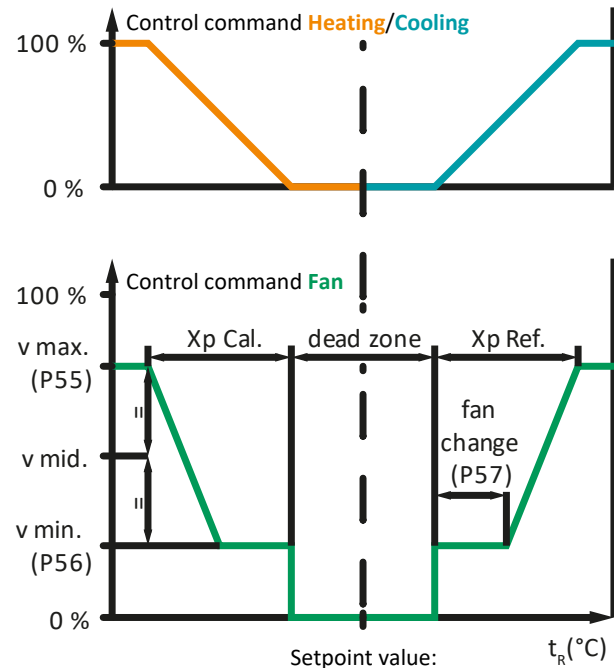
It is not necessary to change the standard value of the X1, X2, D1 (P38-43) parameters if no sensors are connected.

	Applikation	Range
P01	Control sequence (factory setting for 2-pipe: 1, for 4-pipe: 4)	0 = heating only 1 = cooling only 2 = manual switchover H/C 3 = automatic switchover H/C 4 = heating and cooling
P38	Functionality X1 (fact. set. 1)	0 = No function 1 = Room temp. ext/return air temp. 2 = Switchover H/C
P40	Functionality X2 (fact. set. 2)	3 = Operating mode contact 4 = Dew point sensor
P42	Functionality D1 (fact. set. 3)	5 = Enable electrical heating 6 = Fault input 9 = Supply air sensor*
P39	Direction of action of X1 if digital input (fact. set. NO)	NO = Work contact/open NC = Rest contact/closed
P41	Direction of action of X2 if digital input (fact. set. NO)	
P43	Direction of action of D1 if digital input (fact. set. 0 (NO))	
P46	Output 1 (fact. set. 2)	1 = On/Off (terminals Q1) 2 = DC 0-10 V (terminals Y10)
P47	Output 2 (fact. set. 2)	1 = On/Off (terminals Q2) 2 = DC 0-10 V (terminals Y20)
P52	Fan operation (factory setting 1)	0 = locked 1 = enabled 2 = heating only 3 = cooling only
P55	Fan max. power ** (fact. set. 80%)	Fan min....100%
P56	Fan min. power ** (fact. set. 30%)	1 fan max. %
P57	Fan switching point ** (fact. set. 10%)	1-100 %

* Only for X1, X2

** See below

Fan control sequence (example of a 4-pipe installation with proportional actuators):

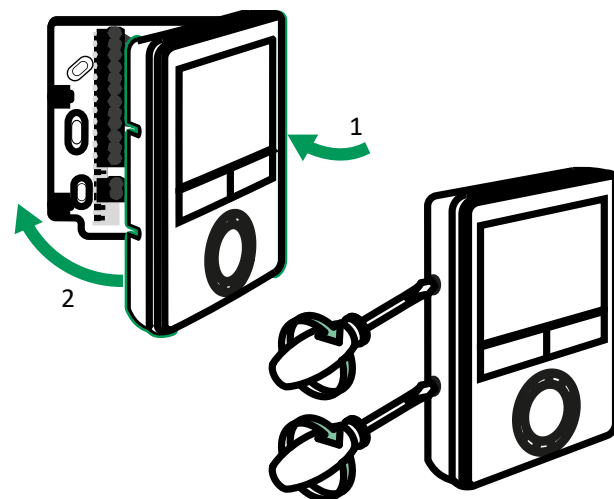


Xp = proportional band (parameters P30 and P31)

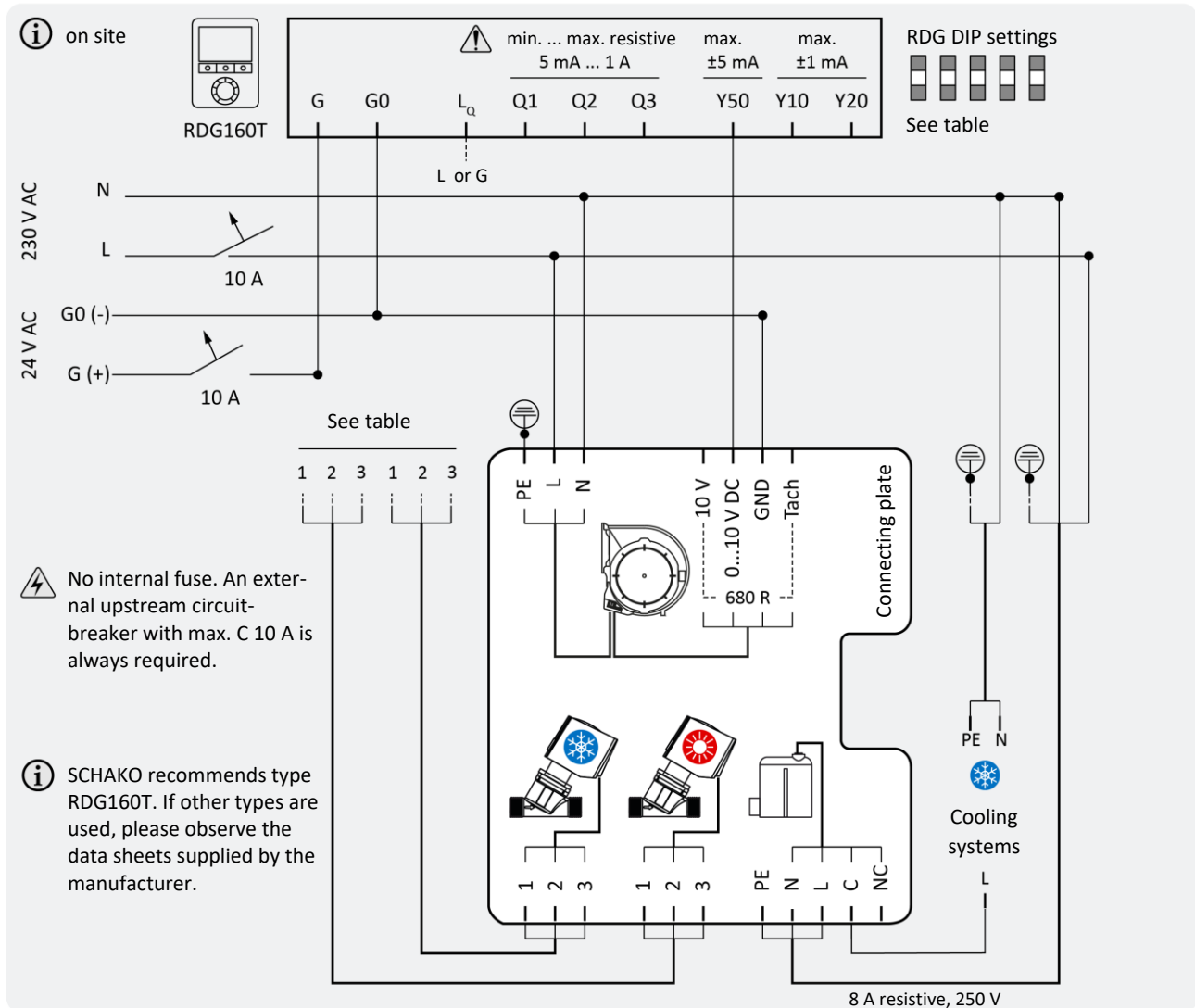
t_R = room temperature

5 Mounting

Reattach the housing.



WIRING DIAGRAM RDG160T



	1	2	3	1	2	3
2-pipe system						
4-pipe system						

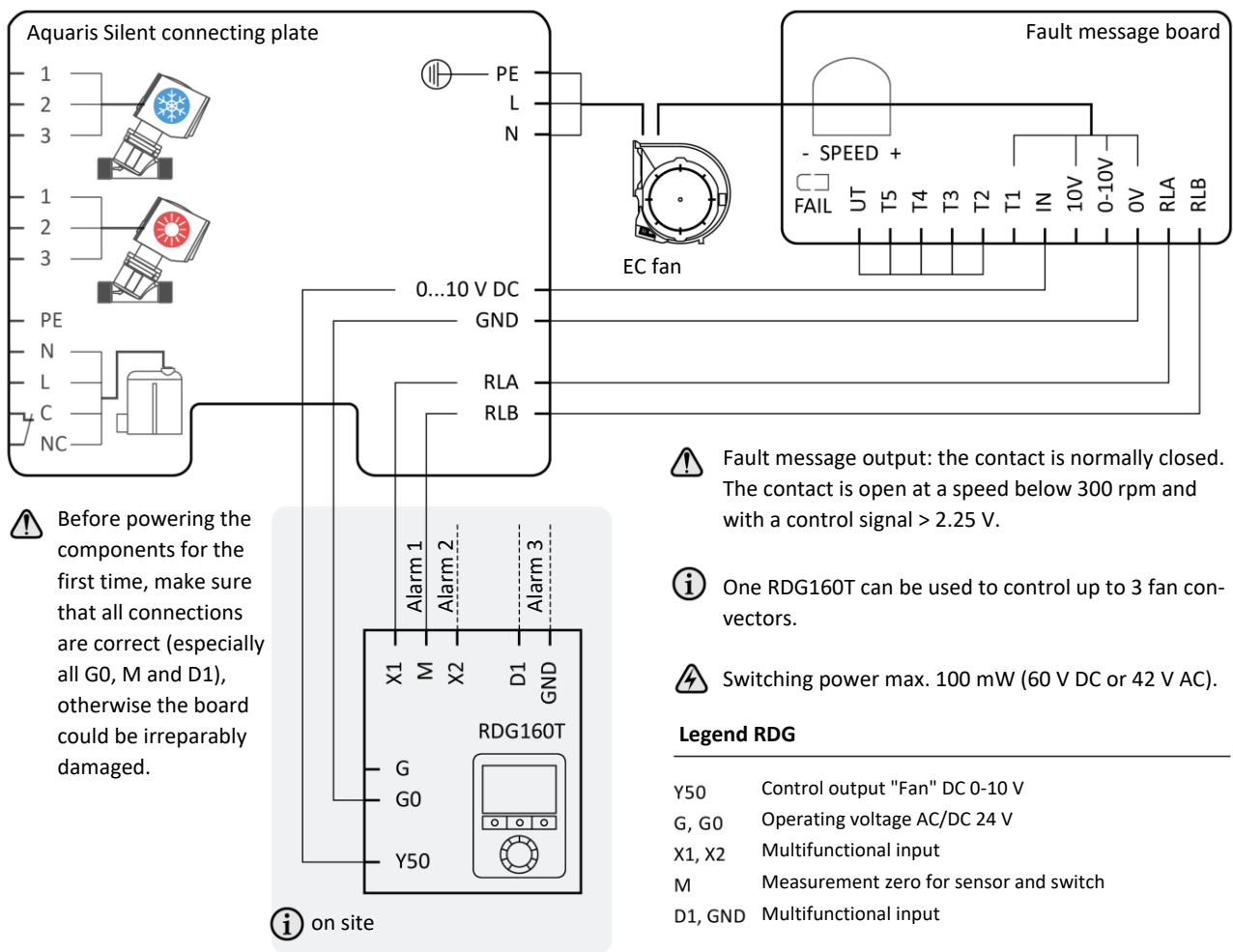
Actuators 230 V AC ON/OFF	Q1	N			
Actuators 24 V AC ON/OFF	Q1	G0			
Actuators 24 V DC 0-10 V	G	G0	Y10		
Actuators 230 V AC ON/OFF	Q1	N		Q2	N
Actuators 24 V AC ON/OFF	Q1	G0		Q2	G0
Actuators 24 V DC 0-10 V	G	G0	Y10	G	G0

Legend

- Tach Speed output: Open Collector
 $I_{sink\ max.} = 10\ mA$
- C/NC Safety function NC contact
- L, N Operating voltage AC 230 V
- L_Q Power supply relay
 Q1...3 AC 24-230 V
- G, G0 Operating voltage AC/DC 24 V
- Y10, Y20 Control output for DC 0-10 V actuator
- Y50 Control output "Fan" DC 0-10 V
- Q1... 3 Relay control output ON/OFF actuators
- Switch 5 ON = automatic timer mode

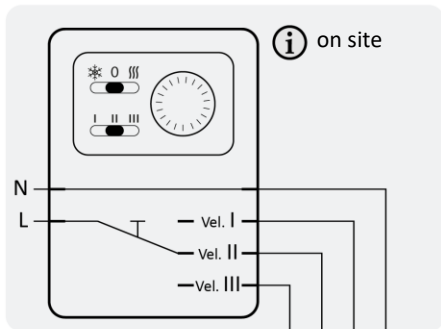
FAULT MESSAGE OUTPUT

	Ref.	Function / assignment	Cable colour
Fault message output	RLB	Fault message output, contact B	white
	RLA	Fault message output, contact A	yellow
	0V	Neutral conductor	blue
	0-10V	Speed output 0...10 V	yellow
	10V	Power supply 10 V PCB	red
	IN	External control input 0...10 V	green
	T1	Speed output Open Collector, fan 1	white
	Tn	Speed output Open Collector, fan n	-
	UT	Speed output unused	-



