



Aquaris Silent Hybrid

Hybrid induction device

OVERVIEW

The SCHAKO AQSH convector is an induction diffuser with an integrated fan designed for achieving maximum performance with the lowest possible acoustic emissions.

It has been developed primarily for installation in hallways, for example in hotels, care homes and hospitals, as well as for installation in ceiling panelling in offices and is suitable for cooling, heating and simultaneous ventilation with preconditioned external air.

ADVANTAGES

- Three different operating modes to adapt to the occupancy
- Minimal noise generation and energy consumption in induction mode
- High thermal performance in fan coil unit mode
- High-efficiency EC fan
- Easy access to all maintenance-related groups from the room side

CHARACTERISTICS

- Two sizes and several models
- Primary air connections
- Secondary air filter
- Heating and cooling with 2-pipe or 4-pipe system
- Integrated control
- ModBus communication
- Hygiene requirements according to VDI 6022

PERFORMANCE DATA

Mode	L _{WA} (dB(A))	V _P (m ³ /h)	p _S (Pa)	Q _{Heiz} (W)	Q _{Kühl} (W)
Induction	26	140	150	800	864
Fan coil unit	35	0	0	1866	1748
Hybrid	35	70	150	1427	1410

Water capacity

Cooling: 7-12 °C, 27 °C, 47% | Heating: 45-40 °C, 20 °C

Size -2, 2-pipe register

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GENERAL DESCRIPTION

The SCHAKO is a hybrid end device that combines the high heating capacity of a fan coil unit with the comfort of an induction system. It is used for cooling, heating and fresh air supply.

It is designed for installation in hallways, for example in hotels, care homes and hospitals, as well as for installation in ceiling panelling in offices, where the secondary air is drawn in from below and the supply air is blown out horizontally into the room.

The device is available in two different sizes which are variable in width. The height of both models is minimised to 317 mm for easy installation in ceilings with limited space.

Various models of the device are available to meet all aesthetic and functional requirements. The AQSH has an integrated condensate pan so that it can work with water temperatures from 7 °C in the cooling mode.

The option of adjustable nozzles allows regulation of the primary air flow directly on the device. This eliminates the need for additional flow regulators and associated silencers.

The combination of the EC fan and the adjustable nozzles with the control integrated in the device results in three operating modes for adapting to the room occupancy at any time of the day or night (see Operation).

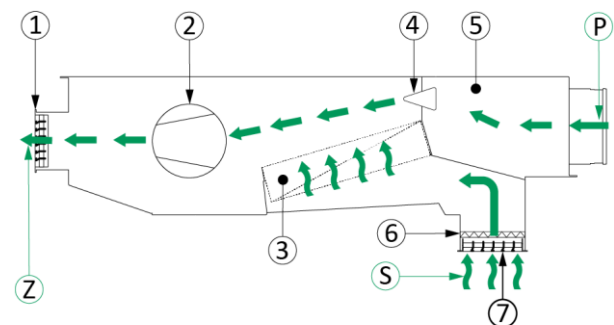
All maintenance-relevant components can be easily dismounted from the room side and comply with the hygiene requirements of VDI 6022.

OPERATION

Fan mode without external air: When the room is empty before the users arrive or when the users are absent, the AQSH can activate its EC fan and thus compensate for heat loads.

Hybrid mode: When users enter the room and the set temperature is reached, the fan speed is reduced again and the room setpoint values are regulated via the activated primary air. If the room temperature exceeds the setpoint value under increasing load conditions, the fan is activated to cover both the heat and fresh air requirements.

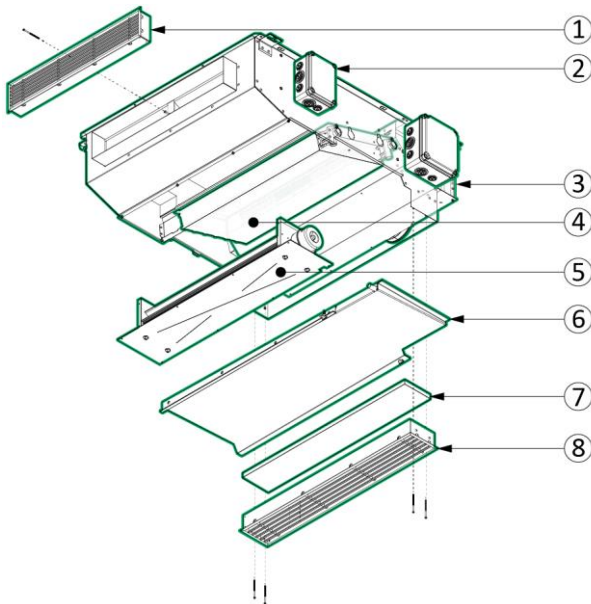
Induction mode: The fan switches off during low-load operation, especially at night when the heat loads are low and the noise requirements are high. The thermal conditions and ventilation requirements are met solely by the primary air and the resulting induction.



- 1 = Supply air grille | 2 = Motorised fan | 3 = Heat exchanger |
 4 = Induction nozzles | 5 = Plenum box | 6 = Secondary air filter |
 7 = Secondary air grille
 P = Primary air | S = Secondary air | Z = Supply air

DESCRIPTION OF THE STANDARD VERSION

The following describes the standard version of the devices. The options that can be configured via the order code can be found in the following sections.



1 Air diffuser for supply air

SCHAKO aluminium ventilation grille PA-Z-10-08, light-weight blade profile, horizontally arranged fixed profiled blades for air outlet at an angle, narrow frame profile 10 mm and blade spacing 8 mm. For wall installation. With sliding spigot for on site position adjustment in the range of approx. 50 mm. Fastening to the device with concealed screws.

2 Electrical connection box

Waterproof box made of thermoplastic material, with magnetic fastening. Including DIN rail with 4 mm² terminals.

3 Device housing and plenum box

1 mm thick galvanised sheet steel, not painted, with silencer made of flame-retardant melamine foam integrated into the air diffuser. Including four mounting brackets made of 2 mm thick galvanised sheet steel, unpainted, with mounting holes for M8 threaded rods and with primary air connection spigot with rubber lip seal.

4 Heat exchanger

Aluminium ribs, copper pipes and frame made of galvanised sheet steel. Connection with BSPP 1/2" F thread, ventilation openings integrated in the connections. Not painted.

5 Motorised fan

High-efficiency EC cross-flow fan with galvanised sheet steel and vibration dampers.

6 Condensate pan

Consisting of stainless steel sheet with 3 mm oxygen diffusion-tight insulation on the outside. Drain pipe with 16 mm outer diameter.

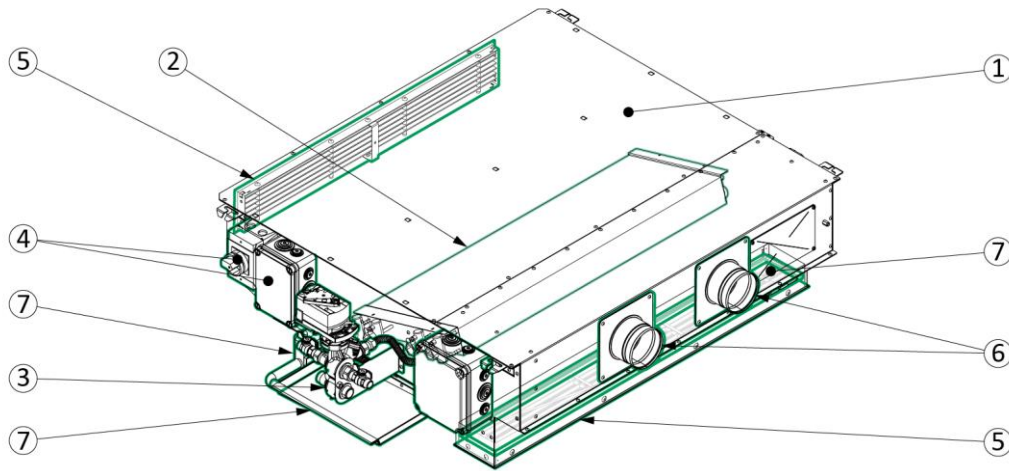
7 Secondary air filter

Filter with ISO Coarse 40% efficiency, consisting of a frame made of galvanised sheet steel, not painted, and a 10 mm thick self-extinguishing polyester fibre filter mat.

8 Air diffuser for secondary air

SCHAKO aluminium ventilation grille PA-Z-10-13, light-weight blade profile, horizontally arranged fixed profile blades, 10 mm narrow frame profile and 13 mm blade spacing. For ceiling installation. With sliding spigot for on site position adjustment in the range of approx. 50 mm. Fastening to the device with screws.

AVAILABLE OPTIONS



1 Design options

- 2 sizes
- Several volumetric flow ranges for every size

2 Hydraulic connection options

- 2-pipe system or 4-pipe system
- Antibacterial coating
- Left or right connection side

3 Hydraulic regulation options

- Pressure-independent control valves with pipe set and shut-off valves
- 6-way pressure-independent control ball valves with actuators 24 V AC/DC, 0-10 V
- Thermal and motorised actuators, 230 V AC and 24 V AC/DC, with on/off control and 0-10 V control

4 Electrical connection and control options

- Electrical box attached to the device or separately with 1.5 m cable
- Repair switch mounted on the device

5 Air diffuser options

- Various air diffuser types
- Colours RAL 9005, RAL 9010, RAL 9016, RAL 9006
- Special colours upon request

6 Air connection options

- 1 or 2 spigots in the diameters $\varnothing 98$ and $\varnothing 138$

7 Additional options

- Intake without filter or with filter ISO Coarse 40%
- Device with or without integrated condensate pan for valves
- Condensate pump installed ex works

+ Accessories supplied loose

- Pressure-independent straight-way valves
- Valve adapter
- Thermal actuator
- Motorised actuator
- 6-way pressure-independent control ball valve
- Rotary actuator for 6-way control ball valves
- Shut-off valve

DESCRIPTION OF THE AQSH OPTIONS

DESIGN

SIZE

There are two possible device sizes. The size of the device determines its performance. The following table may be helpful for a quick selection of the device size.



For performance calculations under other conditions, please refer to the technical data or the SCHAKO design program.

Size	1	2
Heating capacity (W)	271-3367	291-3904
Total cooling capacity (W)	330-2820	357-2846
Sound power level dB(A)	20-52	15-50

Min-max range for fan signal 0-10 V and primary air pressure 50-200 Pa in hybrid mode

Water capacity, 2-pipe register

Cooling: 7-12 °C, 27 °C, 47% | Heating: 45-40 °C, 20 °C

PRIMARY AIR NOZZLES

Each device size can be configured with different primary volume flows depending on the project requirements.

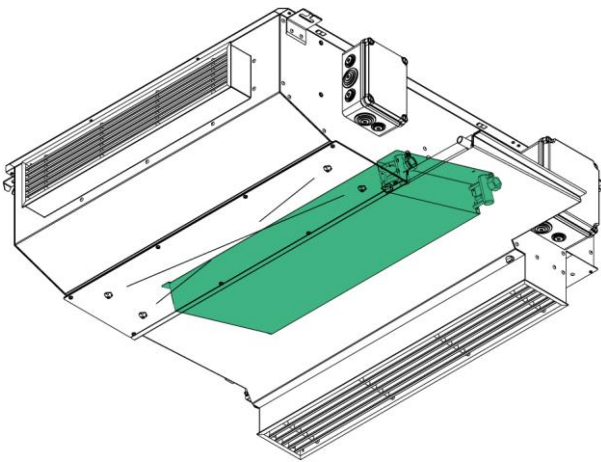
The nozzles with variable cross-section (V) can be set in any position between closed and open to allow for changes in occupancy and room usage at any time.

The following table can be used for quick selection of the volumetric flow range.

Size	1	2
small air volumes (-Q1)	40-80 m ³ /h	40-80 m ³ /h
medium air volumes (-Q2)	60-120 m ³ /h	60-120 m ³ /h
large air volumes (-Q3)	-	80-160 m ³ /h
adjustable air volumes (-QV)	0-80 m ³ /h	0-100 m ³ /h

For a pressure range of 50-200 Pa

WATER CONNECTION



WATER REGISTER VERSION

The device can be ordered with 1 register for a 2-pipe system (cooling or heating) or with 1 register for a 4-pipe system (cooling and heating).



