SCHAKO
KLIMA-LUFT

Fan Coil Unit

Aquaris Silent

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Fan Coil Unit Aquaris Silent

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Description

The Aquaris Silent fan coil units are air-conditioners that are especially designed for the decentralised use, for heating or cooling with circulating air.
The fan coil units guide the air to be treated through the heat exchanger where it can be heated or cooled in a particularly energy-efficient way. They are used to bring the air quickly to the desired temperature and require only small heating or cooling surfaces. The optimised heat transmission allow lower supply temperatures during heating. And higher supply temperatures during cooling. This minimises the line losses and saves energy on the way from the boiler or cold water generator to the end device.
With different fan speeds or continuous control and valves to influence the flow rate, the device power can be controlled in a flexible way and adapted to nearly all conditions.
Starting from the ambition to provide maximum adaptation to the architectural situation of the room to be air-conditioned, the fan coils are produced in different models - ranging from units to be installed in false ceilings and floors (horizontal model) to units for visible mounting with device casing (vertical and horizontal models).

Characteristics

- Air throughput from 160 to 1850 m^3/h
- Cooling capacity: from 1 to 8.3 kW
- Heating capacity: from 1.25 to 11 kW
- Static pressure: up to 70 Pa

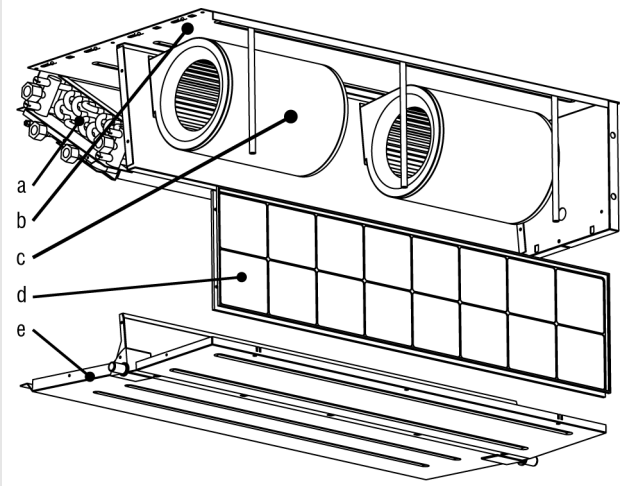
Advantages

- Flexible assembly and installation versions
- 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 (unit plus housing)

Description of the equipment

Base unit

The base unit consists of a housing made of galvanised steel with thermal and acoustic insulation. A motorised fan, one or two heat exchangers, a filter and a condensate pan are integrated in the unit.

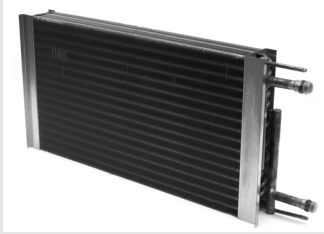


- **a** Heat exchanger
- **b** Housing
- **c** Motorised fan
- **d** Filter
- **e** Condensate pan

Housing

The housing of the device consists of profiles and covers made of galvanised sheet steel having a 6 mm thick insulation.

Heat exchanger



The heat exchanger unit can consist of a single register of 3 rows for cooling and heating operation (for connection to 2 pipelines) or of two registers of 3+1 rows (for connection to 4 pipelines).
The registers were developed for use with water or a water/glycol mixture and consist of copper pipes, aluminium ribs, a manual ventilation and drainage system and a frame made of galvanised sheet steel.
The length of the register depends on the required performance. The water connections can be attached to the register either on the left- or right-hand side.
Optionally, an electric heating register can be used to support the heating mode.

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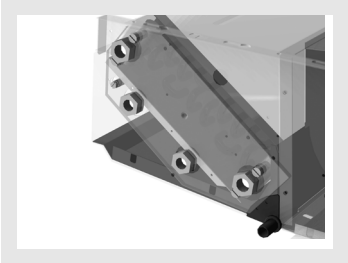
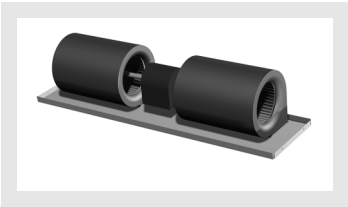
Condensate pan



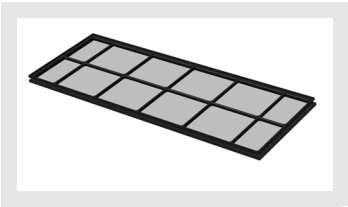
The condensate pan can be mounted horizontally or vertically and serves for the collection of the condensate water below the cooling register. The pan is made of galvanised steel and has a thermal insulation (polyethylene with a thickness of 3 mm) to avoid the formation of condensation water.
The condensation water outlet is located on the same side as the hydraulic connections and can be connected to the on-site drain system.

Motorised fan



The motorised fan consists of double-sided intake-operation, dynamically balanced centrifugal blowers with forward curved blades and direct drive.
The fan motors are designed as AC (SP series) or highly efficient EC motors (EC series) and are equipped with maintenance-free friction bearings for a long service life.
For the AC fan motor, 6 steps are made available by a step transformer. The EC fan can be activated with 0-10 V and is infinitely variable.
The housing and the fan wheel are made of plastic and are optimised for the lowest possible sound pressure.