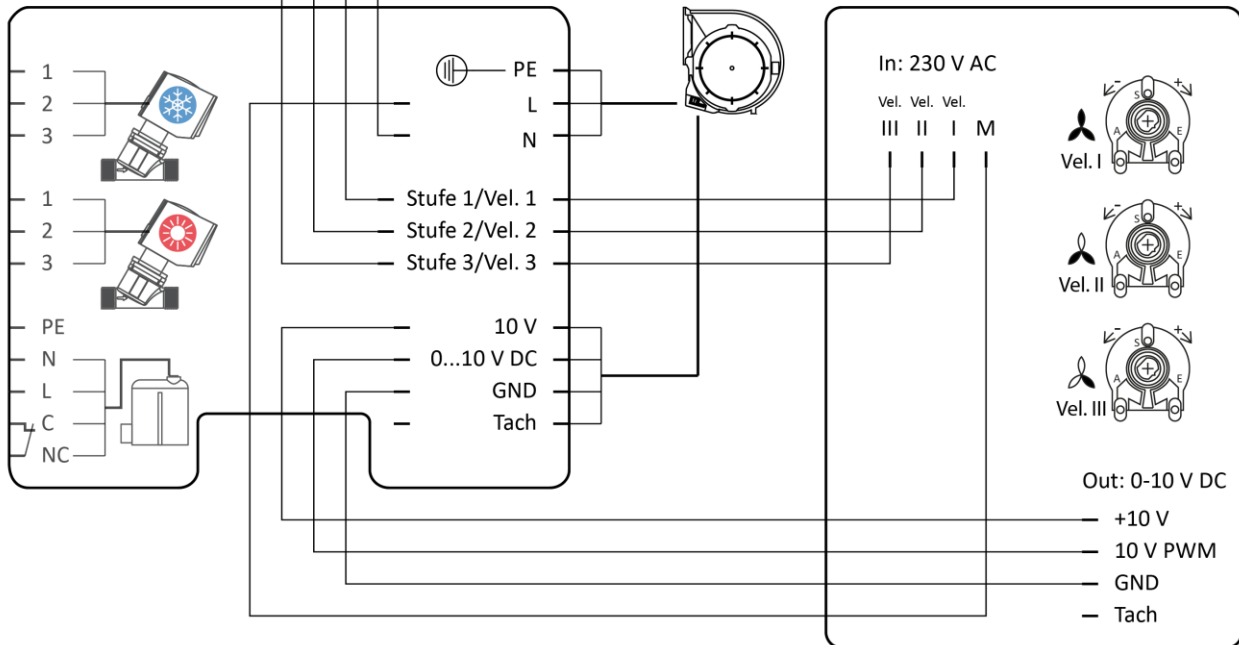
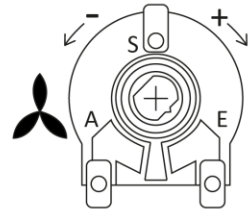
EC INTERFACE FOR 3-STAGE CONTROLLER

Ref.	Function / assignment	Cable colour
M	Output connection of the motor phase	blue
Vel. I	Input phase at lower speed level	grey
Vel. II	Input phase at medium speed level	black
Vel. III	Input phase at upper speed level	brown
+10 V	Input control voltage supply of the motor	red
10 V PWM	Output control voltage of the motor	green
GND	Input control voltage reference (ground) of the motor	blue
Tach	Input tacho signal (not connected internally)	-



Equivalences*			
3 vel.	vel. I	vel. II	vel. III
0-10 V	2,5 V	4 V	6 V

* Factory default setting unless otherwise specified when ordering.
 Other values can be set on site using the three potentiometers in the switch box:



MAINTENANCE

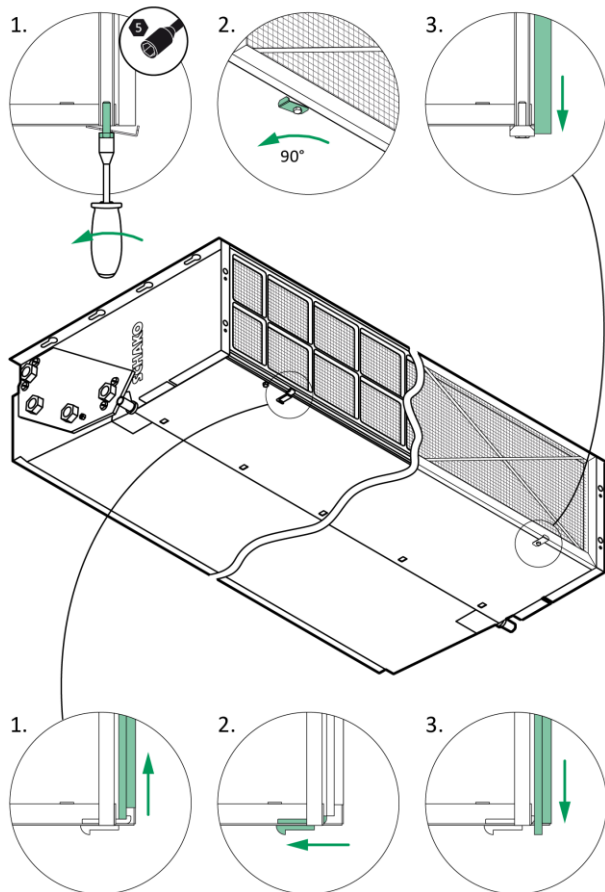
AIR FILTER

The filters must be cleaned or replaced regularly. SCHAKO recommends a bimonthly check at high-medium air quality and a monthly check at low air qualities.

ATTENTION

The filter must be maintained at least once a year to ensure proper operation of the device and to meet hygiene requirements.

SCHAKO recommends purchasing replacement filters to avoid prolonged downtimes during maintenance activities.



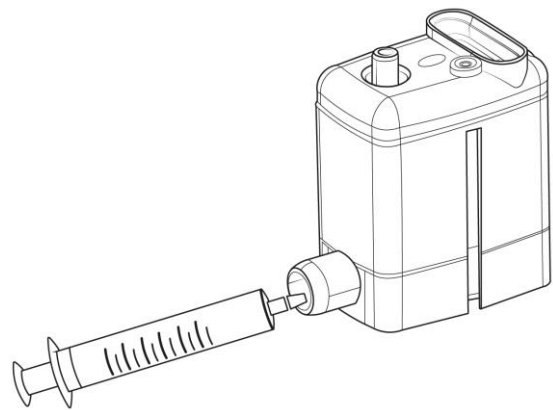
HEAT EXCHANGER

The registers must be ventilated once every three months and the ribs should be checked to ensure that there are no leaks.

CONDENSATE DISCHARGE

The condensate pans, the drainpipes and their connections must be checked twice a year for corrosion and leaks and all these parts must be cleaned.

The pump can be cleaned with clean water if it is clogged.



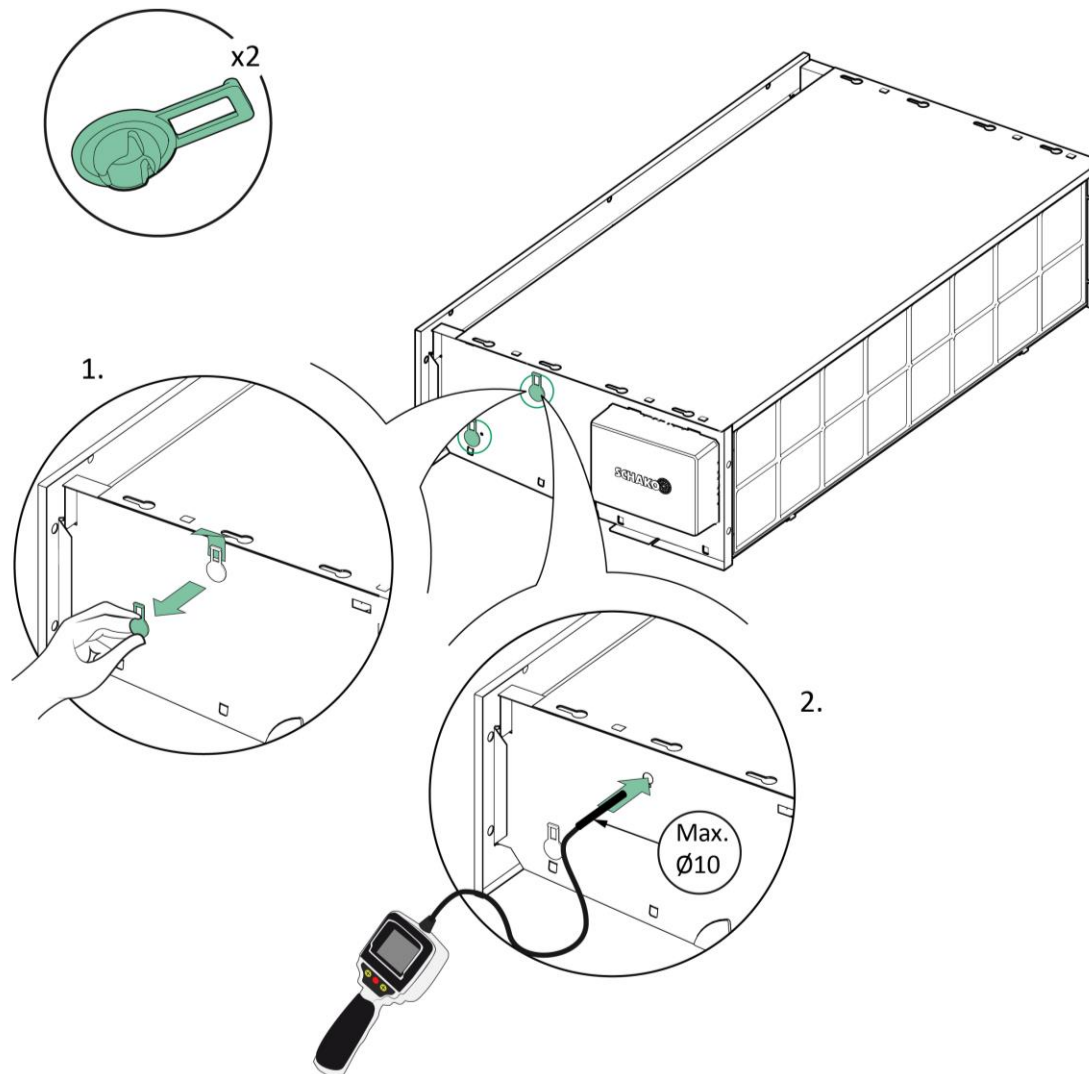
MOTORISED FAN

Twice a year, the fan operation must be checked in the different speeds to ensure that no exceptional noise is generated and that the motor intensity does not exceed the maximum allowed value.

HYGIENE CONTROL OF THE HEAT EXCHANGERS AND THE CONDENSATE PAN

The registers and condensate pan of the Aquaris Silent must be randomly checked once every two years to meet hygiene requirements.

The Aquaris Silent has two openings on each side for hygienic inspection of the heat exchangers and the condensate pan. The openings are accessed via plugs that can be removed without tools.

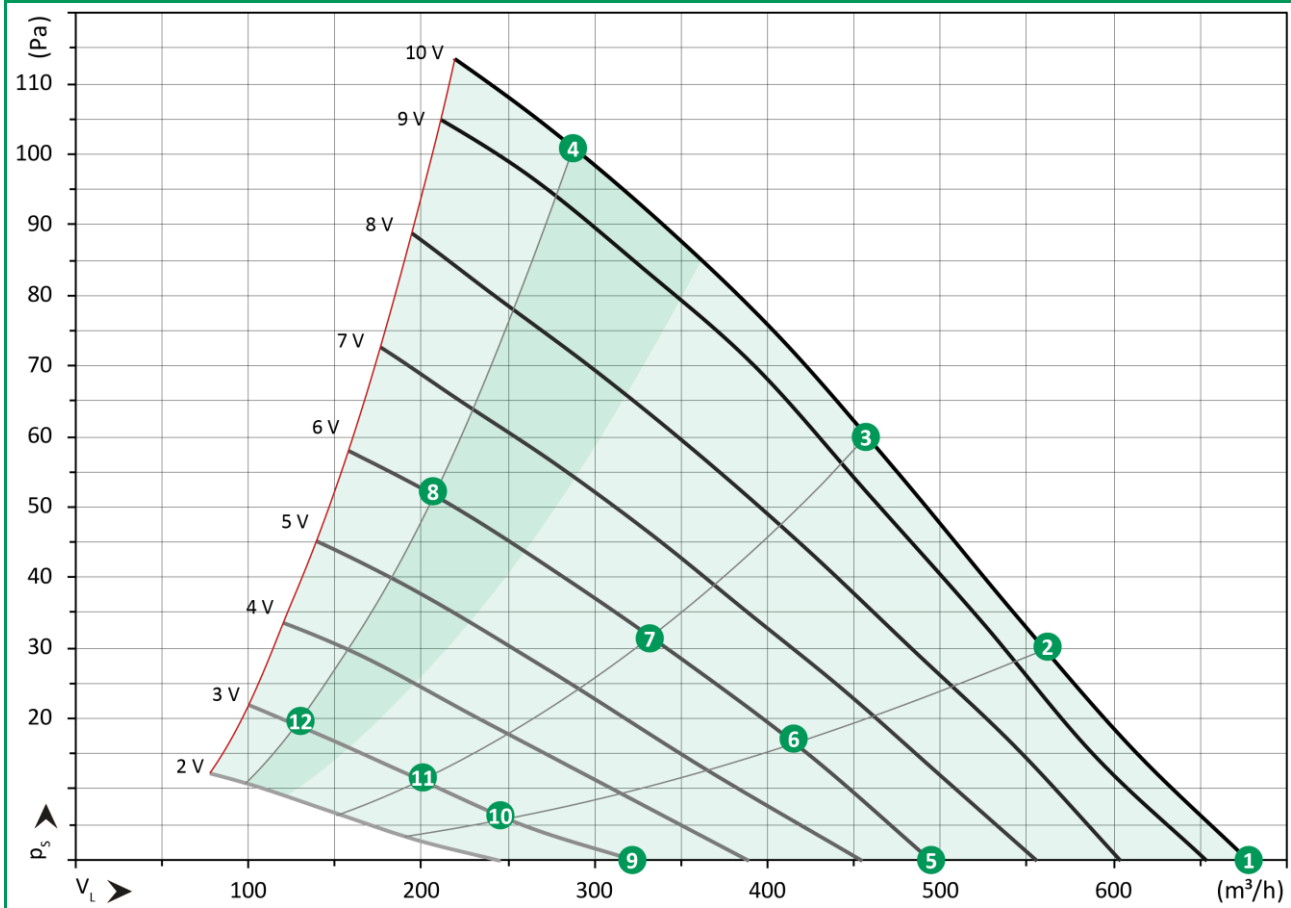


ATTENTION

After performing the inspection work, the plugs must be refitted.