The 2-pipe heat exchanger can be used in 4-pipe installations by selecting the pressure-independent 6-way control ball valve set. As a result, the full heat output of the 2-pipe register is effective in 4-pipe heating and cooling systems.



Further information on the hydraulic connections can be found in the “Design information” section.

REGISTER COLOUR

The antibacterial coating consists of a protective film which provides the register a protection against the growth of bacteria and therefore complies with the hygienic requirements of special facilities such as hospitals, resident rooms or laboratories.

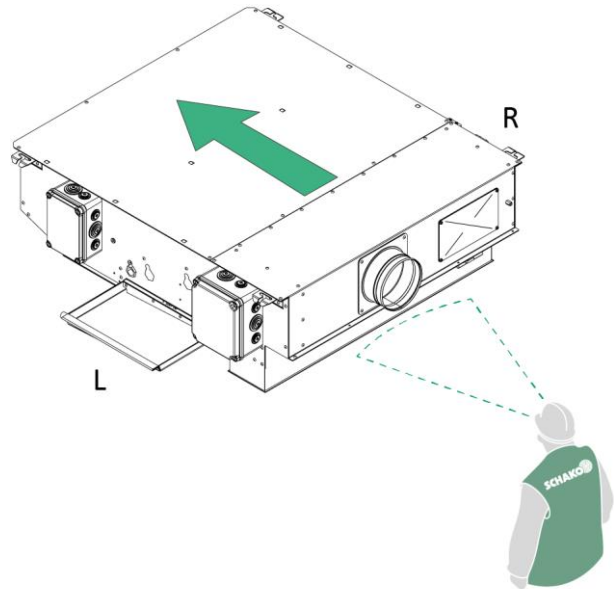
Antibacterial coating

Composition	Epoxy resin
Salt spray resistance to ASTM B 117	> 1000 h
Acetic acid salt spray (AASS) resistance to ASTM B 117 and ASTM G 85	> 750 h
Cross-cut test ENISO 2409	Class 0 - 1
Migration test DM 21/03/73 (mod. 26/0493 no. 220 and 22/07/98 no. 338)	Ok

Subject to design changes.
 No return possible.

CONNECTION POSITION

The hydraulic and electrical connections are located on the same side of the device. The connection side can be configured in the right or left air flow direction.

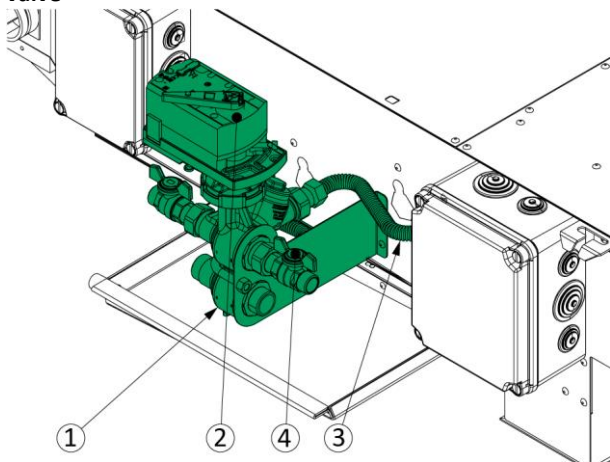


HYDRAULIC REGULATION

The device can be regulated with one set of valves and actuators. The valve set consists of pressure-independent control valves, pipes and shut-off valves.

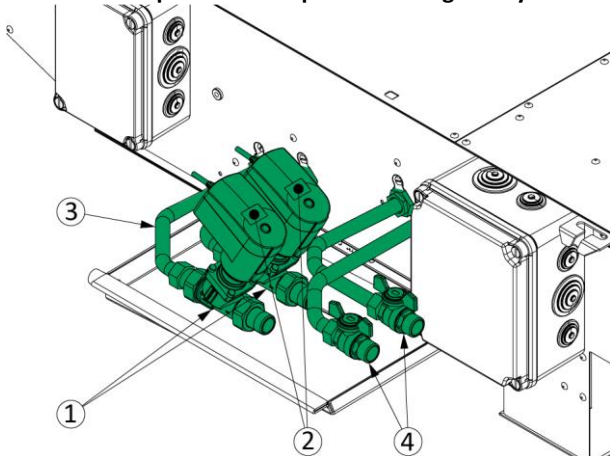
The 6-way valve kit makes it possible to utilise the full heat output of the 2-pipe register in 4-pipe heating and cooling systems.

Valve kit with 6-way pressure-independent control ball valve



1 = Valve | 2 = Actuator | 3 = Shut-off valves | 4 = Pipe set

Valve kit with pressure-independent straight-way valve



1 = Valves | 2 = Actuators | 3 = Pipe set | 4 = Shut-off valves

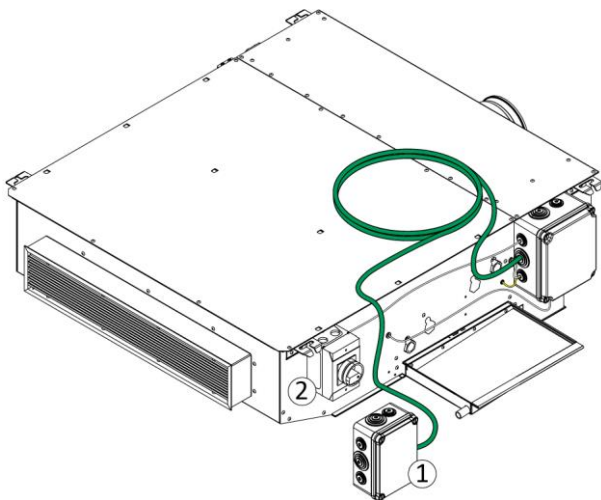


All accessories can also be ordered separately for on site installation by specifying -000 and ordering with a separate code (see “Order code for LWZ accessories”).



Further information on valve and actuator models can be found in the “Description of the LWZ accessories” section.

ELECTRICAL CONNECTION AND CONTROL



1 = Electrical connection box | 2 = Repair switch

ELECTRICAL CONNECTION BOX

The device has an electrical connection box located on the side of the connections. The box can be configured either directly on the housing or separately with a 1.5 m cable.

In addition, the electrical connections can be equipped with a repair switch with restart interlock to facilitate installation and maintenance work.

i Further information on the electrical connections can be found in the “Design information” section.

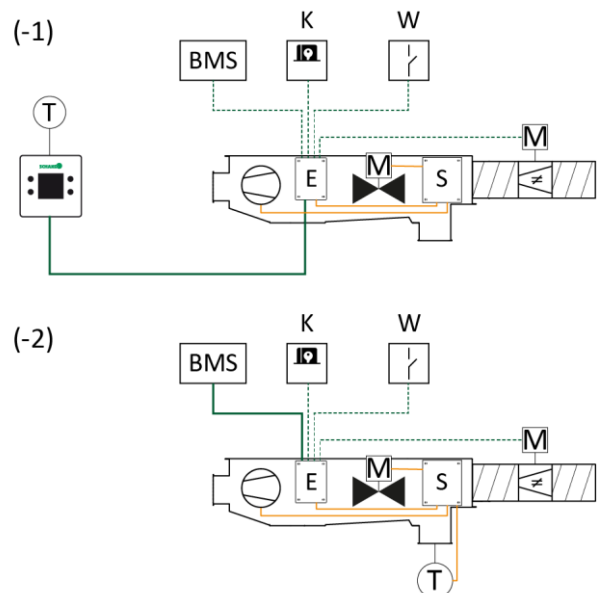
CONTROL AND REGULATION ELEMENTS

The device is controlled via its own controller. Communication with the control can take place in different ways:

- (-1) Use of the controller itself as a room thermostat.
- (-2) Via a BMS system with Modbus RTU communication, which receives the ambient temperature from a temperature sensor installed in the secondary air.

In all cases, the devices work with the same logic. The set-point temperature is compared with the ambient temperature detected by the temperature sensor and the device works accordingly. The device prioritises the use of primary air and activates the fan only if the primary air is not sufficient to maintain the selected comfort conditions.

i The controller is configured as standard with a 0-10 V output to regulate the primary flow. ON/OFF option upon request.

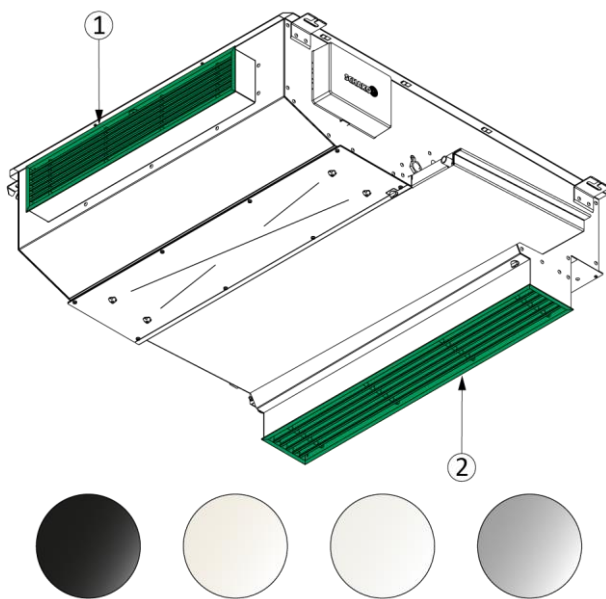


E = Electrical connection box | S = Internally wired control box |
 T = Temperature sensor | M = Actuator | K = Card reader
 | W = Window contact

AIR DIFFUSERS

The device has several types of supply air and secondary air diffusers. All types are designed in a way that the pressure loss of the induced air is minimised and the performance is maximised.

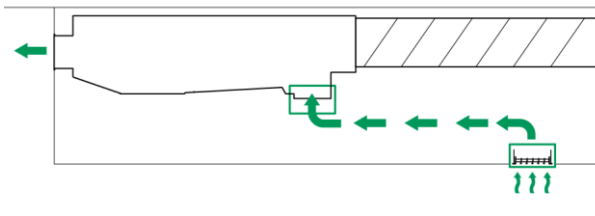
All air diffusers can be painted to the specified RAL colours. Other colours are available upon special order.



1 = Air diffuser for supply air | 2 = Air diffuser for secondary air

AIR DIFFUSER FOR SECONDARY AIR

The secondary air diffuser can be ordered separately by specifying the -00 option and then ordering the secondary air diffuser with its own order code. This allows the secondary air diffuser to be installed separately from the device so that extraction takes place from the technical ceiling.

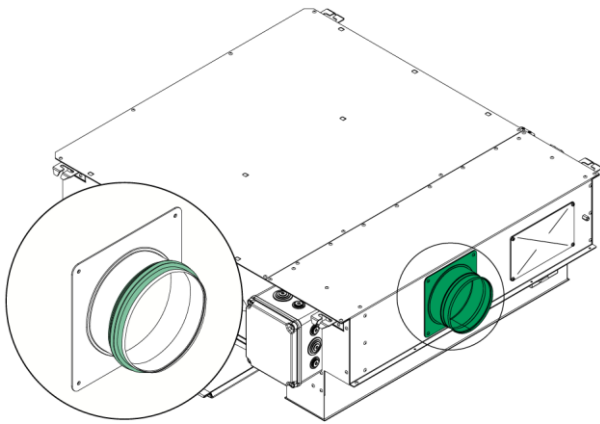


AIR CONNECTION

PRIMARY AIR CONNECTION SPIGOT

Design size 1 can be configured with one $\varnothing 98$ mm spigot or with two $\varnothing 98$ mm spigots. Size 2 can be configured with two $\varnothing 98$ mm spigots or with a single $\varnothing 138$ mm spigot to reduce material and installation costs.

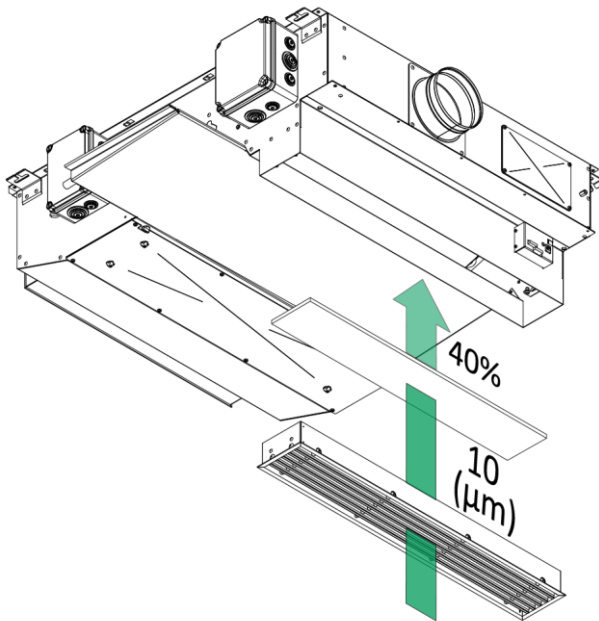
All spigots are provided with a rubber lip seal to ensure perfect sealing between the device and the primary air duct.