TECHNICAL DATA

AQS-EC-1-L4-C1



Curve	v _{motor}	V _L (m ³ /h)	p _s (Pa)	W (W)	L _{WA} (dB(A))					Q _T (kW)	Q _S (kW)	V _W (l/h)	Δp _W (kPa)	t _{L2} (°C)	V _K (l/h)	Q (kW)	V _W (l/h)	Δp _W (kPa)	t _{L2} (°C)
					(li)	(ar)	(a)	(r)	(d)										
1	10	677	0	53	60	-	-	-	-	3.82	2.88	653	48.8	14.0	1.4	3.12	274	12.9	33.8
2	10	560	30	46	-	56	56	45	57	3.33	2.50	570	38.2	13.3	1.2	2.86	251	11.1	35.3
3	10	456	60	41	-	54	54	44	56	2.86	2.13	489	29.0	12.7	1.1	2.60	228	9.3	37.0
4	10	287	101	33	-	56	54	43	57	1.96	1.45	335	14.7	11.6	0.7	2.03	178	6.0	41.1
5	6	495	0	25	53	-	-	-	-	3.04	2.27	520	32.4	13.0	1.1	2.70	237	10.0	36.3
6	6	414	16	22	-	48	48	38	49	2.65	1.97	453	25.3	12.5	1.0	2.47	217	8.5	37.8
7	6	332	32	20	-	46	46	36	47	2.21	1.64	379	18.3	11.9	0.8	2.20	193	6.9	39.8
8	6	206	52	16	-	47	49	39	49	1.46	1.07	249	8.7	11.0	0.6	1.68	147	4.3	44.3
9	3	324	0	7	41	-	-	-	-	2.17	1.60	371	17.7	11.8	0.8	2.17	190	6.8	40.0
10	3	252	6	9	-	36	38	29	36	1.75	1.29	300	12.1	11.3	0.7	1.89	166	5.3	42.3
11	3	201	12	9	-	34	36	28	35	1.43	1.05	244	8.4	11.0	0.5	1.65	145	4.2	44.5
12	3	127	20	7	-	33	37	28	31	0.92	0.67	157	3.8	10.7	0.4	1.23	108	2.5	49.1

Heating (1 row of pipes): t_{w1} = 65 °C, t_{w2} = 55 °C, t_R = 20 °C

Cooling (3 pipe rows): t_{w1} = 7 °C, t_{w2} = 12 °C, t_R = 27 °C, HR = 47 %

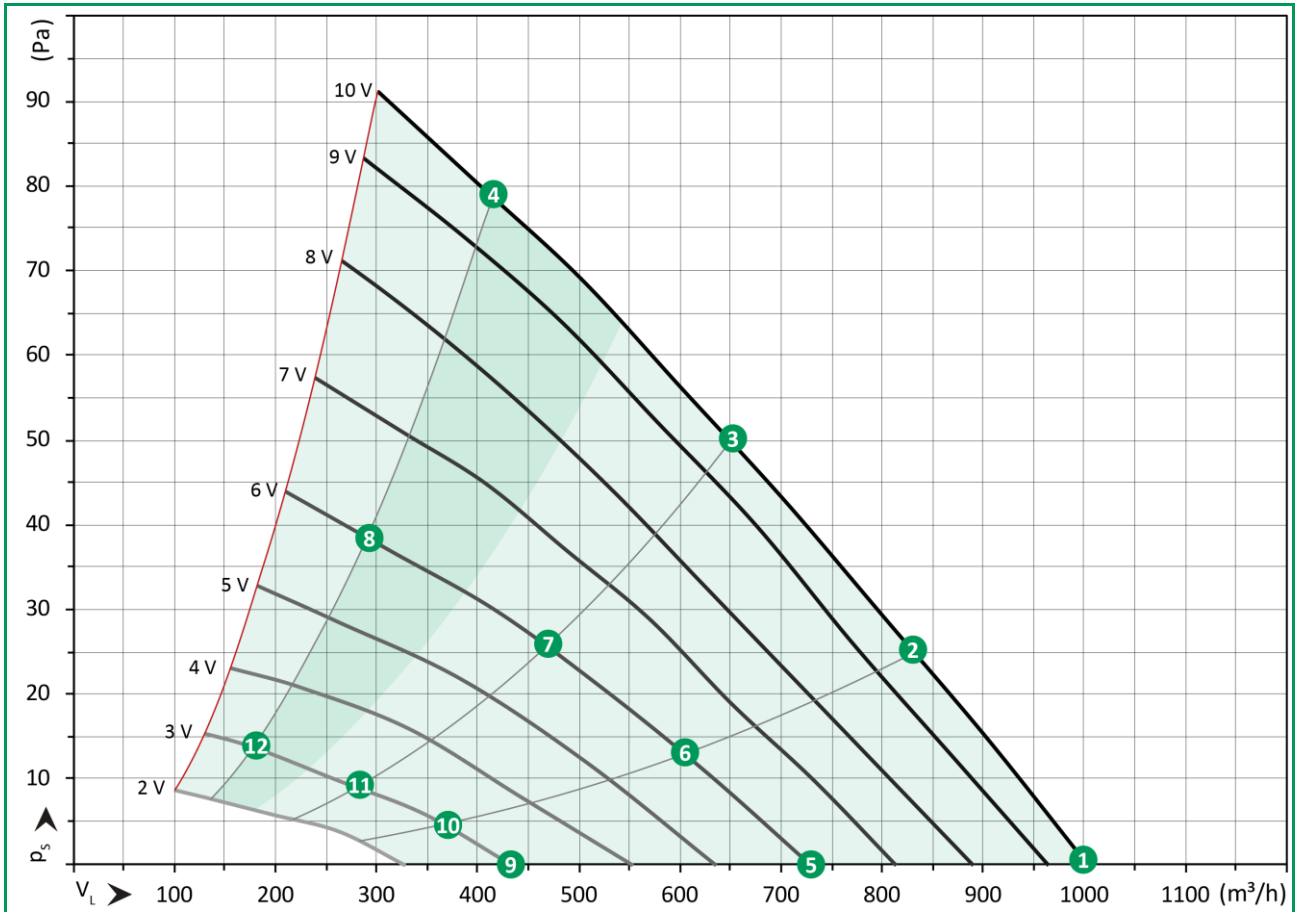
Available static pressure values with clean filter.

Thermal efficiency according to DIN EN 1397. Flow data according to DIN EN ISO 5801. Sound power level according to DIN EN 16583.

Sound power level

Octave band	Free conveying fan convectors								With single-sided duct connection on the supply air side																		
	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	L _{WA} (dB(A))				63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	L _{WA} (dB(A))						
Configuration																											
	L _w (dB) free throw (li)								L _w (dB) inlet + radiated noise (ar)				L _w (dB) supply air (d)														
1	54	58	61	57	54	53	47	42	60																		
2									54	54	54	54	51	48	43	36	56	63	60	55	52	51	51	41	33	57	
3									54	53	53	53	50	46	40	31	54	63	59	54	50	50	51	38	29	56	
4									54	55	55	55	51	46	39	31	56	63	64	58	53	51	48	39	31	57	
5	51	50	53	51	46	46	36	30	53																		
6									49	46	47	48	43	39	31	22	48	58	52	48	45	43	43	29	19	49	
7									49	45	46	46	41	36	28	17	46	58	51	46	43	42	41	25	14	47	
8									49	48	50	47	38	33	24	15	47	58	59	53	45	42	36	27	17	49	
9	48	44	44	39	35	27	17	15	41																		
10									46	36	37	36	29	21	13	10	36	55	41	38	33	29	21	11	9	36	
11									46	36	36	34	25	17	11	11	34	55	42	38	31	26	19	10	10	35	
12									46	37	30	34	25	15	10	10	33	55	35	33	24	18	8	8	9	31	
Configuration																											
	L _w (dB) inlet noise (a)				L _w (dB) radiated noise (r)				L _w (dB) supply air (d)																		
1																											
2	65	59	55	53	50	48	42	34	56	57	49	47	42	39	36	26	15	45	63	60	55	52	51	51	41	33	57
3	65	59	55	51	48	46	39	30	54	57	49	46	40	38	36	24	13	44	63	59	54	50	50	51	38	29	56
4	65	59	58	53	46	43	36	28	54	57	48	46	40	36	31	25	18	43	63	64	58	53	51	48	39	31	57
5																											
6	59	52	49	46	41	38	30	20	48	51	43	40	35	31	28	15	10	38	58	52	48	45	43	43	29	19	49
7	59	51	48	44	39	35	27	15	46	51	42	38	34	29	24	12	9	36	58	51	46	43	42	41	25	14	47
8	59	54	53	47	40	33	25	18	49	51	45	41	33	33	31	14	9	39	58	59	53	45	42	36	27	17	49
9																											
10	59	43	40	35	27	20	14	11	38	52	35	30	24	17	9	8	9	29	55	41	38	33	29	21	11	9	36
11	59	42	38	33	24	16	13	11	36	52	34	29	22	14	8	8	9	28	55	42	38	31	26	19	10	10	35
12	59	41	36	34	31	22	14	12	37	52	37	21	20	15	7	8	9	28	55	35	33	24	18	8	8	9	31

AQS-EC-2-L4-C1



Curve	v _{motor}	V _L (m ³ /h)	p _s (Pa)	W (W)	L _{WA} (dB(A))					Q _T (kW)	Q _S (kW)	V _W (l/h)	Δp _{pw} (kPa)	t _{L2} (°C)	V _K (l/h)	Q (kW)	V _W (l/h)	Δp _{pw} (kPa)	t _{L2} (°C)
					(li)	(ar)	(a)	(r)	(d)										
1	10	1002	0	51	57	-	-	-	-	5.50	4.18	941	36.1	14.2	1.9	4.56	400	30.5	33.6
2	10	830	25	48	-	50	50	40	51	4.82	3.63	823	28.4	13.6	1.7	4.19	367	26.2	35.1
3	10	650	50	44	-	50	51	40	51	4.01	3.00	685	20.5	12.9	1.5	3.72	327	21.3	37.1
4	10	414	79	37	-	52	53	42	53	2.78	2.06	476	10.6	11.8	1.0	2.94	258	14.0	41.2
5	6	729	0	24	49	-	-	-	-	4.38	3.28	748	23.9	13.2	1.6	3.94	346	23.5	36.1
6	6	604	13	23	-	43	43	33	43	3.79	2.83	648	18.5	12.7	1.4	3.59	315	19.9	37.7
7	6	468	26	21	-	42	43	33	43	3.08	2.29	527	12.8	12.0	1.2	3.14	276	15.7	40.0
8	6	290	39	18	-	44	45	34	44	2.04	1.50	348	6.1	11.2	0.8	2.39	210	9.7	44.6
9	3	433	0	6	36	-	-	-	-	2.89	2.14	494	11.4	11.8	1.1	3.01	264	14.6	40.8
10	3	368	5	8	-	30	34	25	35	2.52	1.86	430	8.9	11.5	1.0	2.75	241	12.4	42.3
11	3	282	9	9	-	30	34	24	35	1.98	1.46	339	5.8	11.1	0.8	2.35	206	9.4	44.9
12	3	172	14	8	-	31	35	25	35	1.23	0.91	210	2.5	10.8	0.5	1.72	151	5.4	49.8

Heating (1 row of pipes): t_{w1} = 65 °C, t_{w2} = 55 °C, t_r = 20 °C

Cooling (3 pipe rows): t_{w1} = 7 °C, t_{w2} = 12 °C, t_r = 27 °C, HR = 47 %

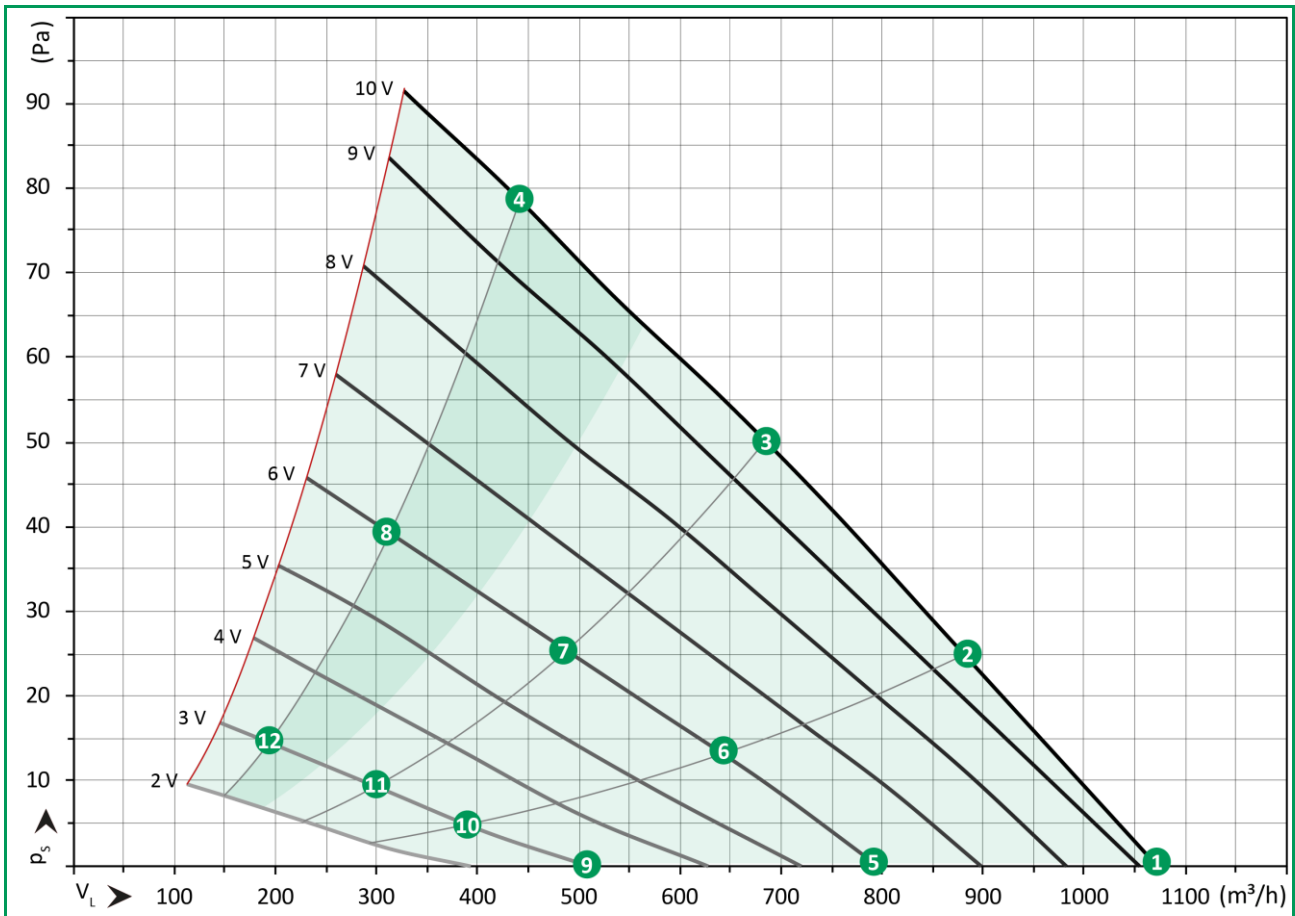
Available static pressure values with clean filter.