OPTIONS

AIR FILTER

The device can be configured with an air filter with efficiency ISO Coarse 40% according to ISO 16890. This filter protects the register against contamination with coarse particles or lint.

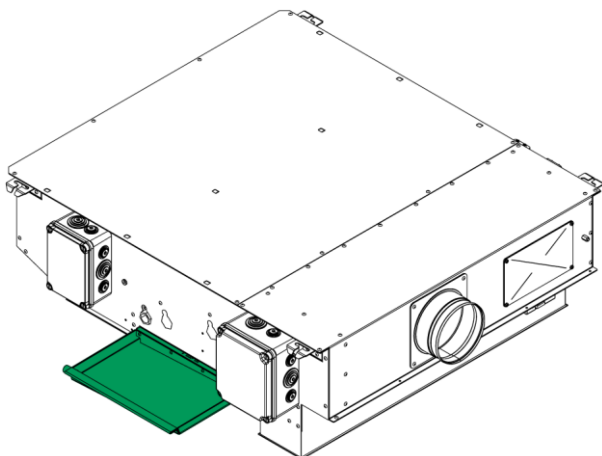


VALVE CONDENSATE PAN

The valve condensate pan collects the condensate on the pipe set and on the valves. The device can be configured with or without a valve condensate pan.

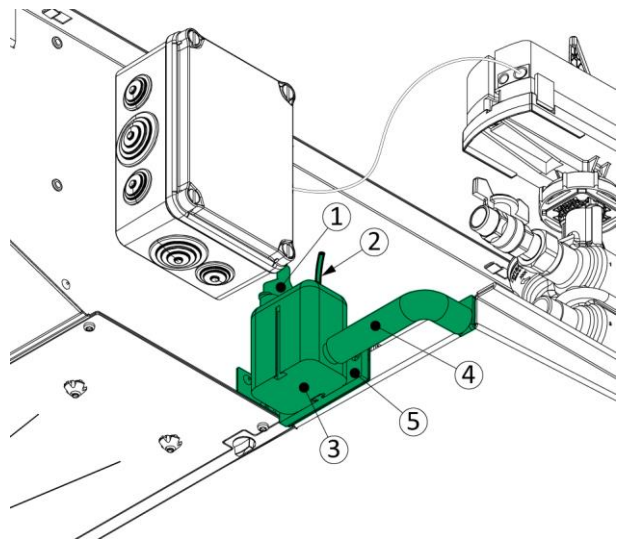


If the device is configured without a condensate pan for valves, the connections, connection lines and valves must be thermally insulated on site.



CONDENSATE PUMP

The installation of a condensate pump allows the condensate water produced to be drained when the level of the waste water branch 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.



1 = Connecting cable | 2 = Ventilation pipe | 3 = Condensate pump | 4 = Suction pipe | 5 = Mounting plate

Technical data

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	44 x 66 x 77 mm

DESCRIPTION OF THE LWZ ACCESSORIES

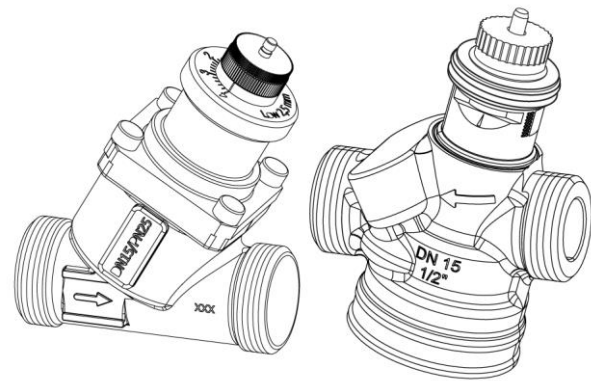


All accessories are supplied loose for mounting on site outside the device.

PRESSURE-INDEPENDENT STRAIGHT-WAY 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 of a constant water flow independent of the differential pressure.
- With integrated differential pressure regulator.
- Control and compensation in one valve.
- Presetting range with linear valve characteristics.
- Differential pressure range 15...600 kPa.
- Male thread connections G according to ISO 228-1.
- Can be fitted with electrothermal or electromotive actuators.
- PN 25 according to EN 1333.



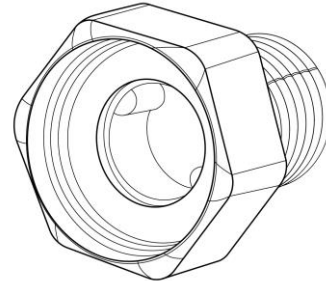
Code	Model	DN	Connection (inch)	Pressure measurement points	Stroke (mm)	V _{W_min} (l/h)	V _{W_max} (l/h)
VC01	VPP46.10L0.2	10	Male thread G 1/2	No	2.5	30	200
VC02	VPP46.10L0.4	10	Male thread G 1/2	No	5	65	370
VC04	VPP46.15L0.6	15	Male thread G 3/4	No	2.5	100	575
VC25	AB-QM-003Z8221	15	Male thread G 3/4 A	No	4	65	650
VC27	AB-QM-003Z8222	15 HF	Male thread G 3/4 A	No	4	120	1200

Maximum allowed differential pressure = 600 kPa | V_W = Water volumetric flow | LF = LowFlow version | HF = HighFlow version

VALVE ADAPTER

Set consisting of two inserts, two screws and two seals.

- Fittings to adapt the connection diameter of the valves.
- Pipe side male thread R according to ISO 7-1.
- Union nut with female thread G according to ISO 228-1.

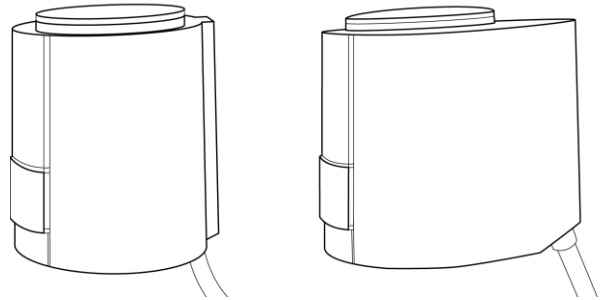


Code	Model	DN	Female thread (inch)	Male thread (inch)
VA02	ALG142	15	G 3/4	R 1/2

THERMAL ACTUATOR

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

- Compact construction, small dimensions.
- “Snap-on” installation without tools.
- Low power consumption (1 W).
- Silent and maintenance-free.
- Fast response time.
- Mounting position 360°.
- 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.
- In the variants with feedback channel, the actuator has a feedback signal of 0...10 V DC.



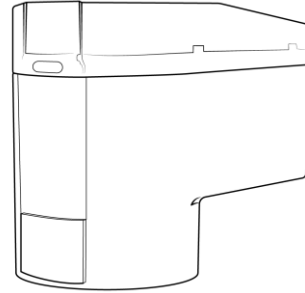
Code	Model	Actuator signal input	VWE	FS	Power supply	Position	Travel distance (mm)	Running times approx. (min)	Actuating power (N)
AT01	SAST127474	ON/OFF	-	-	230 V AC	NC	5	4	100
AT02	SAST127475	ON/OFF	-	-	24 V AC/DC	NC	5	4	100
AT03	SAPV127957	0-10 V	✓	-	24 V AC	NC	5	4	100
AT04	SAPV128561	0-10 V	✓	-	24 V DC	NC	5	4	100
AT05	SAP0129150	0-10 V	✓	✓	24 V AC/DC	NC	6.5	5	125

NC = Normally closed | VWE = Valve travel detection | FS = Feedback signal

MOTORISED ACTUATOR

Proportional motorised actuators for the operation of control valves for heating and cooling.

- Compact construction, small dimensions.
- “Snap-on” installation without tools.
- Low power consumption (2.5-3.6 VA).
- LCD display with backlighting for displaying travel distance and operating mode as well as outputting error codes.
- Fast response time.
- Mounting position 360°.
- 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.
- In the variants with feedback channel, the actuator has a feedback signal of 0...10 V DC.



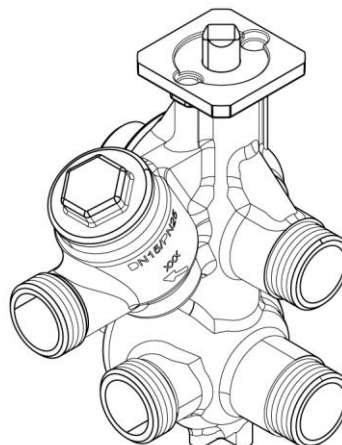
Code	Model	Actuator signal input	VWE	FS	Power supply	Travel distance (mm)	Running times approx. (min)	Actuating power (N)
AM01	SMPV132351	0-10 V	✓	-	24 V AC/DC	8.5	4	100
AM02	SMPO132353	0-10 V	✓	✓	24 V AC/DC	8.5	4	100
AM03	SMPO132352	0-10 V	✓	✓	24 V AC/DC	8.5	4	125

VWE = Valve travel detection | FS = Feedback signal

6-WAY PRESSURE-INDEPENDENT CONTROL BALL VALVE

6-way pressure-independent control ball valves with automatic compensation function. For water-side control and automatic hydraulic adjustment of air after-treatment devices for heating and cooling.

- With integrated differential pressure regulator (DP).
- Ball valve body made of dezincification-resistant brass.
- Male thread connections G according to ISO 228-1.
- Differential pressure range 4...400 kPa.
- Can be fitted with electromotive rotary actuators.
- Angle of rotation 90°.
- PN 25.

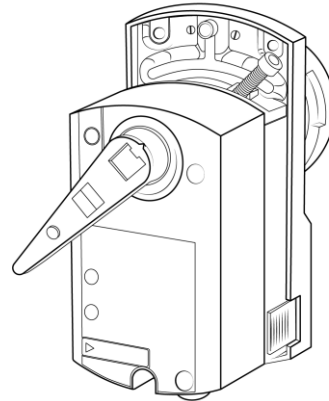


Code	Model	DN	Connection (inch)	V_{W_min} (l/h)	V_{W_max} (l/h)
V651	VWPG51.15L0.9	15	G 3/4	35	820
V652	VWPG51.15F1.2	15	G 3/4	210	1200

ROTARY ACTUATOR FOR 6-WAY CONTROL BALL VALVES

Motorised rotary actuators without spring return for controlling 6-way control ball valves in air-conditioning systems.

- Nominal torque 5 Nm.
- Running time at nominal angle of rotation 90° 150 s.
- Brushless, robust DC motors ensure reliable operation due to their load-independence.
- No limit switch required.
- Silent and maintenance-free.
- Installation without tools.
- Housing degree of protection IP54 according to EN 60529.

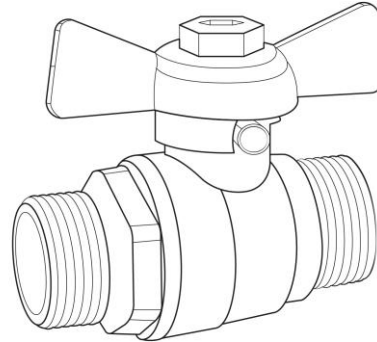


Code	Model	Power supply	Actuator signal input
AR04	GDB161.9E/6W	24 V AC 24-48 V DC	DC 0/2-10 V
AR05	GDB161.9E/6P	24 V AC 24-48 V DC	DC 0/2-10 V

SHUT-OFF VALVE

Ball valves for shutting off the heat transfer fluid to the device during installation and maintenance work.