Thermal efficiency according to DIN EN 1397. Flow data according to DIN EN ISO 5801. Sound power level according to DIN EN 16583.

Sound power level

Octave band	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	L _{WA} (dB(A))	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	L _{WA} (dB(A))	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	L _{WA} (dB(A))
Configuration	Free conveying fan convectors									With single-sided duct connection on the supply air side																	
	L _w (dB) free throw (li)									L _w (dB) inlet + radiated noise (ar)					L _w (dB) supply air (d)												
1	53	54	57	56	50	47	40	32	57																		
2										55	50	49	50	45	41	33	23	50	63	55	50	48	46	43	34	22	51
3										55	52	49	50	45	40	33	22	50	63	56	51	49	45	43	33	21	51
4										55	54	52	52	46	42	36	25	52	63	60	54	50	46	43	33	21	53
5	50	47	50	49	42	38	28	19	49																		
6										52	43	42	43	36	31	24	13	43	60	48	44	41	37	33	21	11	43
7										52	43	42	43	36	30	24	14	42	60	49	44	41	36	32	20	11	43
8										52	47	44	44	37	31	24	14	44	60	52	46	43	37	33	20	11	44
9	48	38	41	36	27	20	14	14	36																		
10										49	34	31	30	22	17	15	11	30	59	40	33	28	21	15	11	9	35
11										49	34	31	29	22	16	15	11	30	59	44	33	28	20	14	11	9	35
12										49	35	33	31	22	17	16	11	31	59	38	34	30	20	14	11	9	35
Configuration	Fan convectors with double-sided duct connection																										
	L _w (dB) inlet noise (a)									L _w (dB) radiated noise (r)									L _w (dB) supply air (d)								
1																											
2	63	56	51	50	42	40	33	21	50	55	47	43	38	32	28	18	10	40	63	55	50	48	46	43	34	22	51
3	63	57	52	50	42	40	33	21	51	55	48	43	39	32	27	17	10	40	63	56	51	49	45	43	33	21	51
4	63	61	55	51	44	41	34	23	53	55	51	46	40	33	29	19	11	42	63	60	54	50	46	43	33	21	53
5																											
6	60	49	44	43	34	31	23	13	43	49	40	36	31	24	18	10	9	33	60	48	44	41	37	33	21	11	43
7	60	50	45	43	33	30	23	13	43	49	41	36	31	23	17	10	9	33	60	49	44	41	36	32	20	11	43
8	60	52	47	44	34	31	24	13	45	49	43	38	32	24	18	10	9	34	60	52	46	43	37	33	20	11	44
9																											
10	58	38	34	30	20	16	15	10	34	46	35	26	19	10	8	8	9	25	59	40	33	28	21	15	11	9	35
11	58	39	34	30	19	17	15	11	34	46	32	25	19	10	8	8	9	24	59	44	33	28	20	14	11	9	35
12	58	41	35	31	20	17	16	11	35	46	32	27	20	10	8	8	9	25	59	38	34	30	20	14	11	9	35

AQS-EC-3-L4-C1



Curve	v _{motor}	V _L (m ³ /h)	p _s (Pa)	W (W)	L _{WA} (dB(A))					Q _T (kW)	Q _S (kW)	V _W (l/h)	Δp _{pw} (kPa)	t _{L2} (°C)	V _K (l/h)	Q (kW)	V _W (l/h)	Δp _{pw} (kPa)	t _{L2} (°C)
					(li)	(ar)	(a)	(r)	(d)										
1	10	1071	0	56	58	-	-	-	-	6.60	4.89	1129	62.1	13.0	2.5	5.60	491	10.3	35.6
2	10	881	25	50	-	52	51	42	54	5.70	4.19	974	47.6	12.4	2.2	5.10	447	8.7	37.3
3	10	682	50	44	-	52	51	42	53	4.65	3.40	796	33.1	11.7	1.8	4.47	392	6.9	39.6
4	10	440	79	36	-	53	52	43	53	3.21	2.33	549	17.0	10.8	1.3	3.49	307	4.4	43.7
5	6	795	0	26	51	-	-	-	-	5.26	3.86	900	41.3	12.1	2.0	4.85	425	7.9	38.2
6	6	643	13	24	-	45	44	36	47	4.44	3.24	759	30.4	11.6	1.7	4.34	380	6.5	40.1
7	6	489	26	20	-	44	43	35	45	3.52	2.56	602	20.0	11.0	1.4	3.72	326	4.9	42.7
8	6	311	39	16	-	45	44	35	45	2.34	1.69	400	9.6	10.4	0.9	2.82	247	3.0	47.0
9	3	508	0	8	37	-	-	-	-	3.64	2.65	623	21.3	11.1	1.4	3.80	334	5.1	42.3
10	3	391	5	8	-	33	35	26	35	2.89	2.09	494	14.0	10.6	1.2	3.25	285	3.9	44.8
11	3	295	9	8	-	32	34	24	34	2.22	1.60	380	8.7	10.3	0.9	2.72	239	2.8	47.5
12	3	189	15	7	-	32	34	25	34	1.43	1.04	245	4.0	10.3	0.6	2.01	176	1.6	51.6

Heating (1 row of pipes): t_{w1} = 65 °C, t_{w2} = 55 °C, t_r = 20 °C

Cooling (3 pipe rows): t_{w1} = 7 °C, t_{w2} = 12 °C, t_r = 27 °C, HR = 47 %

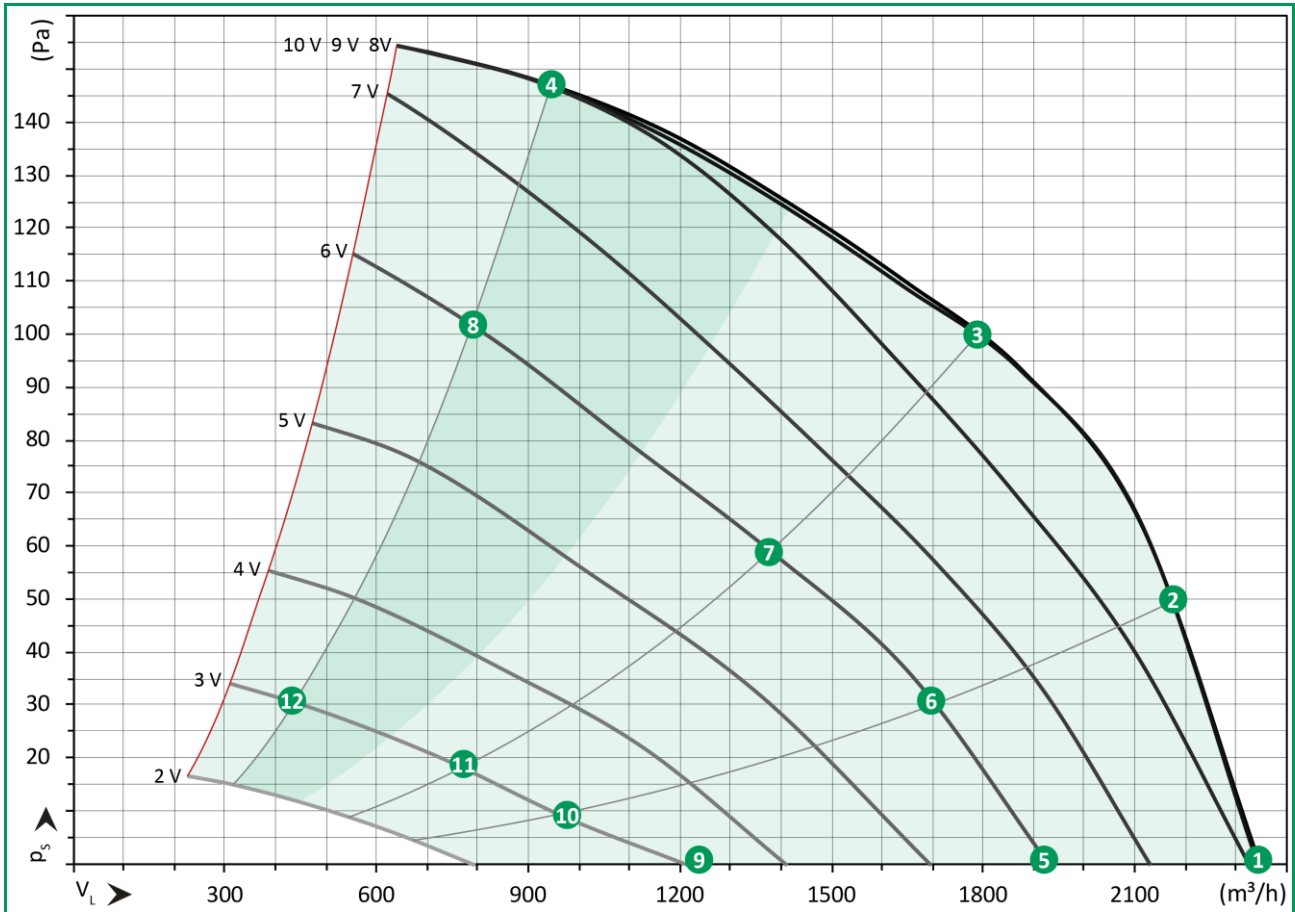
Available static pressure values with clean filter.

Thermal efficiency according to DIN EN 1397. Flow data according to DIN EN ISO 5801. Sound power level according to DIN EN 16583.

Sound power level

Octave band	Free conveying fan convectors								With single-sided duct connection on the supply air side																		
	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	L _{WA} (dB(A))				63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	L _{WA} (dB(A))						
Configuration																											
	L _w (dB) free throw (li)								L _w (dB) inlet + radiated noise (ar)				L _w (dB) supply air (d)														
1	52	55	57	57	51	51	43	37	58																		
2									53	49	50	51	47	44	37	27	52	61	55	51	50	48	48	38	28	54	
3									53	50	51	51	46	42	35	25	52	61	56	51	50	47	46	35	24	53	
4									53	54	53	52	47	43	36	26	53	61	59	53	49	47	45	34	22	53	
5	49	49	51	49	45	43	32	23	51																		
6									49	42	44	44	39	34	26	16	45	59	48	45	43	42	40	27	15	47	
7									49	43	44	44	38	32	25	14	44	59	48	44	43	40	36	24	12	45	
8									49	46	45	44	38	33	26	16	45	59	52	45	43	38	33	21	11	45	
9	45	37	42	34	30	21	14	14	37																		
10									48	34	36	32	25	18	13	10	33	57	39	36	30	28	19	10	9	35	
11									48	34	34	31	23	17	13	11	32	57	39	35	29	23	16	10	9	34	
12									48	35	35	32	24	18	14	11	32	57	41	36	30	23	15	10	9	34	
Configuration																											
	L _w (dB) inlet noise (a)				L _w (dB) radiated noise (r)				L _w (dB) supply air (d)																		
1																											
2	61	54	51	50	45	44	36	26	51	53	46	43	41	36	33	20	11	42	61	55	51	50	48	48	38	28	54
3	61	55	51	49	44	42	34	23	51	53	47	43	40	36	31	19	10	42	61	56	51	50	47	46	35	24	53
4	61	59	54	50	45	42	34	24	52	53	50	45	41	37	31	21	11	43	61	59	53	49	47	45	34	22	53
5																											
6	58	48	45	43	37	35	25	15	44	49	40	37	35	30	24	11	9	36	59	48	45	43	42	40	27	15	47
7	58	48	45	42	36	32	23	13	43	49	40	37	35	28	21	10	9	35	59	48	44	43	40	36	24	12	45
8	58	50	46	43	36	32	24	15	44	49	42	38	34	27	20	11	9	35	59	52	45	43	38	33	21	11	45
9																											
10	56	43	36	31	23	18	12	10	35	45	35	28	21	15	9	8	9	26	57	39	36	30	28	19	10	9	35
11	56	38	36	30	21	17	12	11	34	45	31	27	20	12	8	8	9	24	57	39	35	29	23	16	10	9	34
12	56	41	36	30	21	17	13	11	34	45	34	27	21	13	9	9	9	25	57	41	36	30	23	15	10	9	34

AQS-EC-4-L4-C1



Curve	v _{motor}	V _L (m ³ /h)	p _s (Pa)	W (W)	L _{wa} (dB(A))					Q _T (kW)	Q _S (kW)	V _w (l/h)	Δp _w (kPa)	t _{L2} (°C)	V _k (l/h)	Q (kW)	V _w (l/h)	Δp _w (kPa)	t _{L2} (°C)
					(li)	(ar)	(a)	(r)	(d)										
1	10	2352	0	240	68	-	-	-	-	11.01	8.61	1883	26.2	15.8	3.5	8.46	742	23.1	30.7
2	10	2187	50	238	-	66	65	56	67	10.50	8.18	1795	24.0	15.5	3.4	8.21	720	21.9	31.2
3	10	1792	100	215	-	64	64	55	66	9.17	7.10	1569	18.9	14.9	3.0	7.54	662	18.8	32.6
4	10	946	147	124	-	62	62	52	64	5.69	4.33	973	8.0	13.0	2.0	5.58	489	10.8	37.6
5	6	1934	0	125	67	-	-	-	-	9.67	7.50	1653	20.7	15.1	3.1	7.80	684	19.9	32.0
6	6	1711	31	122	-	57	57	48	59	8.88	6.86	1519	17.8	14.7	2.9	7.39	648	18.1	32.9
7	6	1378	59	110	-	57	56	48	58	7.60	5.83	1300	13.4	14.1	2.6	6.70	588	15.1	34.5
8	6	786	101	78	-	56	56	47	57	4.89	3.71	835	6.1	12.6	1.7	5.07	445	9.1	39.2
9	3	1219	0	32	54	-	-	-	-	6.94	5.30	1186	11.4	13.7	2.4	6.32	554	13.6	35.5
10	3	967	10	30	-	43	44	35	44	5.79	4.41	990	8.2	13.1	2.0	5.64	495	11.1	37.4
11	3	769	18	27	-	43	44	36	43	4.80	3.64	820	5.9	12.5	1.7	5.01	439	8.9	39.4
12	3	435	31	21	-	43	44	35	43	2.88	2.19	492	2.3	11.6	1.0	3.64	319	5.0	45.0