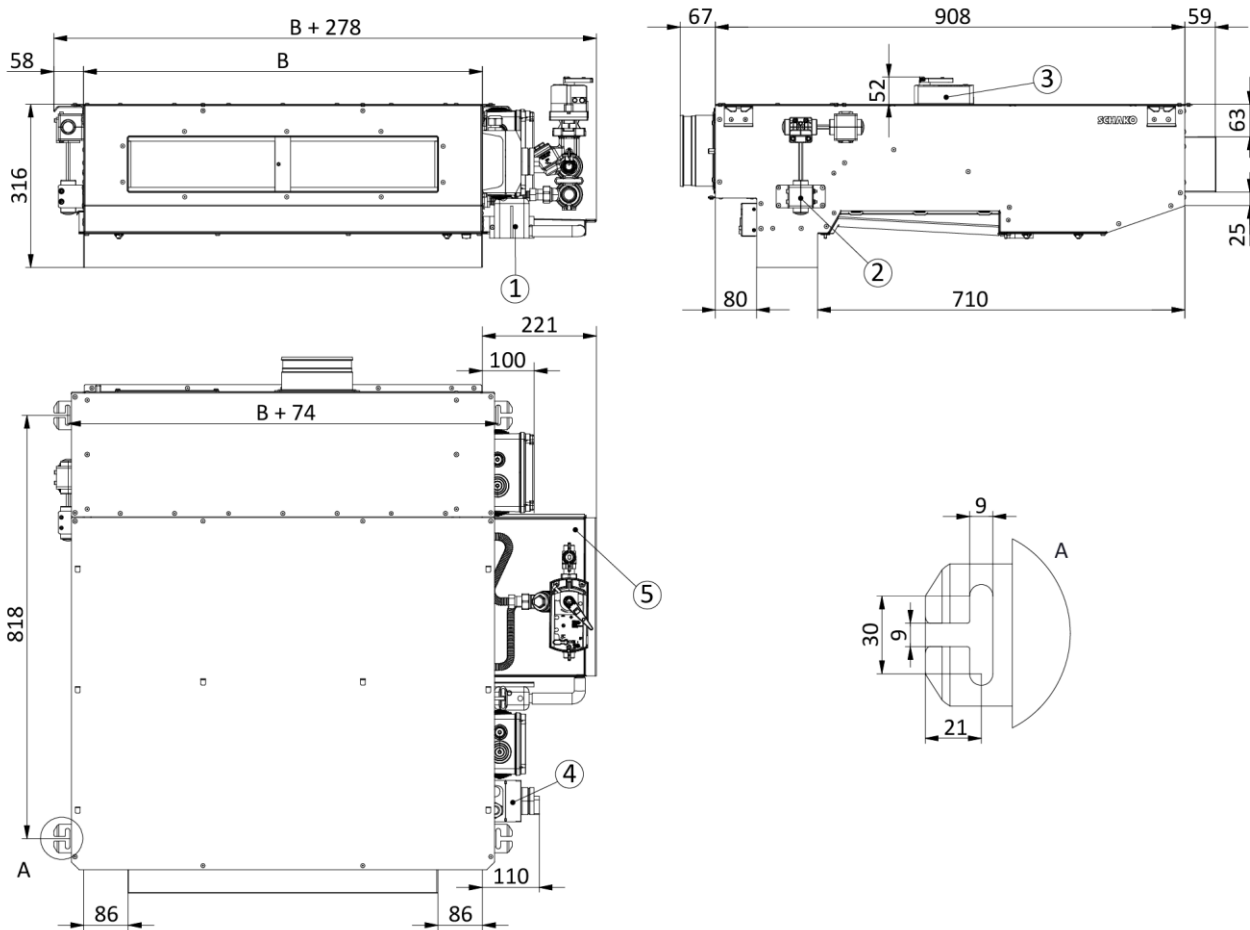
- Nickel-plated upper material with maximum protection against corrosion.
- Suitable for outdoor installation.
- Pore-free and mechanically resistant thanks to the hot pressing manufacturing process.
- Replaceable operating lever.



Code	Connection (inch)	k_v (m ³ /h)
VE01	H-H 1/2	15.5

DIMENSIONS

TYPE

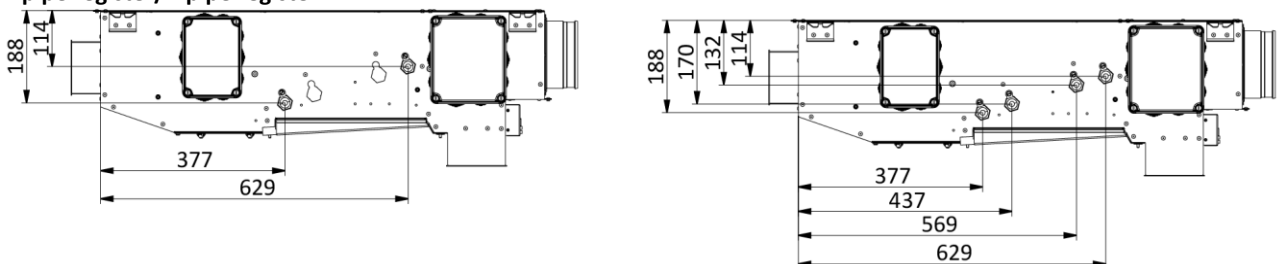


Optional elements: 1 = Condensate pump | 2 = Gearbox of the adjustable nozzles | 3 = Rotary actuator for 6-way pressure-independent control ball valve | 4 = Repair switch | 5 = Valve condensate pan

Size	B (mm)	Weight (kg)	Amount of water 2-pipe (l)	Amount of water 4-pipe heating (l)	Amount of water 4-pipe cooling (l)
1	771	46	1.7	0.4	1.4
2	971	58	2.2	0.4	1.9

WATER REGISTER VERSION

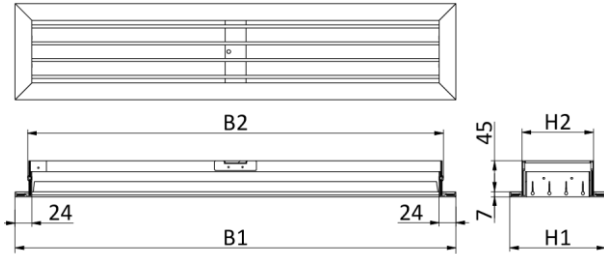
2-pipe register/4-pipe register



Subject to design changes.
 No return possible.

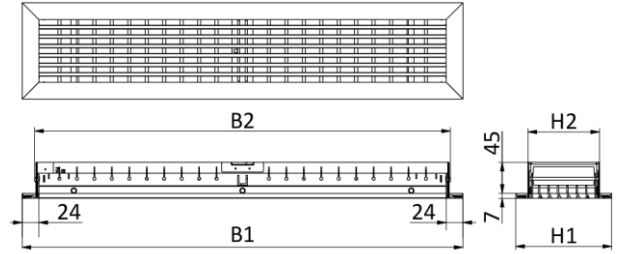
AIR DIFFUSER FOR SUPPLY AIR

AL-01 (-A1)



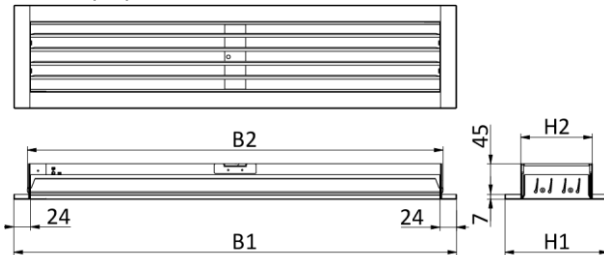
Size	B1 (mm)	B2 (mm)	H1 (mm)	H2 (mm)
1	631	595	137	102
2	831	795	137	102

PA-Z-2a-08 (-P2)



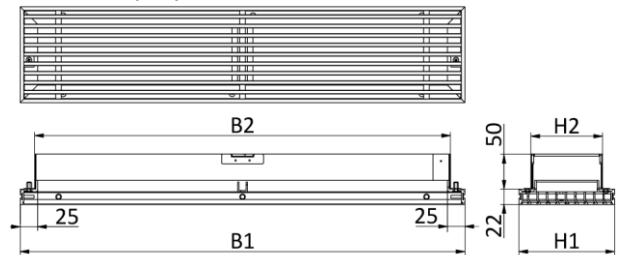
Size	B1 (mm)	B2 (mm)	H1 (mm)	H2 (mm)
1	631	595	137	102
2	831	795	137	102

IB-Q-01 (-I1)



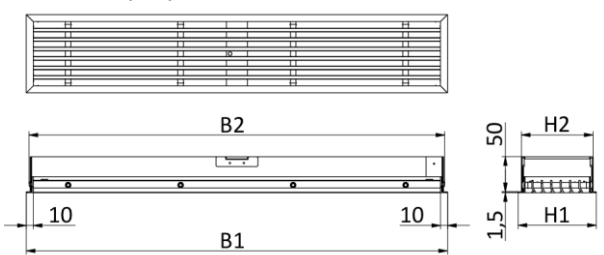
Size	B1 (mm)	B2 (mm)	H1 (mm)	H2 (mm)
1	634	595	148	102
2	834	795	148	102

PA-Z-03-08 (-P3)



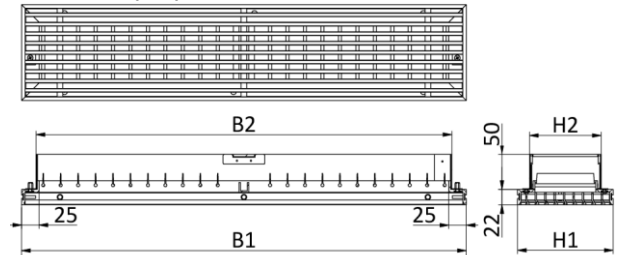
Size	B1 (mm)	B2 (mm)	H1 (mm)	H2 (mm)
1	637	595	137	102
2	837	795	137	102

PA-Z-10-08 (-P1)



Size	B1 (mm)	B2 (mm)	H1 (mm)	H2 (mm)
1	603	595	112	102
2	803	795	112	102

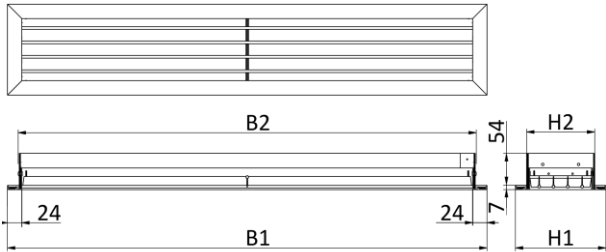
PA-Z-05-08 (-P5)



Size	B1 (mm)	B2 (mm)	H1 (mm)	H2 (mm)
1	637	595	137	102
2	837	795	137	102

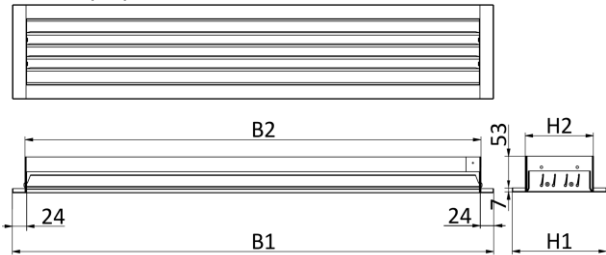
AIR DIFFUSER FOR SECONDARY AIR

AL-01 (-A1)



Size	B1 (mm)	B2 (mm)	H1 (mm)	H2 (mm)
1	803	767	151	114
2	1003	967	151	114

IB-Q-01 (-I1)



Size	B1 (mm)	B2 (mm)	H1 (mm)	H2 (mm)
1	806	767	157	114
2	1006	967	157	114

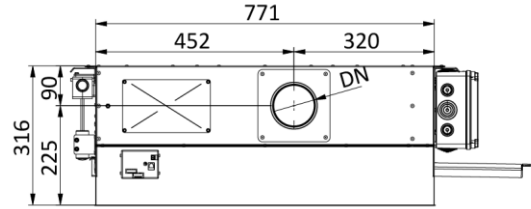
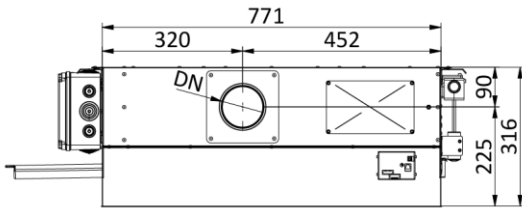
PA-Z-10-13 (-PZ)



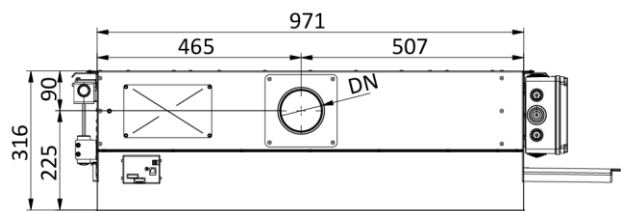
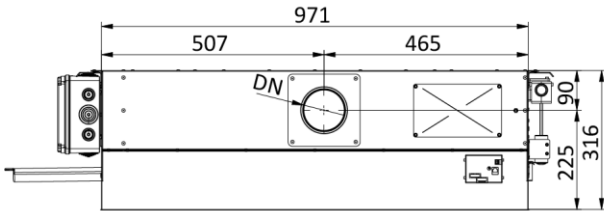
Size	B1 (mm)	B2 (mm)	H1 (mm)	H2 (mm)
1	775	767	123	114
2	975	967	123	114

PRIMARY AIR CONNECTION SPIGOT

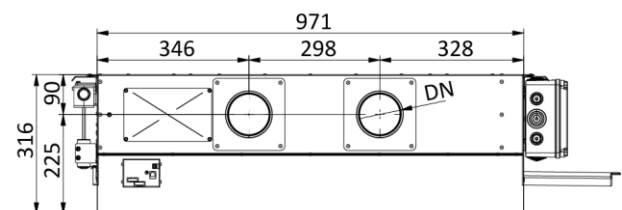
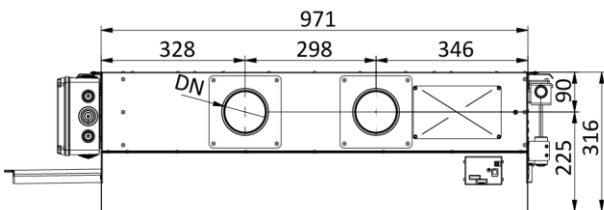
Size 1, one spigot, left/right



Size 2, one spigot, left/right



Size 2, two spigots, left/right



TECHNICAL DATA

CAPACITY OF 2-PIPE REGISTER

Size 1, 2-pipe register

V _P (m ³ /h)	p _s (Pa)	V (V)	N (U/min)	W (W)	L _{WA} (dB(A))	Q _{Kühl} (W)	Q _{S,Kühl} (W)	V _w (l/h)	Δp _w (kPa)	t _{L2} (°C)	Q _{Heiz} (W)	V _w (l/h)	Δp _w (kPa)	t _{L2} (°C)
0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
		2	300	1	22	943	692	162	5.3	10.6	874	150	3.9	41.5
		4	550	3	28	1508	1164	260	12.2	11.7	1496	258	10.3	40.4
		6	800	8	34	2000	1607	344	20.3	12.4	2087	359	18.7	39.6
		8	1300	20	45	2725	2388	469	35.5	13.5	3170	546	39.6	38.4
		10	1500	32	49	2897	2655	499	39.6	14	3564	614	48.9	37.9
40	50	0	0	0	20	384	278	57	0.8	16	312	47	0.5	32.8
		2	300	1	26	783	576	126	3.3	13.9	693	112	2.3	36.3
		4	550	3	32	1393	1074	231	9.9	13.4	1346	225	8	37.7
		6	800	8	37	1853	1476	310	16.8	13.5	1880	317	14.9	37.8
		8	1300	20	46	2514	2125	424	29.5	13.9	2763	469	30.1	37.6
		10	1500	32	50	2701	2342	456	33.7	14.1	3067	521	36.5	37.4
60	53	0	0	0	22	494	364	71	1.2	16.7	407	60	0.7	31.9
		2	300	1	29	876	655	137	3.9	14.9	781	124	2.8	34.9
		4	550	3	35	1477	1149	240	10.7	14.1	1430	236	8.8	36.6
		6	800	8	39	1930	1548	319	17.7	14	1961	327	15.8	37
		8	1300	20	47	2577	2191	430	30.3	14.3	2838	478	31.3	37
		10	1500	32	51	2758	2406	461	34.4	14.4	3141	530	37.7	36.9
80	93	0	0	0	25	660	494	95	2	16.9	557	82	1.3	31.9
		2	300	1	33	1020	775	157	5	15.5	923	145	3.7	34.2
		4	550	3	37	1604	1262	258	12.1	14.7	1565	256	10.1	35.8
		6	800	8	41	2045	1656	334	19.2	14.5	2091	346	17.5	36.3
		8	1300	20	48	2666	2290	441	31.7	14.6	2958	496	33.3	36.5
		10	1500	32	51	2836	2500	470	35.5	14.8	3257	547	39.8	36.4
100	145	0	0	0	29	821	624	119	3	17	711	105	2.1	31.9
		2	300	1	36	1166	899	178	6.2	15.9	1070	167	4.7	33.7
		4	550	3	40	1735	1380	276	13.6	15.1	1705	276	11.7	35.2
		6	800	8	43	2163	1768	349	20.9	14.9	2226	366	19.3	35.8
		8	1300	20	49	2755	2390	451	33.1	15	3082	513	35.5	36
		10	1500	32	51	2911	2596	478	36.7	15.1	3377	564	42.1	35.9
120	209	0	0	0	33	982	755	142	4.1	17	867	129	3	31.8
		2	300	1	40	1314	1025	199	7.6	16.2	1221	190	5.9	33.3
		4	550	3	43	1868	1500	294	15.3	15.4	1850	298	13.3	34.8
		6	800	8	45	2281	1882	365	22.6	15.2	2364	386	21.3	35.3
		8	1300	20	50	2842	2492	462	34.5	15.3	3209	532	37.8	35.6
		10	1500	32	52	2985	2693	486	37.8	15.4	3500	582	44.5	35.5

Cooling: 7-12 °C, 27 °C, 47% | Heating: 45-40 °C, 20 °C | Primary air: 23 °C

Size 2, 2-pipe register

V _P (m ³ /h)	p _s (Pa)	V (V)	N (U/min)	W (W)	L _{WA} (dB(A))	Q _{Kühl} (W)	Q _{S,Kühl} (W)	V _w (l/h)	Δp _w (kPa)	t _{L2} (°C)	Q _{Heiz} (W)	V _w (l/h)	Δp _w (kPa)	t _{L2} (°C)
0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
		2	300	1	22	1017	757	175	2.6	10.9	958	165	2	41.2
		4	550	4	29	1638	1322	282	6.1	12.4	1718	296	5.5	39.6
		6	800	10	36	2130	1836	367	9.7	13.3	2427	418	10.1	38.6
		8	1300	29	46	2703	2702	465	14.7	14.8	3705	638	21.3	37.2
		10	1500	44	50	3035	3035	523	18.1	15.2	4164	717	26.1	36.6
40	50	0	0	0	15	411	295	62	0.4	15.7	332	50	0.2	33.3
		2	300	1	26	909	675	147	1.9	13.7	819	134	1.4	36.8
		4	550	4	34	1593	1281	265	5.5	13.7	1630	274	4.8	37.4
		6	800	10	39	2036	1726	341	8.5	14.1	2240	379	8.5	37.3
		8	1300	29	47	2562	2391	432	12.9	14.8	3188	542	16	36.8
		10	1500	44	50	2668	2598	450	13.9	15	3504	596	18.9	36.5
70	72	0	0	0	19	617	455	90	0.8	16.5	512	76	0.5	32.3
		2	300	1	31	1068	814	168	2.4	15	981	157	1.8	35
		4	550	4	38	1725	1409	281	6.1	14.6	1780	294	5.5	36.1
		6	800	10	43	2151	1849	354	9.1	14.7	2384	398	9.3	36.3
		8	1300	29	49	2642	2500	439	13.3	15.2	3322	560	16.9	36
		10	1500	44	50	2730	2700	454	14.1	15.5	3634	614	19.9	35.9
100	78	0	0	0	21	769	580	109	1.2	17.2	651	95	0.7	31.5
		2	300	1	36	1195	928	183	2.8	15.9	1109	174	2.2	33.7
		4	550	4	43	1834	1516	293	6.5	15.3	1901	310	6	35.2
		6	800	10	47	2246	1950	364	9.6	15.3	2500	413	9.9	35.5
		8	1300	29	50	2708	2591	443	13.5	15.6	3429	573	17.6	35.4
		10	1500	44	50	2787	2787	457	14.3	15.8	3738	626	20.6	35.3
130	131	0	0	0	25	985	759	140	1.8	17.3	863	126	1.2	31.4
		2	300	1	41	1380	1095	208	3.6	16.4	1308	203	2.8	33.1
		4	550	4	47	1988	1671	313	7.3	15.8	2088	337	6.9	34.5
		6	800	10	50	2377	2096	379	10.3	15.7	2678	439	11	34.8
		8	1300	29	51	2787	2717	450	13.9	16	3593	596	18.9	34.9
		10	1500	44	50	2920	2920	473	15.2	16.2	3897	649	21.9	34.8
160	198	0	0	0	29	1194	939	169	2.5	17.5	1077	158	1.8	31.3
		2	300	1	46	1565	1265	233	4.4	16.7	1513	233	3.6	32.7
		4	550	4	52	2143	1829	332	8.1	16.2	2281	365	8	33.9
		6	800	10	54	2506	2244	395	11	16.1	2862	465	12.2	34.3
		8	1300	29	52	2840	2840	452	14	16.4	3762	620	20.2	34.4
		10	1500	44	50	3057	3057	490	16.1	16.4	4060	672	23.3	34.4

Cooling: 7-12 °C, 27 °C, 47% | Heating: 65-55 °C, 20 °C | Primary air: 23 °C

CAPACITY OF 4-PIPE REGISTER

Size 1, 4-pipe register

V _P (m ³ /h)	p _s (Pa)	V (V)	N (U/min)	W (W)	L _{WA} (dB(A))	Q _{Kühl} (W)	Q _{S,Kühl} (W)	V _w (l/h)	Δp _w (kPa)	t _{L2} (°C)	Q _{Heiz} (W)	V _w (l/h)	Δp _w (kPa)	t _{L2} (°C)
0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
		2	300	1	22	927	685	160	4.3	10.8	742	64	0.1	38.2
		4	550	3	28	1460	1144	251	9.7	12	1183	102	0.3	36
		6	800	8	34	1909	1569	329	15.8	12.7	1574	135	0.5	34.7
		8	1300	20	45	2506	2301	431	25.7	14	2218	191	0.9	32.8
		10	1500	32	49	2594	2537	447	27.3	14.6	2430	209	1	32.1
40	50	0	0	0	20	384	278	57	0.7	16	323	24	0	33.3
		2	300	1	26	775	573	124	2.7	14	617	50	0.1	34.5
		4	550	3	32	1356	1058	224	7.9	13.6	1091	91	0.2	34.2
		6	800	8	37	1782	1445	298	13.2	13.7	1453	122	0.4	33.7
		8	1300	20	46	2360	2062	397	22.1	14.2	2003	169	0.7	32.7
		10	1500	32	50	2505	2263	422	24.7	14.5	2179	184	0.8	32.3
60	53	0	0	0	22	493	364	71	1	16.8	402	29	0	31.8
		2	300	1	29	866	650	135	3.2	15	688	54	0.1	33.1
		4	550	3	35	1436	1131	233	8.5	14.3	1156	94	0.2	33.3
		6	800	8	39	1854	1516	305	13.8	14.3	1513	125	0.4	33
		8	1300	20	47	2416	2126	402	22.7	14.6	2055	172	0.7	32.2
		10	1500	32	51	2553	2324	426	25.1	14.9	2229	187	0.8	31.9
80	93	0	0	0	25	656	492	95	1.7	16.9	523	38	0	31.1
		2	300	1	33	1005	768	155	4.1	15.6	799	62	0.1	32.2
		4	550	3	37	1557	1242	250	9.6	14.9	1255	101	0.3	32.6
		6	800	8	41	1961	1621	319	15	14.7	1604	131	0.4	32.4
		8	1300	20	48	2492	2219	411	23.5	15	2133	177	0.8	31.8
		10	1500	32	51	2615	2412	432	25.8	15.2	2302	191	0.9	31.5
100	145	0	0	0	29	814	620	117	2.5	17	645	47	0.1	30.7
		2	300	1	36	1146	890	174	5	16	912	70	0.1	31.6
		4	550	3	40	1680	1356	266	10.8	15.3	1357	108	0.3	32
		6	800	8	43	2069	1729	333	16.2	15.1	1698	138	0.5	31.9
		8	1300	20	49	2566	2314	419	24.4	15.3	2213	182	0.8	31.4
		10	1500	32	51	2673	2501	437	26.3	15.5	2377	196	0.9	31.1
120	209	0	0	0	33	970	750	140	3.4	17.1	767	56	0.1	30.4
		2	300	1	40	1288	1014	194	6.1	16.3	1026	78	0.2	31.1
		4	550	3	43	1804	1473	283	12.1	15.6	1460	115	0.4	31.6
		6	800	8	45	2176	1839	347	17.4	15.5	1793	144	0.5	31.5
		8	1300	20	50	2637	2410	426	25.2	15.6	2293	187	0.8	31
		10	1500	32	52	2726	2590	442	26.8	15.8	2452	201	0.9	30.8