Heating (1 row of pipes): t_{w1} = 65 °C, t_{w2} = 55 °C, t_r = 20 °C

Cooling (3 pipe rows): t_{w1} = 7 °C, t_{w2} = 12 °C, t_r = 27 °C, HR = 47 %

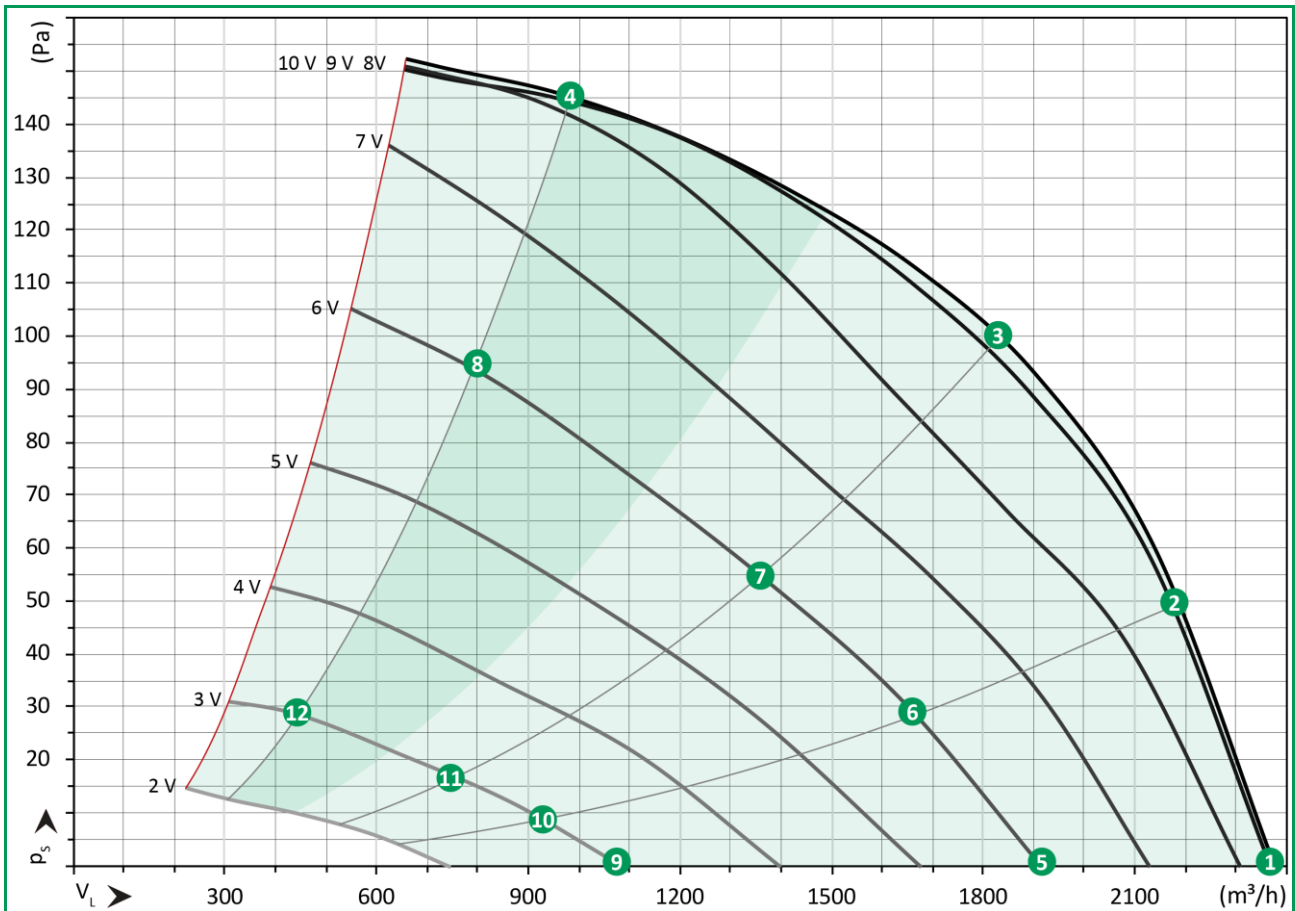
Available static pressure values with clean filter.

Thermal efficiency according to DIN EN 1397. Flow data according to DIN EN ISO 5801. Sound power level according to DIN EN 16583.

Sound power level

Octave band	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	L _{WA} (dB(A))	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	L _{WA} (dB(A))	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	L _{WA} (dB(A))
	Free conveying fan convectors									With single-sided duct connection on the supply air side																	
Configuration																											
	L _w (dB) free throw (li)									L _w (dB) inlet + radiated noise (ar)								L _w (dB) supply air (d)									
1	60	65	68	66	62	60	56	50	68																		
2										64	65	63	64	60	58	53	46	66	70	68	65	63	62	60	54	47	67
3										64	64	62	62	59	56	50	43	64	70	68	64	62	61	59	53	45	66
4										64	64	61	61	56	52	47	40	62	70	69	64	60	58	55	49	40	64
5	59	65	67	65	62	60	55	49	67																		
6										58	56	55	56	52	49	43	35	57	64	61	57	55	54	52	44	35	59
7										58	57	55	56	51	48	41	34	57	64	61	57	55	53	50	43	33	58
8										58	57	55	56	50	45	39	31	56	64	64	58	55	51	49	40	29	57
9	50	52	56	54	48	44	37	29	54																		
10										49	42	44	44	36	31	23	16	43	57	47	45	43	37	33	22	11	44
11										49	42	47	43	36	29	22	16	43	57	47	45	41	36	31	21	11	43
12										49	44	47	42	36	29	23	21	43	57	47	47	41	34	27	19	11	43
Configuration	Fan convectors with double-sided duct connection																										
	L _w (dB) inlet noise (a)									L _w (dB) radiated noise (r)								L _w (dB) supply air (d)									
1																											
2	72	67	65	64	58	58	52	45	65	64	62	57	53	50	46	38	28	56	70	68	65	63	62	60	54	47	67
3	72	67	64	62	56	56	49	42	64	64	61	56	52	49	45	36	27	55	70	68	64	62	61	59	53	45	66
4	72	68	63	60	53	52	46	38	62	64	60	54	50	45	42	35	31	52	70	69	64	60	58	55	49	40	64
5																											
6	67	60	57	56	50	49	42	34	57	58	54	50	46	42	38	28	15	48	64	61	57	55	54	52	44	35	59
7	67	60	57	55	49	47	40	32	56	58	54	51	45	41	36	26	15	48	64	61	57	55	53	50	43	33	58
8	67	63	58	54	47	45	38	29	56	58	55	50	45	40	35	27	21	47	64	64	58	55	51	49	40	29	57
9																											
10	60	48	46	43	35	31	23	15	44	50	40	39	35	26	19	10	9	35	57	47	45	43	37	33	22	11	44
11	60	46	48	42	34	29	22	15	44	50	39	41	33	26	17	9	9	36	57	47	45	41	36	31	21	11	43
12	60	46	49	40	36	29	22	16	44	50	40	41	32	26	16	9	9	35	57	47	47	41	34	27	19	11	43

AQS-EC-5-L4-C1



Curve	v _{motor}	V _L (m ³ /h)	p _s (Pa)	W (W)	L _{WA} (dB(A))					Q _T (kW)	Q _S (kW)	V _W (l/h)	Δp _{pw} (kPa)	t _{L2} (°C)	V _K (l/h)	Q (kW)	V _W (l/h)	Δp _{pw} (kPa)	t _{L2} (°C)
					(li)	(ar)	(a)	(r)	(d)										
1	10	2377	0	235	70	-	-	-	-	12.12	9.30	2073	34.9	15.0	4.1	9.55	838	32.1	32.0
2	10	2192	50	235	-	67	66	54	68	11.48	8.77	1962	31.7	14.7	3.9	9.23	809	30.2	32.6
3	10	1830	100	218	-	66	65	53	67	10.13	7.69	1731	25.2	14.1	3.5	8.52	747	26.1	33.9
4	10	982	145	130	-	63	62	51	64	6.29	4.70	1076	10.7	12.4	2.3	6.28	551	15.0	39.1
5	6	1915	0	124	63	-	-	-	-	10.45	7.95	1787	26.7	14.3	3.6	8.69	763	27.1	33.5
6	6	1667	29	116	-	60	59	47	60	9.47	7.17	1619	22.4	13.8	3.3	8.16	716	24.1	34.6
7	6	1359	55	102	-	58	58	46	59	8.13	6.12	1390	17.0	13.2	2.9	7.41	650	20.2	36.3
8	6	788	93	73	-	57	57	46	58	5.23	3.90	895	7.7	11.9	1.9	5.58	490	12.1	41.1
9	3	1085	0	33	51	-	-	-	-	6.82	5.10	1166	12.4	12.6	2.5	6.62	580	16.5	38.2
10	3	937	9	31	-	46	46	35	47	6.06	4.52	1035	10.0	12.2	2.2	6.13	538	14.3	39.5
11	3	759	17	28	-	45	45	35	46	5.06	3.77	866	7.2	11.8	1.9	5.46	479	11.6	41.5
12	3	436	29	21	-	45	45	34	44	3.05	2.27	522	2.9	11.1	1.1	3.94	346	6.4	47.0

Heating (1 row of pipes): t_{w1} = 65 °C, t_{w2} = 55 °C, t_r = 20 °C

Cooling (3 pipe rows): t_{w1} = 7 °C, t_{w2} = 12 °C, t_r = 27 °C, HR = 47 %

Available static pressure values with clean filter.

Thermal efficiency according to DIN EN 1397. Flow data according to DIN EN ISO 5801. Sound power level according to DIN EN 16583.

Sound power level

Octave band	Free conveying fan convectors									With single-sided duct connection on the supply air side																	
	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	L _{WA} (dB(A))	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	L _{WA} (dB(A))	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	L _{WA} (dB(A))
Configuration																											
	L _w (dB) free throw (li)									L _w (dB) inlet + radiated noise (ar)						L _w (dB) supply air (d)											
1	63	69	70	66	65	62	60	55	70																		
2										65	63	65	63	63	60	56	49	67	71	68	66	63	63	61	57	49	68
3										65	63	64	62	61	58	54	46	66	71	68	65	63	62	60	55	47	67
4										65	62	63	60	58	54	49	43	63	71	68	63	61	59	56	50	41	64
5	58	61	63	59	58	56	52	46	63																		
6										60	56	57	56	55	52	47	39	60	65	61	59	56	55	54	48	39	60
7										60	55	57	55	53	50	44	36	58	65	61	57	56	54	53	45	35	59
8										60	57	58	55	52	48	43	34	57	65	62	57	55	52	50	41	30	58
9	46	49	54	49	44	43	31	23	51																		
10										53	44	46	44	42	36	28	19	46	55	49	47	44	42	41	27	14	47
11										53	42	46	43	40	35	28	19	45	55	48	46	43	41	38	26	13	46
12										53	44	47	42	40	34	28	19	45	55	48	47	42	38	32	25	12	44
Configuration																											
	L _w (dB) inlet noise (a)									L _w (dB) radiated noise (r)						L _w (dB) supply air (d)											
1																											
2	73	68	66	63	60	59	54	47	66	66	60	56	49	47	43	40	30	54	71	68	66	63	63	61	57	49	68
3	73	67	65	62	59	57	52	45	65	66	60	55	49	46	43	38	29	53	71	68	65	63	62	60	55	47	67
4	73	67	64	60	55	53	48	40	62	66	60	53	47	44	41	39	32	51	71	68	63	61	59	56	50	41	64
5																											
6	68	61	59	56	53	51	45	37	59	58	54	49	43	40	37	31	20	47	65	61	59	56	55	54	48	39	60
7	68	60	58	55	51	50	44	35	58	58	54	49	42	39	35	28	17	46	65	61	57	56	54	53	45	35	59
8	68	62	59	56	50	48	42	34	57	58	55	49	42	38	34	26	16	46	65	62	57	55	52	50	41	30	58
9																											
10	59	48	47	44	40	36	27	18	46	50	42	39	32	28	22	11	10	35	55	49	47	44	42	41	27	14	47
11	59	47	47	43	39	35	27	17	45	50	42	40	31	28	20	11	10	35	55	48	46	43	41	38	26	13	46
12	59	48	47	42	39	35	27	17	45	50	39	39	30	28	18	12	11	34	55	48	47	42	38	32	25	12	44

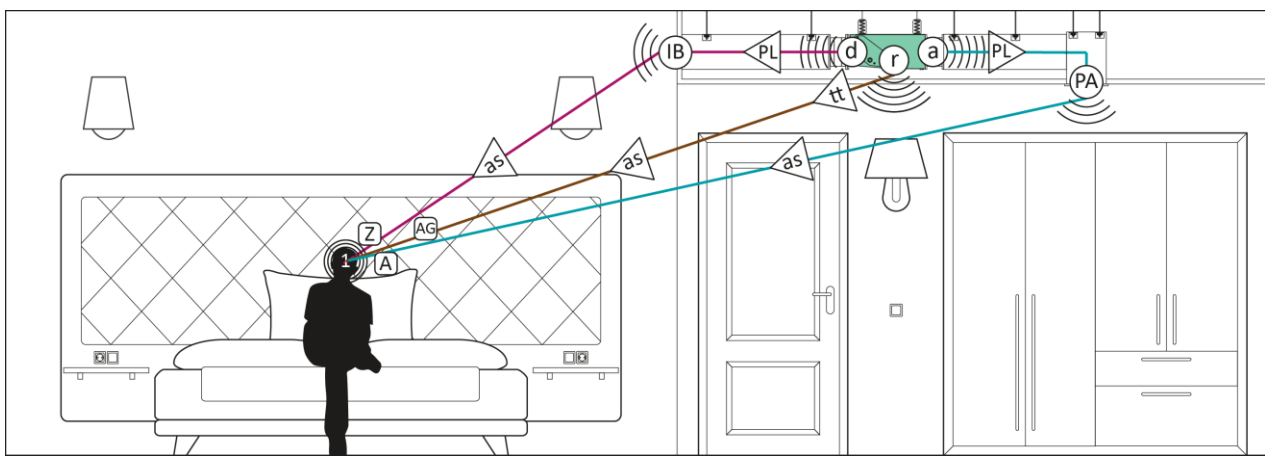
EXAMPLE CALCULATION OF THE SOUND PRESSURE LEVEL

Following a simplified example from *AHRI Standard 885*.
 Other confirmed working methods can be used.

Select a fan convector of size 2, with 4 pipes, -C1 filter and double-sided duct connection. The working conditions are: 400 m³/h air volume and available pressure 35 Pa (signal = 6.3 V).

The following hypotheses are considered:

- The noise radiated by the ducts (breakout noise) can be neglected, as it is assumed that it will be lower compared to the values of the most important main and secondary sources.
- The structure-borne noise transmission is insignificant. It is assumed that the installation has been carried out according to best practice.
- Influences from sources other than those indicated in the example are not considered.
- No environmental correction is applied (*ASHRAE RP755*).
- No transmission losses of the diffusers are considered.



The noise sources and attenuations of the boxes are taken directly from the SCHAKO layout program. The attenuation of the technical ceiling is taken from the manufacturer's data sheet. The room insulation can be calculated by the following formula:

$$\Delta L_W = 10 \log \left[\frac{Q}{4\pi r^2} + \frac{4}{R} \right] + 0,5$$

- Q = direction of noise source
- r = distance from noise source (m)
- R = room constant = $S \cdot \alpha / (1 - \alpha)$
- α = sound absorption coefficient (-)
- S = sum of the room surface areas (m²)

The arithmetic sums are calculated according to the following formula:

$$L_{W,teilweise} = L_W - \sum_{i=1}^n \text{Dämpfung}_i$$

n = number of attenuations used

The energy sums are calculated according to the following formula:

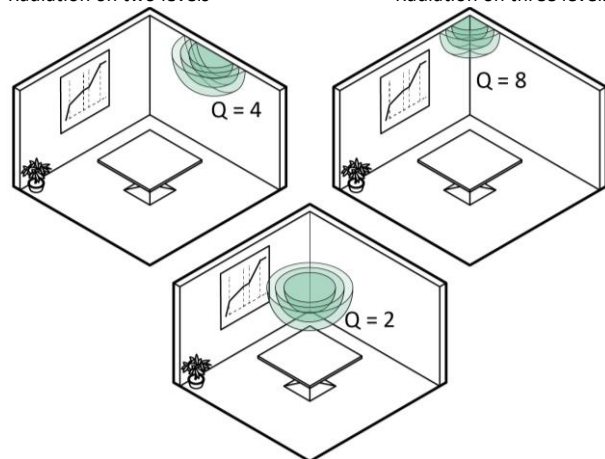
$$L_{W,resultierend} = 10 \cdot \log \sum_{i=1}^m 10^{\frac{L_{W_i}}{10}}$$

m = number of noise sources

Direction factors Q:

Radiation on two levels

Radiation on three levels













Radiation on one level





Sound attenuation values α





f (Hz)	63	125	250	500	1000	2000	4000	8000
α	0.24	0.22	0.18	0.25	0.30	0.36	0.42	0.42

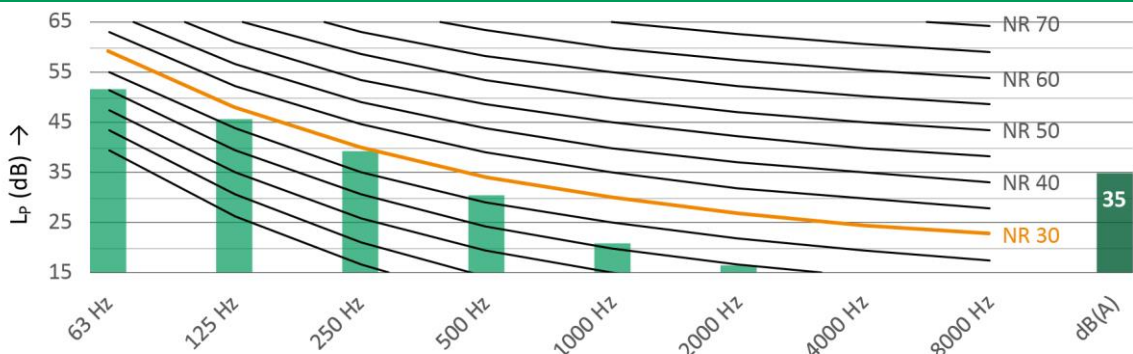
Average sound attenuation values in areas such as offices according to Reynolds, D. Jeffrey M. Bledsoe. 1991.

Propagation path = Z, main noise source = supply air		63 Hz	125 Hz	250 Hz	500 Hz	1k Hz	2k Hz	4k Hz	8k Hz	dB(A)
	supply air	59	52	46	43	38	35	23	11	45
	Insertion loss of the box in the fan convector.	-2	-3	-5	-11	-15	-13	-10	-8	-
	ΣL_w part path Z (arithmetic sum)	57	50	41	32	23	22	<15	<15	38
	IB (flow-generated noise)	23	29	31	24	17	13	10	8	26
	ΣL_w result path Z (energy sum)	57	50	42	33	24	22	15	<15	38
	Room attenuation	-8	-7	-7	-8	-9	-9	-10	-10	-
	Sound pressure level at receiver 1	49	42	32	25	15	<15	<15	<15	31

Propagation path = A, main noise source = air inlet		63 Hz	125 Hz	250 Hz	500 Hz	1k Hz	2k Hz	4k Hz	8k Hz	dB(A)
	Air intake	58	53	47	44	35	32	24	<15	45
	Insertion loss of the box in the fan convector.	-1	-1	-3	-6	-8	-7	-5	-4	-
	ΣL_w part path A (arithmetic sum)	57	52	44	38	27	25	19	<15	41
	PA (flow-generated noise)	37	38	33	30	27	18	<15	<15	32
	ΣL_w result path A (energy sum)	57	52	45	39	30	26	20	16	41
	Room attenuation	-9	-9	-8	-9	-10	-11	-12	-12	-
	Sound pressure level at receiver 1	48	43	37	29	20	15	<15	<15	33

Propagation path = AG, main noise source = radiated noise		63 Hz	125 Hz	250 Hz	500 Hz	1k Hz	2k Hz	4k Hz	8k Hz	dB(A)
	Radiated noise	49	43	38	33	25	19	<15	<15	35
	Transmission losses due to technical ceiling	-13	-15	-17	-19	-25	-30	-33	-33	-
	Room attenuation	-9	-9	-8	-9	-10	-11	-12	-12	-
	Sound pressure level at receiver 1	27	19	<15	<15	<15	<15	<15	<15	<15

Receiver 1		63 Hz	125 Hz	250 Hz	500 Hz	1k Hz	2k Hz	4k Hz	8k Hz	dB(A)
	Supply air sound power transmitted through path Z	49	42	32	25	15	<15	<15	<15	31
	Inlet sound power transmitted through path A	48	43	37	29	20	<15	<15	<15	33
	Radiated noise transmitted through path AG	27	19	<15	<15	<15	<15	<15	<15	<15
	Σ Sound pressure level perceived by receiver 1 (energy sum)	52	46	39	31	21	17	<15	<15	35



LEGEND

B	(mm)	=	Width
H	(mm)	=	Height
L	(mm)	=	Length
DN	(mm)	=	Diameter, nominal width
H ₁₀₀	(mm)	=	Nominal stroke
k _{VS}	(m ³ /h)	=	Nominal flow value of the cold water through the fully open valve (H ₁₀₀) at a differential pressure of 100 kPa (1 bar)
HR	(%)	=	Relative humidity in the room
Δ _{pW}	(kPa)	=	Water pressure loss in the heat exchanger
p _s	(Pa)	=	Available static pressure
Q	(kW)	=	Thermal capacity
Q _S	(kW)	=	Sensible capacity
Q _T	(kW)	=	Total capacity
t _{L2}	(°C)	=	Air outlet temperature
t _R	(°C)	=	Room air temperature
t _{w1}	(°C)	=	Water inlet temperature
t _{w2}	(°C)	=	Water outlet temperature
v	(-)	=	Speed
V _K	(l/h)	=	Amount of condensate
V _L	(m ³ /h) [l/s]	=	Volumetric flow
V _W	(l/h)	=	Water volumetric flow
W	(W)	=	Operating power
L _W	(dB)	=	Sound power level (W _{ref} = 1 pW)
L _{WA}	[dB(A)]	=	Sound power level A weighted (W _{ref} = 1 pW)

AQUARIS SILENT ORDER CODE

01	02	03	04	05	06
Type	Motor	Size	System (water register version)	Air filter	Mounting
Example					
AQS	-EC	-1	-R3	-C1	-H

07	08	09	10	11	12
Intake position	Duct connection	Water connection position	Cooling valve	Heating valve	Actuator
Example					
-1	-F0	-W1	-00	-00	-000

13	14	15	16
Position of electrical connection	Control and regulation elements	Valve condensate pan	Condensate pump
Example			
-S2	-0	-K0	-0

NOTE

Please always specify the complete order code in the order!

If details are missing from the order, the standard model will be delivered.

Any special model not included in the order code must be queried before ordering.

* = if no details are given, processing is impossible.

EXAMPLE

AQS-EC-1-R3-C1-H-1-F0-W1-00-00-000-S2-0-K0-0

Fan convector Aquaris Silent | EC motor | size 1 | 2-pipe register 3 pipe rows (heating or cooling) | ISO Coarse < 40% | horizontal – ceiling | secondary air intake, straight | without flange | water connection in air flow direction on the left | without cooling valve, without pipe set, without shut-off valve | without heating valve, without pipe set, without shut-off valve | without actuator | electrical connection in air flow direction right | without additional control and regulation elements | without valve condensate pan | without condensate pump

ORDER DETAILS

01 - Type

AQS = fan convector Aquaris Silent

02 – Motor

EC = EC motor

03 – Size*

1 = Size 1
 2 = Size 2
 3 = Size 3
 4 = Size 4
 5 = Size 5

04 – System (water register version)*

R1 = 2-pipe register 1 pipe row (heating)
 R3 = 2-pipe register 3 pipe rows (cooling or heating)
 L4 = 4-pipe register 1 and 3 pipe rows (heating and cooling)

05 – Air filter

C1 = ISO Coarse < 40% (standard)
 C4 = ISO Coarse 40 %

06 – Mounting

H = horizontal – ceiling (standard)
 B = horizontal – floor (not compatible with device casing GV)
 V = vertical – wall

07 – Intake position

1 = secondary air intake, straight (standard)

08 – Duct connection

F0 = without flange (standard)
 FZ = with supply air flange

09 – Water connection position

- W1 = water connection in air flow direction on the left (standard) (not possible for electric connection position -S1)
- W2 = water connection in air flow direction on the right (not possible for electric connection position -S2)

10 – Cooling valve

- 00 = without cooling valve, without pipe set, without shut-off valve (standard)
- 01 = cooling valve VPP46.10L0.2 with pipe set and shut-off valve
- 02 = cooling valve VPP46.10L0.4 with pipe set and shut-off valve
- 03 = cooling valve VPP46.15L0.2 with pipe set and shut-off valve
- 04 = cooling valve VPP46.15L0.6 with pipe set and shut-off valve
- 05 = cooling valve VPP46.20F1.4 with pipe set and shut-off valve (valves with connection $\geq 1''$ are supplied loose)
- 25 = cooling valve AB-QM-003Z8221 with pipe set and shut-off valve
- 26 = cooling valve AB-QM-003Z8220 with pipe set and shut-off valve
- 27 = cooling valve AB-QM-003Z8222 with pipe set and shut-off valve
- 31 = cooling valve AB-QM-003Z8223 with pipe set and shut-off valve (valves with connection $\geq 1''$ are supplied loose)

11 – Heating valve

- 00 = without heating valve, without pipe set, without shut-off valve (standard)
- 01 = heating valve VPP46.10L0.2 with pipe set and shut-off valve
- 02 = heating valve VPP46.10L0.4 with pipe set and shut-off valve
- 03 = heating valve VPP46.15L0.2 with pipe set and shut-off valve
- 04 = heating valve VPP46.15L0.6 with pipe set and shut-off valve
- 05 = heating valve VPP46.20F1.4 with pipe set and shut-off valve (valves with connection $\geq 1''$ are supplied loose)
- 25 = heating valve AB-QM-003Z8221 with pipe set and shut-off valve
- 26 = heating valve AB-QM-003Z8220 with pipe set and shut-off valve
- 27 = heating valve AB-QM-003Z8222 with pipe set and shut-off valve
- 31 = heating valve AB-QM-003Z8223 with pipe set and shut-off valve (valves with connection $\geq 1''$ are supplied loose)

12 – Actuator

- 000 = without actuator (standard)
- T01 = with thermal actuator SAST127474
- T02 = with thermal actuator SAST127475
- T03 = with thermal actuator SAPV127957
- T04 = with thermal actuator SAPV128561
- T05 = with thermal actuator SAPO129150
- M01 = with motorised actuator SMPV132351
- M02 = with motorised actuator SMPO132353
- M03 = with motorised actuator SMPO132352

13 – Position of electrical connection

- S1 = electrical connection in air flow direction on the left (not possible for water connection position -W1)
- S2 = electrical connection in air flow direction on the right (standard) (not possible for water connection position -W2)
- S3 = with offset electrical connection box in air flow direction on the left 1.5 m (not possible for combination of vertical mounting -V and water connection position -W1)
- S4 = with offset electrical connection box in air flow direction on the right 1.5 m (not possible for combination of vertical mounting -V and water connection position -W2)

14 – Additional control and regulation elements

- 0 = without additional control and regulation elements (standard)
- 1 = with fault message output
- 2 = with EC interface for 3-stage controller

15 – Valve condensate pan

- K0 = without valve condensate pan (standard)
- KH = with valve condensate pan on the side of the hydraulic connection

16 – Condensate pump

- 0 = without condensate pump (standard)
- 1 = with condensate pump Si-10, mounted ex works

FLEXIBLE CONNECTION ORDER CODE

01	02	03	04	05
Type	Family	Model	Size	Model
Example				
FA	-AQS	-000	-1	-Z1

NOTE

Please always specify the complete order code in the order!

If details are missing from the order, the standard model will be delivered.