Cooling: 7-12 °C, 27 °C, 47% | Heating: 45-40 °C, 20 °C | Primary air: 23 °C

Size 2, 4-pipe register

V _P (m ³ /h)	p _s (Pa)	V (V)	N (U/min)	W (W)	L _{WA} (dB(A))	Q _{Kühl} (W)	Q _{S,Kühl} (W)	V _w (l/h)	Δp _w (kPa)	t _{L2} (°C)	Q _{Heiz} (W)	V _w (l/h)	Δp _w (kPa)	t _{L2} (°C)
0	0	0	0	0	-	-	-	-	-	-	-	-	-	-
		2	300	1	22	1002	750	173	2.1	11.1	764	66	0.1	36.8
		4	550	4	29	1582	1298	272	4.8	12.7	1277	110	0.1	34.4
		6	800	10	36	2014	1789	347	7.3	13.7	1730	149	0.2	33.1
		8	1300	29	46	2630	2629	453	11.7	15.1	2478	213	0.4	31.4
		10	1500	44	50	2946	2946	507	14.2	15.5	2724	234	0.5	30.8
40	50	0	0	0	15	411	295	62	0.3	15.7	336	25	0	33.4
		2	300	1	26	900	671	146	1.6	13.8	680	55	0	33.8
		4	550	4	34	1545	1260	257	4.3	14	1232	103	0.1	33.1
		6	800	10	39	1942	1688	325	6.5	14.4	1628	137	0.2	32.5
		8	1300	29	47	2343	2306	394	9.1	15.2	2203	186	0.3	31.5
		10	1500	44	50	2516	2516	424	10.4	15.4	2384	202	0.4	31.2
70	72	0	0	0	19	615	454	90	0.7	16.5	473	35	0	31.3
		2	300	1	31	1055	808	166	2	15.1	801	63	0	32.1
		4	550	4	38	1670	1386	271	4.7	14.8	1342	110	0.1	32.1
		6	800	10	43	2046	1806	336	6.9	15	1729	143	0.2	31.7
		8	1300	29	49	2408	2408	399	9.3	15.7	2293	191	0.3	31
		10	1500	44	50	2625	2624	436	10.9	15.8	2469	207	0.4	30.7
100	78	0	0	0	21	766	578	109	0.9	17.2	579	41	0	30.2
		2	300	1	36	1178	921	180	2.3	16	899	69	0.1	31.1
		4	550	4	43	1772	1490	282	5.1	15.5	1431	115	0.1	31.3
		6	800	10	47	2133	1904	344	7.2	15.5	1813	147	0.2	31.1
		8	1300	29	50	2502	2502	408	9.7	16	2367	195	0.4	30.6
		10	1500	44	50	2716	2716	445	11.3	16.1	2541	210	0.4	30.3
130	131	0	0	0	25	978	756	139	1.5	17.4	737	52	0	29.7
		2	300	1	41	1355	1084	204	2.9	16.5	1045	79	0.1	30.4
		4	550	4	47	1914	1640	300	5.6	16	1563	123	0.2	30.7
		6	800	10	50	2247	2044	357	7.7	16	1934	155	0.2	30.6
		8	1300	29	51	2635	2635	424	10.4	16.3	2473	202	0.4	30.2
		10	1500	44	50	2845	2845	460	12	16.4	2642	216	0.4	30
160	198	0	0	0	29	1181	933	167	2	17.5	896	63	0.1	29.3
		2	300	1	46	1531	1251	227	3.5	16.8	1194	89	0.1	29.9
		4	550	4	52	2055	1794	317	6.2	16.4	1698	132	0.2	30.3
		6	800	10	54	2357	2185	369	8.1	16.4	2058	163	0.3	30.2
		8	1300	29	52	2771	2771	440	11.1	16.6	2581	208	0.4	29.8
		10	1500	44	50	2977	2977	476	12.7	16.7	2744	222	0.5	29.6

Cooling: 7-12 °C, 27 °C, 47% | Heating: 65-55 °C, 20 °C | Primary air: 23 °C

CAPACITY OF PRIMARY AIR

V _p (m ³ /h)	V _p (l/s)	ΔT (K)									
		1	2	3	4	5	6	7	8	9	10
10	2.8	3	7	10	13	17	20	23	27	30	33
20	5.6	7	13	20	27	33	40	47	53	60	67
30	8.3	10	20	30	40	50	60	70	80	90	100
40	11.1	13	27	40	53	67	80	93	107	120	133
50	13.9	17	33	50	67	83	100	117	133	150	167
60	16.7	20	40	60	80	100	120	140	160	180	200
70	19.4	23	47	70	93	117	140	163	187	210	233
80	22.2	27	53	80	107	133	160	187	213	240	267
90	25.0	30	60	90	120	150	180	210	240	270	300
100	27.8	33	67	100	133	167	200	233	267	300	333
110	30.6	37	73	110	147	183	220	257	293	330	367
120	33.3	40	80	120	160	200	240	280	320	360	400
130	36.1	43	87	130	173	217	260	303	347	390	433
140	38.9	47	93	140	187	233	280	327	373	420	467
150	41.7	50	100	150	200	250	300	350	400	450	500
160	44.4	53	107	160	213	267	320	373	427	480	533

$$\Delta T_{\text{Cooling}} = t_R - t_P \quad | \quad \Delta T_{\text{Heating}} = t_P - t_R$$

If the result of ΔT is negative, subtract the capacity of the primary air from the total capacity

DESIGN NOTES

OPERATING CONDITIONS

The working areas in which the device can be operated are listed below.

	Min.	Max.
Coolant or heating fluid	Water/water-glycol mixture	
Operating pressure (bar)	-	8
Test pressure (bar)	-	16
Water inlet temperature (°C)	6	80
Air inlet temperature (°C)	2	40
Relative humidity (%)	-	60
Power supply	230 V AC, 50 Hz	
Motorised fan power consumption (W)	-	32/44

INSTALLATION

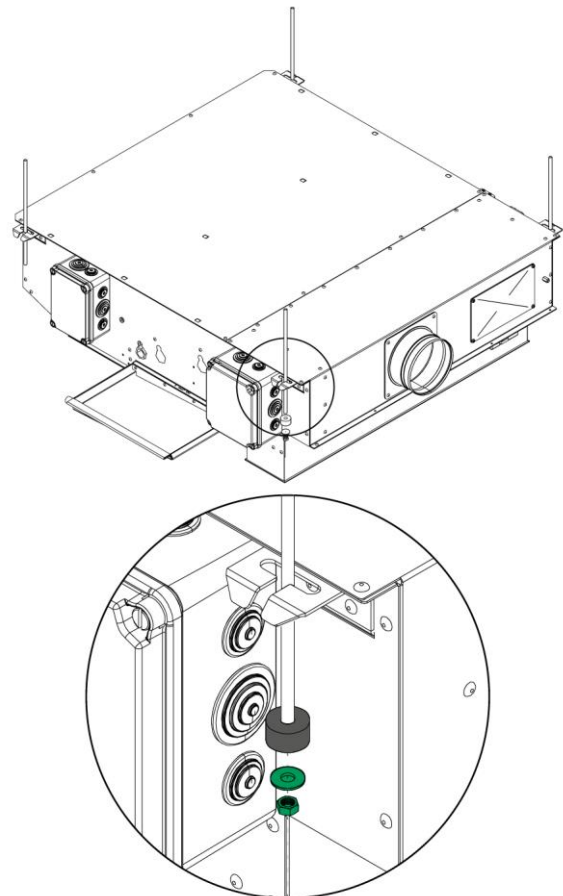
The device has four mounting brackets at the ends of the top part for fastening with M8 rods. It is recommended installing a vibration damping system on the rods as shown in the figure.



Installation elements such as rods, nuts or washers are not included in the delivery.



The vibration dampers must be selected according to the weight of the device. Please see the section on dimensions for the weight of the device.



The supply air and secondary air connections have telescopic collars with an adjustment range of approx. 50 mm, which makes installation easier.

ASSEMBLY OPENINGS

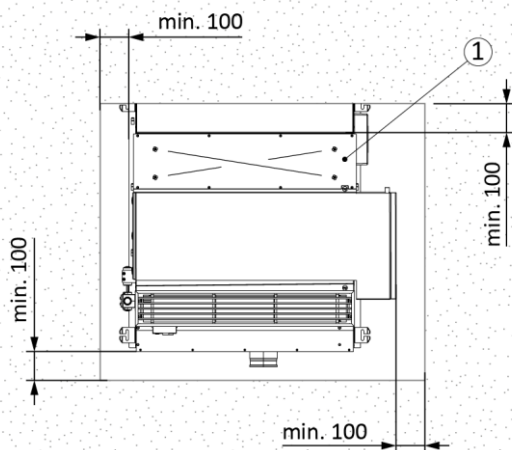
When installing the air diffusers, the following opening dimensions must be taken into account:



EÖB = Installation opening width | EÖH = Installation opening height

Size	Position	EÖB (mm)	EÖH (mm)
1	Supply air	598	105
	Secondary air	770	117
2	Supply air	798	105
	Secondary air	970	117

For maintenance and replacement work, a sufficient number and size of inspection flaps must be provided in accordance with VDI 6022.



1 = Fan plate

WATER CONNECTION

The registers are tested for leaks at the factory and fitted with protective caps to prevent contamination during transport and installation.

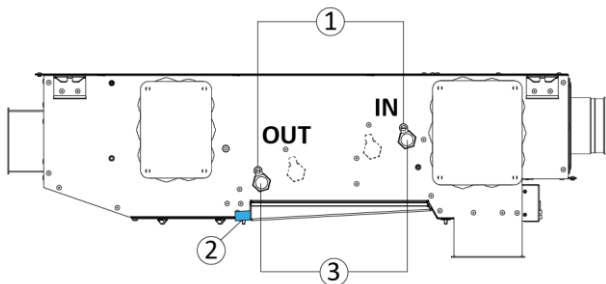
The registers are equipped ex works with a manual bleed valve. Any further devices for ventilation must be provided on-site.

The water enters and exits via BSPP 1/2" F threads, whose positions on the device are marked in the figure. The control valves are located at the outlet of the register and the shut-off valves at the inlet.



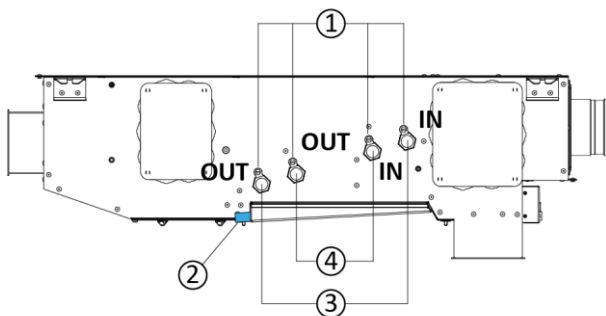
To prevent deposits and corrosion, the quality of the water for filling the registers must comply with the VDI 2035 regulations.

2-pipe register (cooling or heating)



1 = Ventilation valve | 2 = Drain pipe \varnothing 16 mm | 3 = Water connection heating/cooling

4-pipe register (cooling and heating)



1 = Ventilation valve | 2 = Drain pipe \varnothing 16 mm | 3 = Water connection cooling | 4 = Water connection heating



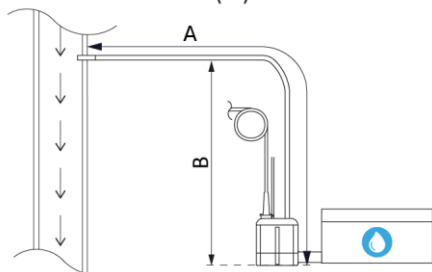
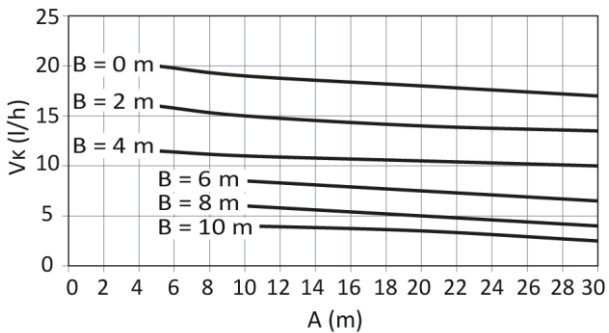
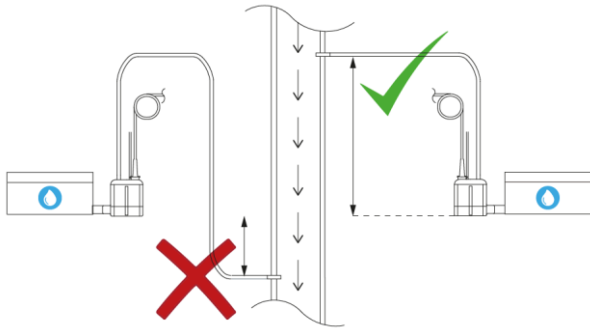
If the unit is to be installed at a location having temperatures below zero degrees, glycol must be admixed to the coolant in a suitable ratio, to prevent the coolant from becoming frozen. Please note that the use of an anti-freeze results in a loss in efficiency of the register.

CONDENSATE REMOVAL

Condensation occurs when the surface temperature of the heat exchanger is lower than the dew point of the ambient air. The condensate pan collects the condensate water and drains it into the condensate drain pipe.

If the device is installed without a condensate pump, the water must be drained by gravity, with a minimum gradient of 1% (1 cm/m), without slopes and without obstacles.

If the device is installed with a condensate pump, the connection to the drain pipe must be located above the condensate pump. The maximum drain height depending on the distance of the pipe is shown in the diagram.



If the device is configured without a condensate pan for valves, the connections, connection lines and valves must be thermally insulated on site.



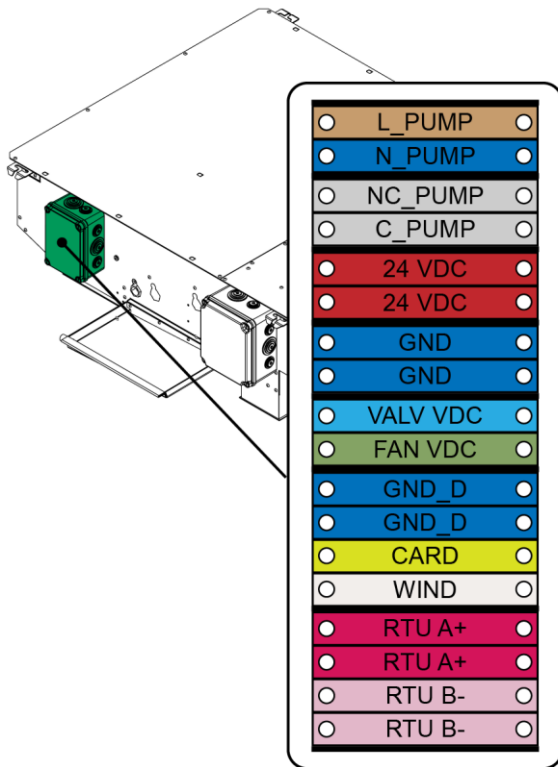
The pressure pipe from the pump to the downpipe must be installed on site.



Condensate drainage is regulated in VDI 6022 Sheet 1 - Hygiene requirements.

ELECTRICAL CONNECTION

The connection is made to the terminal strip inside the switch box. All connections are specified on the terminal strip.

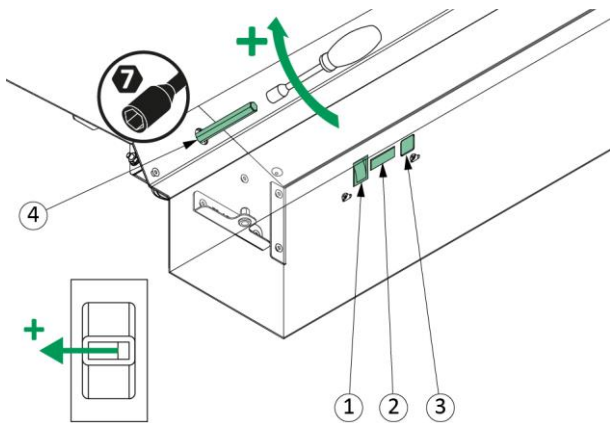


USE

For the device with adjustable nozzles (-QV), the primary air volume can be set using the adjustment axes under the plenum box.

For this purpose, the device is equipped with a small display which constantly shows the flow rate, the pressure and the percentage setting of the nozzles.

This allows the volumetric flow to be set directly on the device so that the installation of a volumetric flow controller and a silencer for the device is not necessary.

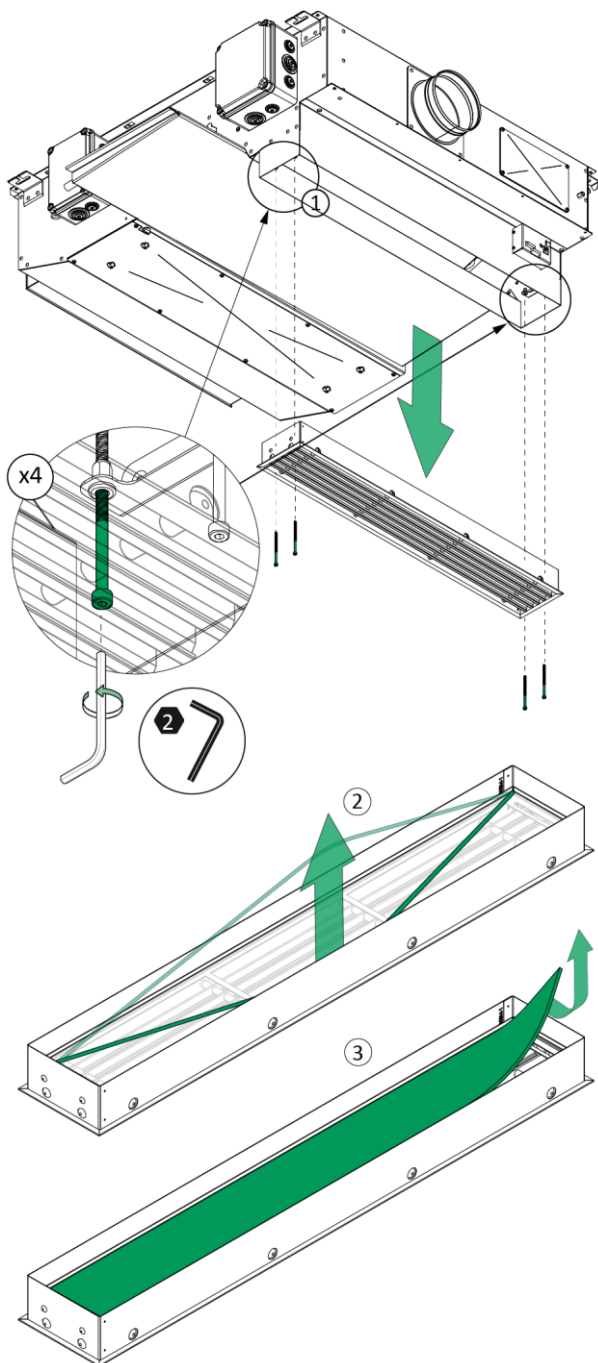


1 = On/off switch | 2 = Display | 3 = Mode selector button |
4 = Adjuster

MAINTENANCE

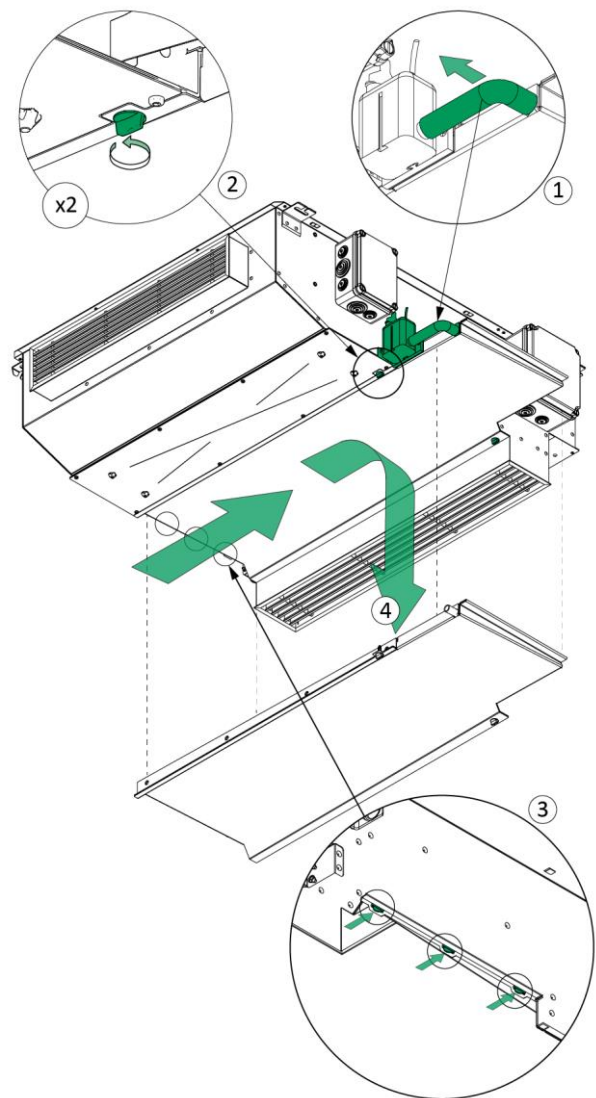
FILTER

The filter is located in the intake pipe. The filter holder is fastened to the device with four 2 mm Allen screws. After removal, the filter fleece can be replaced without tools as shown in the figure.



CONDENSATE PAN

The condensate pan can be accessed without tools via the two safety locks on the lateral connections of the condensate pan.



LEGEND

L_{WA} [dB(A)]	=	A-weighted sound power level
N (rpm)	=	Speed
p_s (Pa)	=	Static pressure
Q (W)	=	Total capacity
Q_s (W)	=	Sensible capacity
t_p (°C)	=	Primary air temperature
t_R (°C)	=	room temperature
t_{w1} (°C)	=	Water inlet temperature
t_{L2} (°C)	=	Air outlet temperature
V (V)	=	Electric voltage
V_p (m ³ /h)	=	Primary air flow
V_w (l/h)	=	Water volumetric flow
W (W)	=	Power consumption
Δp_w (kPa)	=	Water-side pressure loss
ΔT_w (K)	=	Coolant temperature difference

ORDER CODE AQSH

01	02	03	04	05	06	07
Type	Size	Primary air nozzles	Water register version	Register colour	Connection position	Cooling valve kit
Example						
AQSH	-1	-Q1	-2F	-0	-L	-000

08	09	10	11	12	13	14
Heating valve kit	Actuator	Electrical connection box	Control and regulation elements	Air diffuser for supply air	Colour of air diffuser for supply air	Air diffuser for secondary air
Example						
-000	-000	-0	-1	-P1	-2	-PZ

15	16	17	18	19
Colour of air diffuser for secondary air	Primary air connection spigot	Air filter	Valve condensate pan	Condensate pump
Example				
-2	-P1	-C4	-KH	-0

NOTE

Please always specify the complete order code in the order! In case of missing information, processing is impossible.

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

The term ($\rightarrow n = x$) indicates that only the "x" option can be configured in the "n" field.

The term ($\rightarrow n \neq x$) indicates that the "x" option cannot be configured in the "n" field.