Any special model not included in the order code must be queried before ordering.

* = if no details are given, processing is impossible.

EXAMPLE

FA-AQS-000-1-Z1

Flexible connection | for fan convector Aquaris Silent | standard product | size 1 | 150 mm for supply air

ORDER DETAILS

01 - Type

FA = flexible connection

02 – Family

AQS = for fan convector Aquaris Silent

03 – Model

000 = standard product

04 – Size*

1 = Size 1

2 = Size 2

3 = Size 3

4 = Size 4

5 = Size 5

05 – Model*

Z1 = 150 mm for supply air

Z2 = 290 mm for supply air

A1 = 150 mm for return air

A2 = 290 mm for return air

ORDER CODE OF FRAME FOR MINERAL/GLASS WOOL AIR DUCT

01	02	03	04
Type	Family	Size	Model
Example			
FW	-AQS	-1	-Z

NOTE

Please always specify the complete order code in the order!

If details are missing from the order, the standard model will be delivered.

Any special model not included in the order code must be queried before ordering.

* = if no details are given, processing is impossible.

EXAMPLE

FW-AQS-1-Z

Frame for mineral/glass wool air duct | for fan convector Aquaris Silent | size 1 | for supply air

ORDER DETAILS

01 - Type

FW = frame for mineral/glass wool air duct

02 – Family

AQS = for fan convector Aquaris Silent

03 – Size*

1 = Size 1
 2 = Size 2
 3 = Size 3
 4 = Size 4
 5 = Size 5

04 – Model*

Z = for supply air
 A = for return air

PLENUM BOX ORDER CODE

01	02	03	04	05	06	07
Type	Family	Model	Size	Model	Length	Insulation
Example						
PL	-AQS	-000	-1	-Z	-0500	-I1

08	09	10
Connection in air flow direction	in air flow direction on the left	in air flow direction on the right
Example		
-MAB	-L00	-R00

NOTE

Please always specify the complete order code in the order!

If details are missing from the order, the standard model will be delivered.

Any special model not included in the order code must be queried before ordering.

* = if no details are given, processing is impossible.

EXAMPLE

PL-AQS-000-1-Z-0500-I1-MAB-L00-R00

Plenum box | for fan convector Aquaris Silent | standard product | size 1 = 720 mm | supply air box | L = 500 mm | thermal insulation of 10 mm | closed in air flow direction | without spigot in air flow direction on the left | without spigot in air flow direction on the right

ORDER DETAILS

01 – Type

PL = Plenum box

02 – Family

AQS = for fan convector Aquaris Silent

03 – Model

000 = standard product

04 – Size*

1 = size 1 = 720 mm
 2 = size 2 = 935 mm
 3 = size 3 = 1270 mm
 4 = size 4 = 1375 mm
 5 = size 5 = 1620 mm

05 – Model*

Z = supply air box (only with flange or flexible connection, not compatible with frame for mineral/glass wool air duct)
 A = return air box (not compatible with frame for mineral/glass wool air duct)

06 – Length*

0200 = L = 200 mm
 0300 = L = 300 mm
 0400 = L = 400 mm
 0500 = L = 500 mm
 0600 = L = 600 mm
 0700 = L = 700 mm
 0800 = L = 800 mm
 0900 = L = 900 mm
 1000 = L = 1000 mm
 1100 = L = 1100 mm
 xxxx = length in mm (from 200 to 1100, always with 4 digits in mm)

07 – Insulation

I0 = without insulation
 I1 = thermal insulation of 10 mm (standard)
 I2 = sound and thermal insulation of 20 mm (height of box 280 mm with spigot DN198)
 I4 = sound and thermal insulation of 40 mm (height of box 280 mm with spigot DN158 or DN198)

08 – Connection in air flow direction*

- M00 = closed in air flow direction
- MAB = open in air flow direction
- MRE = connecting flange in air flow direction
- M1x = with x spigot DN123 in air flow direction (for number of spigots, see table on page 15)
- M2x = with x spigot DN158 in air flow direction (height of box 280 mm with -I4, for number of spigots, see table on page 15)
- M3x = with x spigot DN198 in air flow direction (height of box 280 mm with -I2 or -I4, for number of spigots, see table on page 15)

09 – Connection in air flow direction on the left*

- L00 = without spigot
- L1x = x DN123 R (for number of spigots, see table on page 15)
- L2x = x DN158 R (height of box 280 mm with -I4, for number of spigots, see table on page 15)
- L3x = x DN198 R (height of box 280 mm with -I2 or -I4, for number of spigots, see table on page 15)

10 – Connection in air flow direction on the right*

- R00 = without spigot
- R1x = x DN123 L (for number of spigots, see table on page 15)
- R2x = x DN158 L (height of box 280 mm with -I4, for number of spigots, see table on page 15)
- R3x = x DN198 L (height of box 280 mm with -I2 or -I4, for number of spigots, see table on page 15)

ORDER CODE OF TRANSITION PIECE FOR AIR DIFFUSER

01	02	03	04	05	06	07
Type	Family	Size	Model	Length	Fan convector position	Insulation
Example						
US	-AQS	-1	-Z	-1000	-M	-I0

08	09	10	11	12	13
Air flow direction	Air diffuser	Air diffuser colour	Mounting	Primary air connection spigot	Primary air spigot diameter
Example					
-1	-D1	-22	-SM	-P0	-0

NOTE

Please always specify the complete order code in the order!
 If details are missing from the order, the standard model will be delivered.
 Any special model not included in the order code must be queried before ordering.
 * = if no details are given, processing is impossible.

EXAMPLE

US-AQS-1-Z-1000-M-I0-1-D1-22-SM-P0-0

Transition piece for air diffuser | for fan convector Aquaris Silent | size 1 | for supply air | length L = 1000 mm | fan convector centred | without insulation | intake straight | with ceiling air diffuser DBB | white like RAL 9010 | visible mounting | without primary air connection spigot

ORDER DETAILS

01 - Type

US = transition piece for air diffuser

02 – Family

AQS = for fan convector Aquaris Silent

03 – Size*

1 = Size 1
 2 = Size 2
 3 = Size 3
 4 = Size 4
 5 = Size 5

04 – Model

Z = for supply air (standard)

05 – Length

xxxx = length L = xxxx mm (L_{min} according to table on page 18, always with 4 digits in mm)

06 – Fan convector position

M = fan convector centred (standard)
 R = fan convector offset to the right
 L = fan convector offset to the left

07 – Insulation

I0 = without insulation (standard)
 I1 = thermal insulation of 10 mm

08 – Air flow direction

1 = intake straight (standard)

09 – Air diffuser*

D1 = with ceiling air diffuser DBB
 R1 = with ventilation grille IB-Q

10 – Air diffuser colour

22 = white like RAL 9010 (standard)
 xy = colour of air diffuser xy according to table

11 – Mounting

SM = visible mounting (standard)
 VM = concealed mounting

12 – Primary air connection spigot

P0 = without primary air connection spigot (standard)

13 – Primary air spigot diameter

0 = without primary air connection spigot (standard)

DEVICE CASING ORDER CODE

01	02	03	04	05	06	07
Type	Family	Size	Mounting	Secondary air grille	Colour	Mounting kit
Example						
GV	-AQS	-1	-H	-R0	-2	-M1

NOTE

Please always specify the complete order code in the order!

If details are missing from the order, the standard model will be delivered.

Any special model not included in the order code must be queried before ordering.

* = if no details are given, processing is impossible.

EXAMPLE

GV-AQS-1-H-R0-2-M1

Device casing | for fan convector Aquaris Silent | size 1 | horizontal – ceiling | with secondary air open | white colour like RAL 9010 | with mounting kit

ORDER DETAILS

01 - Type

GV = device casing

02 – Family

AQS = for fan convector Aquaris Silent

03 – Size*

1 = Size 1

2 = Size 2

3 = Size 3

4 = Size 4

5 = Size 5

04 – Mounting

H = horizontal – ceiling (standard)

V = vertical – wall

05 – Secondary air grille

R0 = with secondary air open (standard)

R1 = with secondary air closed without grille

R2 = with secondary air DBB

R3 = with secondary air PA

06 – Colour

1 = black colour like RAL 9005

2 = white colour like RAL 9010 (standard)

3 = white colour like RAL 9016

4 = grey colour like RAL 9006

07 – Mounting kit

M0 = without mounting kit (only if the device casing should be replaced)

M1 = with mounting kit (standard)

ORDER CODE FOR ACCESSORIES SUPPLIED LOOSE

01	02
Type	Model
Example	
LWZ	-TR05

NOTE

Please always specify the complete order code in the order!
 If details are missing from the order, the standard model will be delivered.
 Any special model not included in the order code must be queried before ordering.

EXAMPLE

LWZ-TR05

Accessories for air-water systems | Room thermostat standalone with weekly program RDG160T

ORDER DETAILS

01 - Type

LWZ = accessories for air-water systems

02 – Model

Flexible hydraulic connection

Hxyz = with device connection (x), flexible connection (y)
 and free connection to the hydraulic network (z)
 (for x, y, z, see table on page 21)

Shut-off valve

VE01 = STH BOSTON 31038 1/2

Pressure-independent control valve

VC01 = VPP46.10L0.2, G1/2
 VC02 = VPP46.10L0.4, G1/2
 VC03 = VPP46.15L0.2, G 3/4
 VC04 = VPP46.15L0.6, G 3/4
 VC05 = VPP46.20F1.4, G 1
 VC25 = AB-QM-003Z8221, DN 15, G 3/4 A
 VC26 = AB-QM-003Z8220, DN 15, G 3/4 A, LF
 VC27 = AB-QM-003Z8222, DN 15, G 3/4 A, HF
 VC31 = AB-QM-003Z8223, DN 20, G 1 A
 VC32 = AB-QM-003Z8224, DN 20, G 1 A, HF

6-way ball valve

V601 = VWG41.10-0.25-0.4, G 1/2
 V602 = VWG41.10-0.25-0.65, G 1/2
 V603 = VWG41.10-0.25-1.0, G 1/2
 V604 = VWG41.10-0.4-0.65, G 1/2
 V605 = VWG41.10-0.4-1.0, G 1/2
 V606 = VWG41.10-0.4-1.3, G 1/2
 V607 = VWG41.10-0.4-1.6, G 1/2
 V608 = VWG41.10-0.65-1.0, G 1/2
 V609 = VWG41.10-0.65-1.3, G 1/2
 V610 = VWG41.10-0.65-1.6, G 1/2
 V611 = VWG41.10-1.0-1.3, G 1/2
 V612 = VWG41.10-1.0-1.6, G 1/2

V613 = VWG41.10-1.0-1.9, G 1/2
 V614 = VWG41.10-1.3-1.6, G 1/2
 V615 = VWG41.10-1.3-1.9, G 1/2
 V616 = VWG41.10-1.6-1.9, G 1/2
 V617 = VWG41.10-1.9-1.9, G 1/2
 V618 = VWG41.10-0.25-1.3, G 1/2
 V619 = VWG41.10-0.25-1.6, G 1/2
 V620 = VWG41.10-0.25-1.9, G 1/2
 V621 = VWG41.10-0.4-0.4, G 1/2
 V622 = VWG41.10-0.4-1.9, G 1/2
 V623 = VWG41.10-0.65-0.65, G 1/2
 V624 = VWG41.10-0.65-1.9, G 1/2
 V625 = VWG41.10-1.0-1.0, G 1/2
 V626 = VWG41.10-1.3-1.3, G 1/2
 V627 = VWG41.10-1.6-1.6, G 1/2
 V628 = VWG41.20-0.65-2.5, G 1
 V629 = VWG41.20-1.0-2.5, G 1
 V630 = VWG41.20-1.6-2.5, G 1
 V631 = VWG41.20-1.6-3.45, G 1
 V632 = VWG41.20-2.5-3.45, G 1
 V633 = VWG41.20-2.5-4.25, G 1
 V634 = VWG41.20-4.25-4.25, G 1
 V635 = VWG41.20-0.25-2.5, G 1
 V636 = VWG41.20-0.25-3.45, G 1
 V637 = VWG41.20-0.25-4.25, G 1
 V638 = VWG41.20-0.4-2.5, G 1
 V639 = VWG41.20-0.4-3.45, G 1
 V640 = VWG41.20-0.4-4.25, G 1
 V641 = VWG41.20-0.65-3.45, G 1
 V642 = VWG41.20-0.65-4.25, G 1
 V643 = VWG41.20-1.0-3.45, G 1
 V644 = VWG41.20-1.0-4.25, G 1
 V645 = VWG41.20-1.3-2.5, G 1
 V646 = VWG41.20-1.3-3.45, G 1
 V647 = VWG41.20-1.3-4.25, G 1
 V648 = VWG41.20-1.6-4.25, G 1
 V649 = VWG41.20-2.5-2.5, G 1
 V650 = VWG41.20-3.45-3.45, G 1

Valve adapter

VA01 = ALG132, female thread G 1/2 to male thread R 3/8
VA02 = ALG142, female thread G 3/4 to male thread R 1/2

Thermal actuator

AT01 = SAST127474, ON/OFF, 230 V AC
AT02 = SAST127475, ON/OFF, 24 V AC/DC
AT03 = SAPV127957, 0-10 V, 24 V AC, + valve travel detection
AT04 = SAPV128561, 0-10 V, 24 V DC, + valve travel detection
AT05 = SAPO129150, 0-10 V, 24 V AC/DC, + valve travel detection, + feedback signal

Motorised actuator

AM01 = SMPV132351, 0-10 V, 24 V AC/DC, + valve travel detection
AM02 = SMP0132353, 0-10 V, 24 V AC/DC, + valve travel detection, + feedback signal
AM03 = SMP0132352, 0-10 V, 24 V AC/DC, + valve travel detection + feedback signal

6-way ball valve

AR01 = GDB341.9E, 3P, 230 V AC
AR02 = GDB161.9E, 0-10 V, 24 V AC/DC
AR03 = GDB111.9E, KNX, 24 V AC

Room thermostat

TR05 = RDG160T

Room thermostat with KNX interface

TK02 = RDG160KN
TK04 = RDG260KN

Condensate pump

KK01 = Si-10

Mounting kits

MGV1 = mounting kit for device casing GV-AQS

Pipe sets

RR11 = pipe set for 2-pipe register 1 pipe row left
RR12 = pipe set for 2-pipe register 1 pipe row right
RR31 = pipe set for 2-pipe register 3 pipe rows left
RR32 = pipe set for 2-pipe register 3 pipe rows right
RL41 = pipe set for 4-pipe register 1 and 3 pipe rows left
RL42 = pipe set for 4-pipe register 1 and 3 pipe rows right

SPECIFICATION TEXT

High-efficiency fan convector Aquaris Silent for horizontal or vertical installation in false ceilings, cavity floors, walls or free-standing/freely suspended with casing. The housing of the device consists of profiles and covers made of galvanized sheet steel and provided with polyethylene heat and sound insulation with a thickness of 6 mm. The energy-efficient EC motor fan consists of double-sided intake-operated centrifugal blower with direct drive. The 2-pipe or 4-pipe heat exchangers or registers have a rack made of galvanized steel, aluminum ribs and copper pipes. With condensate pan according to VDI 6022 made of stainless-steel sheet. Filter efficiency ISO Coarse < 40%. It consists of synthetic fabric on a plastic frame.

Product: SCHAKO

Family: fan convector Aquaris Silent

Aquaris Silent models

Type

Fan convector Aquaris Silent -AQ5

Motor

EC motor -EC

Size

Size 1 -1

Size 2 -2

Size 3 -3

Size 4 -4

Size 5 -5

System (water register version)

2-pipe register 1 row of pipes (heating) -R1

2-pipe register 3 rows of pipes (cooling or heating) -R3

4-pipe register 1 and 3 pipe rows (heating and cooling) -L4

Air filter

ISO Coarse <40 % -C1

ISO Coarse 40 % -C4

Mounting

horizontal – ceiling -H

horizontal – floor -B

vertical – wall -V

Intake position

secondary air intake, straight -1

Duct connection

without flange -F0

with supply air flange -FZ

Water connection position

water connection in air flow direction on the left -W1

water connection in air flow direction on the right -W2

Construction subject to change.

No return possible.

Cooling valve

without cooling valve, without pipe set, without shut-off valve-00

cooling valve VPP46.10L0.2 with pipe set and shut-off valve -01

cooling valve VPP46.10L0.4 with pipe set and shut-off valve -02

cooling valve VPP46.15L0.2 with pipe set and shut-off valve -03

cooling valve VPP46.15L0.6 with pipe set and shut-off valve -04

cooling valve VPP46.20F1.4 with pipe set and shut-off valve -05

cooling valve AB-QM-003Z8221 with pipe set and shut-off valve

-25

cooling valve AB-QM-003Z8220 with pipe set and shut-off valve

-26

cooling valve AB-QM-003Z8222 with pipe set and shut-off valve

-27

cooling valve AB-QM-003Z8223 with pipe set and shut-off valve

-31

Heating valve

without heating valve, without pipe set, without shut-off valve

-00

heating valve VPP46.10L0.2 with pipe set and shut-off valve -01

heating valve VPP46.10L0.4 with pipe set and shut-off valve -02

heating valve VPP46.15L0.2 with pipe set and shut-off valve -03

heating valve VPP46.15L0.6 with pipe set and shut-off valve -04

heating valve VPP46.20F1.4 with pipe set and shut-off valve -05

heating valve AB-QM-003Z8221 with pipe set and shut-off valve

-25

heating valve AB-QM-003Z8220 with pipe set and shut-off valve

-26

heating valve AB-QM-003Z8222 with pipe set and shut-off valve

-27

heating valve AB-QM-003Z8223 with pipe set and shut-off valve

-31

Actuator

without actuator -000

with thermal actuator SAST127474 -T01

with thermal actuator SAST127475 -T02

with thermal actuator SAPV127957 -T03

with thermal actuator SAPV128561 -T04

with thermal actuator SAPO129150 -T05

with motorised actuator SMPV132351 -M01

with motorised actuator SMPO132353 -M02

with motorised actuator SMPO132352 -M03

Position of electrical connection

electrical connection in air flow direction on the left -S1

electrical connection in air flow direction on the right -S2

with offset electrical connection box in air flow direction on

the left 1.5 m -S3

with offset electrical connection box in air flow direction on

the right 1.5 m -S4

Additional control and regulation elements

without additional control and regulation elements -0

with fault message output -1

with EC interface for 3-stage controller -2

Valve condensate pan	
without valve condensate pan	-K0
with valve condensate pan on the side of the hydraulic connection	-KH

Condensate pump	
without condensate pump	-0
with condensate pump Si-10, mounted ex works	-1

Flexible connection models

Type	
Flexible connection	-FA

Family	
for fan convector Aquaris Silent	-AQS

Model	
standard product	-000

Size	
Size 1	-1
Size 2	-2
Size 3	-3
Size 4	-4
Size 5	-5

Model	
150 mm for supply air	-Z1
290 mm for supply air	-Z2
150 mm for return air	-A1
290 mm for return air	-A2

Models of frame for mineral/glass wool air duct

Type	
frame for mineral/glass wool air duct	-FW

Family	
for fan convector Aquaris Silent	-AQS

Size	
Size 1 -1	
Size 2 -2	
Size 3 -3	
Size 4 -4	
Size 5 -5	

Model	
for supply air	-Z
for return air	-A

Plenum box models

Type	
plenum box	-PL

Construction subject to change.
 No return possible.

Family	
for fan convector Aquaris Silent	-AQS

Model	
standard product	-000

Size	
size 1 = 720 mm	-1
size 2 = 935 mm	-2
size 3 = 1270 mm	-3
size 4 = 1375 mm	-4
size 5 = 1620 mm	-5

Model	
supply air box	-Z
return air box	-A

Length	
L = 200 mm	-0200
L = 300 mm	-0300
L = 400 mm	-0400
L = 500 mm	-0500
L = 600 mm	-0600
L = 700 mm	-0700
L = 800 mm	-0800
L = 900 mm	-0900
L = 1000 mm	-1000
L = 1100 mm	-1100
length in mm	-xxxx

Insulation	
without insulation	-I0
thermal insulation of 10 mm	-I1
sound and thermal insulation of 20 mm	-I2
sound and thermal insulation of 40 mm	-I4

Connection in air flow direction	
closed in air flow direction	-M00
open in air flow direction	-MAB
connecting flange in air flow direction	-MRE
with x spigot DN123 in air flow direction	-M1x
with x spigot DN158 in air flow direction	-M2x
with x spigot DN158 in air flow direction	-M3x

Connection in air flow direction on the left	
without spigot in air flow direction on the left	-L00
with x spigot DN123 in air flow direction on the left	-L1x
with x spigot DN158 in air flow direction on the left	-L2x
with x spigot DN198 in air flow direction on the left	-L3x

Connection in air flow direction on the right	
without spigot in air flow direction on the right	-R00
with x spigot DN123 in air flow direction on the right	-R1x
with x spigot DN158 in air flow direction on the right	-R2x
with x spigot DN198 in air flow direction on the right	-R3x

Models of transition piece for air diffuser

Type	
transition piece for air diffuser	-US
Family	
for fan convector Aquaris Silent	-AQS
Size	
Size 1 -1	
Size 2 -2	
Size 3 -3	
Size 4 -4	
Size 5 -5	
Model	
for supply air	-Z
Length	
length L = xxxx mm	-xxxx
Fan convector position	
fan convector centered	-M
fan convector offset to the right	-R
fan convector offset to the left	-L
Insulation	
without insulation	-I0
thermal insulation of 10 mm	-I1
Air flow direction	
intake straight	-1
Air diffuser	
with ceiling air diffuser DBB	-D1
with ventilation grille IB-Q	-R1
Air diffuser colour	
white like RAL 9010	-22
colour of air diffuser xy according to table on page 19	-xy
Mounting	
visible mounting	-SM
concealed mounting	-VM
Primary air connection spigot	
Without primary air connection spigot	-P0
Primary air spigot diameter	
Without primary air connection spigot	-0
Device casing models	
Type	
device casing	-GV

Construction subject to change.
 No return possible.

Family	
for fan convector Aquaris Silent	-AQS
Size	
Size 1 -1	
Size 2 -2	
Size 3 -3	
Size 4 -4	
Size 5 -5	
Mounting	
horizontal – ceiling	-H
vertical – wall	-V
Secondary air grille	
with secondary air open	-R0
with secondary air closed without grille	-R1
with secondary air DBB	-R2
with secondary air PA	-R3
Colour	
black colour like RAL 9005	-1
white colour like RAL 9010	-2
white colour like RAL 9016	-3
grey colour like RAL 9006	-4
Mounting kit	
with mounting kit	-M0
without mounting kit	-M1
Models of accessories supplied loose	
Flexible hydraulic connection	
EDE-13 500 mm	-1
EDE-13 800 mm	-2
EDE-13 1200 mm	-3
AG male thread 1/2	-A
AG male thread 3/4	-B
ÜMF flat seal spigot nut 1/2	-C
ÜMF flat seal spigot nut 3/4	-D
R-AG-D rotating male thread 1/2	-E
R-AG-D rotating male thread 3/4	-F
Shut-off valve	
STH BOSTON 31038 1/2	-VE01
Pressure-independent control valve	
VPP46.10L0.2, G1/2	-VC01
VPP46.10L0.4, G1/2	-VC02
VPP46.15L0.2, G 3/4	-VC03
VPP46.15L0.6, G 3/4	-VC04
VPP46.20F1.4, G 1	-VC05
AB-QM-003Z8221, DN 15, G 3/4 A	-VC25
AB-QM-003Z8220, DN 15, G 3/4 A, LF	-VC26
AB-QM-003Z8222, DN 15, G 3/4 A, HF	-VC27
AB-QM-003Z8223, DN 20, G 1 A	-VC31
AB-QM-003Z8224, DN 20, G 1 A, HF	-VC32

6-way ball valve

VWG41.10-0.25-0.4, G 1/2	-V601
VWG41.10-0.25-0.65, G 1/2	-V602
VWG41.10-0.25-1.0, G 1/2	-V603
VWG41.10-0.4-0.65, G 1/2	-V604
VWG41.10-0.4-1.0, G 1/2	-V605
VWG41.10-0.4-1.3, G 1/2	-V606
VWG41.10-0.4-1.6, G 1/2	-V607
VWG41.10-0.65-1.0, G 1/2	-V608
VWG41.10-0.65-1.3, G 1/2	-V609
VWG41.10-0.65-1.6, G 1/2	-V610
VWG41.10-1.0-1.3, G 1/2	-V611
VWG41.10-1.0-1.6, G 1/2	-V612
VWG41.10-1.0-1.9, G 1/2	-V613
VWG41.10-1.3-1.6, G 1/2	-V614
VWG41.10-1.3-1.9, G 1/2	-V615
VWG41.10-1.6-1.9, G 1/2	-V616
VWG41.10-1.9-1.9, G 1/2	-V617
VWG41.10-0.25-1.3, G 1/2	-V618
VWG41.10-0.25-1.6, G 1/2	-V619
VWG41.10-0.25-1.9, G 1/2	-V620
VWG41.10-0.4-0.4, G 1/2	-V621
VWG41.10-0.4-1.9, G 1/2	-V622
VWG41.10-0.65-0.65, G 1/2	-V623
VWG41.10-0.65-1.9, G 1/2	-V624
VWG41.10-1.0-1.0, G 1/2	-V625
VWG41.10-1.3-1.3, G 1/2	-V626
VWG41.10-1.6-1.6, G 1/2	-V627
VWG41.20-0.65-2.5, G 1	-V628
VWG41.20-1.0-2.5, G 1	-V629
VWG41.20-1.6-2.5, G 1	-V630
VWG41.20-1.6-3.45, G 1	-V631
VWG41.20-2.5-3.45, G 1	-V632
VWG41.20-2.5-4.25, G 1	-V633
VWG41.20-4.25-4.25, G 1	-V634
VWG41.20-0.25-2.5, G 1	-V635
VWG41.20-0.25-3.45, G 1	-V636
VWG41.20-0.25-4.25, G 1	-V637
VWG41.20-0.4-2.5, G 1	-V638
VWG41.20-0.4-3.45, G 1	-V639
VWG41.20-0.4-4.25, G 1	-V640
VWG41.20-0.65-3.45, G 1	-V641
VWG41.20-0.65-4.25, G 1	-V642
VWG41.20-1.0-3.45, G 1	-V643
VWG41.20-1.0-4.25, G 1	-V644
VWG41.20-1.3-2.5, G 1	-V645
VWG41.20-1.3-3.45, G 1	-V646
VWG41.20-1.3-4.25, G 1	-V647
VWG41.20-1.6-4.25, G 1	-V648
VWG41.20-2.5-2.5, G 1	-V649
VWG41.20-3.45-3.45, G 1	-V650

Valve adapter

ALG132, female thread G 1/2 to male thread R 3/8	-VA01
ALG142, female thread G 3/4 to male thread R 1/2	-VA02

Thermal actuator

SAST127474, ON/OFF, 230 V AC	-AT01
SAST127475, ON/OFF, 24 V AC/DC	-AT02
SAPV127957, 0-10 V, 24 V AC, + valve travel detection	-AT03
SAPV128561, 0-10 V, 24 V DC, + valve travel detection	-AT04
SAPO129150, 0-10 V, 24 V AC/DC, + valve travel detection + feedback signal	-AT05

Motorised actuator

SMPV132351, 0-10 V, 24 V AC/DC, + valve travel detection	-AM01
SMPO132353, 0-10 V, 24 V AC/DC, + valve travel detection + feedback signal	-AM02
SMPO132352, 0-10 V, 24 V AC/DC, + valve travel detection + feedback signal	-AM03

6-way ball valve

GDB341.9E, 3P, 230 V AC	-AR01
GDB161.9E, 0-10 V, 24 V AC/DC	-AR02
GDB111.9E, KNX, 24 V AC	-AR03

Room thermostat

RDG160T	-TR05
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Room thermostat with KNX interface

RDG160KN	-TK02
RDG260KN	-TK04

Condensate pump

Si-10	-KK01
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Mounting kits

mounting kit for device casing GV-AQS	-MGV1
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Pipe sets

pipe set for 2-pipe register 1 pipe row left	-RR11
pipe set for 2-pipe register 1 pipe row right	-RR12
pipe set for 2-pipe register 3 pipe rows left	-RR31
pipe set for 2-pipe register 3 pipe rows right	-RR32
pipe set for 4-pipe register 1 and 3 pipe rows left	-RL41
pipe set for 4-pipe register 1 and 3 pipe rows right	-RL42