SAMPLE

AQSH-1-Q1-2F-0-L-000-000-000-0-1-P1-2-PZ-2-P1-C4-KH-0

Hybrid induction device with fan support | size 1 | small air volumes | 2-pipe register (cooling or heating) | unpainted register | connections left | without cooling valve kit | without heating valve kit | without actuator | electrical connection box attached to the device | control via SCHAKO room thermostat (must be ordered separately) | air diffuser for supply air PA-Z-10-08 | painted to RAL 9010 white | air diffuser for secondary air PA-Z-10-13 | painted to RAL 9010 white | one spigot $\varnothing 98$ with rubber lip seal | with secondary air filter (ISO Coarse 40%) | with valve condensate pan | without condensate pump

ORDER DETAILS AQSH

01 – Type

AQSH = hybrid induction device with fan support

02 – Size

1 = size 1 $\rightarrow 03 \neq -Q3, \rightarrow 16 \neq -P2$
 2 = size 2 $\rightarrow 16 \neq -P1$

03 – Primary air nozzles

Q1 = small air volumes
 Q2 = medium air volumes
 Q3 = large air volumes
 QV = device with infinitely adjustable nozzle V (manually adjustable air volume)

04 – Water register version

2F = 2-pipe register (cooling or heating) (standard)
 4F = 4-pipe register (cooling and heating)
 $\rightarrow 07 \neq -65x, \rightarrow 08 \neq -65x$

05 – Register colour

- 0 = unpainted register (standard)
- A = Antibacterial coating

06 - Connection position

- L = connections left (standard)
- R = connections right

07 – Cooling valve kit

- 000 = without cooling valve kit (standard)
- C01 = cooling valve kit with VPP46.10L0.2 (DN 10, G 1/2, 200 l/h) → 09 ≠ -Rxx, → 18 = -KH
- C02 = cooling valve kit with VPP46.10L0.4 (DN 10, G 1/2, 370 l/h) → 09 ≠ -Rxx, → 18 = -KH
- C04 = cooling valve kit with VPP46.15L0.6 (DN 15, G 3/4, 600 l/h) → 09 ≠ -Rxx, → 18 = -KH
- C25 = cooling valve kit with AB-QM-003Z8221 (DN 15, G 3/4 A, 650 l/h) → 09 ≠ -Rxx, → 18 = -KH
- C27 = cooling valve kit with AB-QM-003Z8222 (DN 15, G 3/4 A, 1200 l/h) → 09 ≠ -Rxx, → 18 = -KH
- 651 = 6-way valve kit with VWPG51.15L0.9 (DN 15, G 3/4, 820 l/h) → 08 = -651, → 09 = -Rxx, → 18 = -KH
- 652 = 6-way valve kit with VWPG51.15F1.2 (DN 15, G 3/4, 1200 l/h) → 08 = -652, → 09 = -Rxx, → 18 = -KH

08 – Heating valve kit

- 000 = without heating valve kit (standard) If 07 = -000 → 09 = -000
- C01 = heating valve kit with VPP46.10L0.2 (DN 10, G 1/2, 200 l/h) → 09 ≠ -Rxx, → 18 = -KH
- C02 = heating valve kit with VPP46.10L0.4 (DN 10, G 1/2, 370 l/h) → 09 ≠ -Rxx, → 18 = -KH
- C04 = heating valve kit with VPP46.15L0.6 (DN 15, G 3/4, 600 l/h) → 09 ≠ -Rxx, → 18 = -KH
- C25 = heating valve kit with AB-QM-003Z8221 (DN 15, G 3/4 A, 650 l/h) → 09 ≠ -Rxx, → 18 = -KH
- C27 = heating valve kit with AB-QM-003Z8222 (DN 15, G 3/4 A, 1200 l/h) → 09 ≠ -Rxx, → 18 = -KH
- 651 = 6-way valve kit with VWPG51.15L0.9 (DN 15, G 3/4, 820 l/h) → 09 = -Rxx, → 18 = -KH
- 652 = 6-way valve kit with VWPG51.15F1.2 (DN 15, G 3/4, 1200 l/h) → 09 = -Rxx, → 18 = -KH

09 – Actuator

- 000 = without actuator (standard)
- T01 = thermal actuator SAST127474 (230 V AC, ON/OFF)
- T02 = thermal actuator SAST127475 (24 V AC/DC, ON/OFF)
- T03 = thermal actuator SAPV127957 (24 V AC, 0-10 V)
- T04 = thermal actuator SAPV128561 (24 V DC, 0-10 V)
- T05 = thermal actuator SAPO129150 (24 V AC/DC, 0-10 V)
- M01 = motorised actuator SMPV132351 (24 V AC/DC, 0-10 V)
- M02 = motorised actuator SMPO132353 (24 V AC/DC, 0-10 V)
- M03 = motorised actuator SMPO132352 (24 V AC/DC, 0-10 V)
- R04 = rotary drive GDB161.9E/6W (24 V AC/24-48 V DC, 0/2-10 V)
- R05 = rotary drive GDB161.9E/6P (24 V AC/24-48 V DC, 0/2-10 V)

10 – Electrical connection box

- 0 = electrical connection box attached to the device (standard)
- 1 = electrical connection box attached to the device with repair switch
- 2 = with offset electrical connection box 1.5 m
- 3 = with offset electrical connection box 1.5 m and repair switch

11 – Control and regulation elements

- 1 = control via SCHAKO room thermostat (must be ordered separately)
- 2 = control via BMS with temperature sensor built into the device

12 – Air diffuser for supply air

- P1 = air diffuser for supply air PA-Z-10-08 (Standard)
- P2 = air diffuser for supply air PA-Z-2a-08
- P3 = air diffuser for supply air PA-Z-03-08
- P5 = air diffuser for supply air PA-Z-05-08
- A1 = air diffuser for supply air AL-01
- I1 = air diffuser for supply air IB-Q-01

13 – Colour of air diffuser for supply air

- 1 = painted to RAL 9005 black
- 2 = painted to RAL 9010 white (standard)
- 3 = painted to RAL 9016 white
- 4 = painted to RAL 9006 white aluminium

14 – Air diffuser for secondary air

- 00 = without air diffuser for secondary air
- PZ = air diffuser for secondary air PA-Z-10-13 (standard)
- A1 = air diffuser for secondary air AL-01
- I1 = air diffuser for secondary air IB-Q-01

15 – Colour of air diffuser for secondary air

- 1 = painted to RAL 9005 black
- 2 = painted to RAL 9010 white (standard)
- 3 = painted to RAL 9016 white
- 4 = painted to RAL 9006 white aluminium

16 – Primary air connection spigot

- P1 = one spigot Ø98 with rubber lip seal
- P2 = two spigots Ø98 with rubber lip seal
- P3 = one spigot Ø138 with rubber lip seal

17 – Air filter

- C0 = without secondary air filter
- C4 = with secondary air filter (ISO Coarse 40%) (standard)

18 – Valve condensate pan

- K0 = without valve condensate pan
- KH = with valve condensate pan (standard)

19 – Condensate pump

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

ORDER CODE LWZ

01	02
Type	Model
Example	
LWZ	-VC01

NOTE

Please always specify the complete order code in the order! In case of missing information, processing is impossible.
 Any special model not included in the order code must be queried before ordering.

SAMPLE

LWZ-VC01

Accessories for air-water-systems products | Pressure-independent straight-way valves, DN 10, male thread G 1/2, PN 25, nominal flow rate 200 l/h, nominal stroke 2.5 mm

ORDER DETAILS LWZ

01 – Type

LWZ = accessories for air-water-systems products

02 – Model

Pressure-independent straight-way valves

- VC01 = pressure-independent straight-way valves, DN 10, male thread G 1/2, PN 25, nominal flow rate 200 l/h, nominal stroke 2.5 mm
- VC02 = pressure-independent straight-way valves, DN 10, male thread G 1/2, PN 25, nominal flow rate 370 l/h, nominal stroke 5.0 mm
- VC04 = pressure-independent straight-way valves, DN 15, male thread G 3/4, PN 25, nominal flow rate 575 l/h, nominal stroke 2.5 mm
- VC25 = pressure-independent straight-way valves, DN 15, male thread G 3/4 A, PN 25, nominal flow rate 650 l/h, nominal stroke 4.0 mm
- VC27 = pressure-independent straight-way valves, DN 15, male thread G 3/4 A, PN 25, nominal flow rate 1200 l/h, nominal stroke 4.0 mm

Valve adapter

VA02 = valve adapter female thread G 3/4 to male thread R 1/2

Thermal actuator

AT01 = thermal actuator, operating voltage 230 V AC, actuator signal ON/OFF, direction of action NC, travel distance 5.0 mm, running times approx. 4 min, actuating power 100 N

- AT02 = thermal actuator, operating voltage 24 V AC/DC, actuator signal ON/OFF, direction of action NC, travel distance 5.0 mm, running times approx. 4 min, actuating power 100 N
- AT03 = thermal actuator, operating voltage 24 V AC, actuator signal 0-10 V, direction of action NC, travel distance 5.0 mm, running times approx. 4 min, actuating power 100 N, with valve travel detection
- AT04 = thermal actuator, operating voltage 24 V DC, actuator signal 0-10 V, direction of action NC, travel distance 5.0 mm, running times approx. 4 min, actuating power 100 N, with valve travel detection
- AT05 = thermal actuator, operating voltage 24 V AC/DC, actuator signal 0-10 V, direction of action NC, travel distance 6.5 mm, running times approx. 5 min, actuating power 125 N, with valve travel detection, with feedback channel
- AT06 = thermal actuator, operating voltage 230 V AC, actuator signal ON/OFF, direction of action NC, travel distance 4.5 mm, running times approx. 210 s, actuating power 100 N

Subject to design changes.

No return possible.

Motorised actuator

- AM01 = motorised actuator, operating voltage 24 V AC/DC, actuator signal 0-10 V, travel distance 8.5 mm, running times approx. 255 s, actuating power 100 N, with valve travel detection
- AM02 = motorised actuator, operating voltage 24 V AC/DC, actuator signal 0-10 V, travel distance 8.5 mm, running times approx. 255 s, actuating power 100 N, with valve travel detection, with feedback channel
- AM03 = motorised actuator, operating voltage 24 V AC/DC, actuator signal 0-10 V, travel distance 8.5 mm, running times approx. 255 s, actuating power 125 N, with valve travel detection, with feedback channel

6-way pressure-independent control ball valve

- V651 = 6-way pressure-independent control ball valve, DN 15, male thread G 3/4, PN 25, nominal flow rate 820 l/h
- V652 = 6-way pressure-independent control ball valve, DN 15, male thread G 3/4, PN 25, nominal flow rate 1200 l/h

Rotary actuator for 6-way control ball valves

- AR04 = rotary actuator for 6-way pressure-independent control ball valve, operating voltage 24 V AC/24-48 V DC, actuator signal 0/2-10 V, running times approx. 150 s, actuating power 5 Nm
- AR05 = rotary actuator for 6-way pressure-independent control ball valve, operating voltage 24 V AC/24-48 V DC, actuator signal 0/2-10 V, running times approx. 150 s, actuating power 5 Nm, manual flow rate presetting

Shut-off valve

- VE01 = ball valve with butterfly handle, male thread 1/2, PN 30, flow coefficient k_{vs} 16.5 m³/h

SPECIFICATION TEXT

Hybrid induction device for particularly energy-efficient and low-noise conditioning of rooms with ventilation, heating and cooling. Primary air and induced air can be used to cover the base load of rooms with particularly low noise levels. If the internal and external loads increase, the integrated fan is then activated by the intelligent control. The devices are particularly suitable for installation in technical ceilings in hotel rooms, care homes, hospitals and also in offices in ceiling panelling provided by the customer. Consisting of 1 mm thick galvanised sheet steel housing, 2 mm thick mounting brackets for M8 rods, primary air box with sealed spigot with rubber lip seal and highly inductive primary air nozzles, aluminium supply and secondary air diffusers painted to RAL colour chart, with sliding spigot for easy adaptation to on site conditions. EC tangential fan with high efficiency and vibration dampers made of rubber. A heat exchanger in 2-pipe or 4-pipe design and with a frame made of sheet steel with aluminium blades and copper pipes with ventilation valves. With water-side connections BSPP 1/2" F, condensate pan made of stainless steel with 3 mm external insulation and drain pipe with 16 mm outer diameter, electrical connection box with internally pre-wired plug-in connection.

Product: SCHAKO

Type: Hybrid induction device AQSH