Filter



The air filter of filter class G2 and G3 (according to the order) consists of a synthetic fabric on a plastic frame. The filters are attached with holding clips and can be dismounted without requiring tools. Moreover, they are distinguished by simple maintenance (washing or compressed air).

Accessories

Optionally, depending on customer request and installation-specific requirements or in order to achieve increased performance and optimum operating characteristics, different additional components can be integrated, such as plenum boxes for supply and return air, electrical heating registers, flexible connections, connection frames, housings, valve kit, additional condensate pan, condensate pump, SCHAKO Ib 1 ventilation grilles and SCHAKO DBB ceiling diffusers. SCHAKO offers an extensive product range of control equipment.

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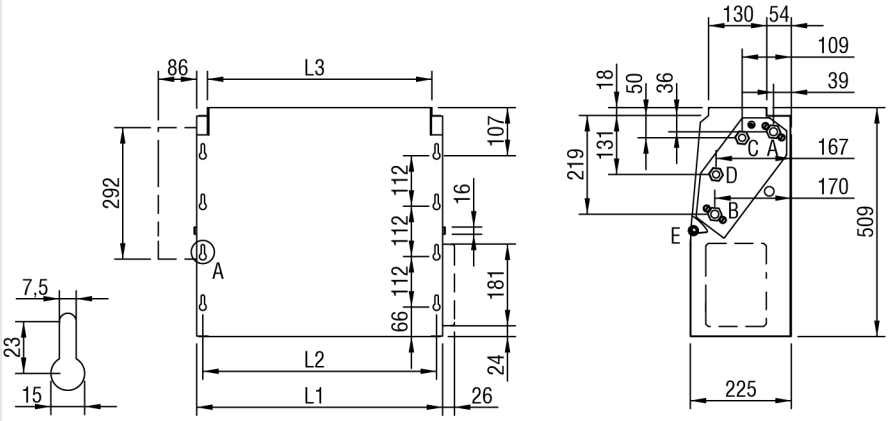
Models, dimensions and weights

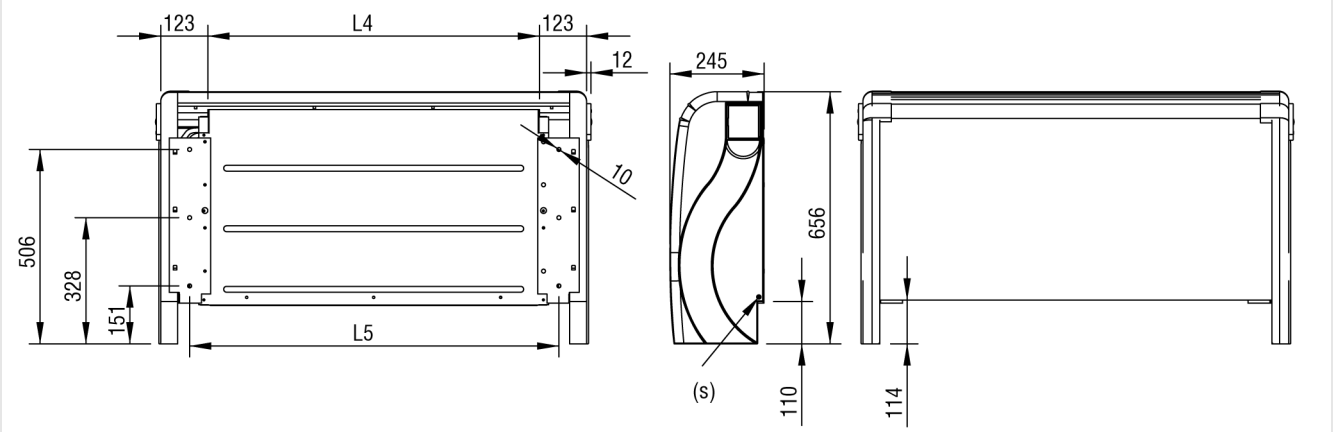
Dimensions and weights

Base unit



- Left side view (air flow direction)
- The electric connection of the standard model is located opposite to the hydraulic connection side.

Housing (optional accessories)



NW	Dimensions (mm)					Weight (kg)		Water capacity of the registers (l)	
	L1	L2	L3	L4	L5	G1	G2	3 rows	1 row
10 / 11	697	670	645	649	755	14	20	1.2	0.3
20 / 21	912	885	860	864	970	20	28	1.6	0.4
30 / 31	1247	1220	1195	1199	1305	25	36	2,3	0.6
40 / 41	1352	1325	1300	1304	1410	32	46	2.5	0.7
50 / 51	1597	1570	1545	1549	1655	35	49	3.0	0.9

A= cold water outlet (cylindrical internal thread, EN 10226-1 Rp 1/2)
B= cold water outlet (cylindrical internal thread, EN 10226-1 Rp 1/2)
C= cold water outlet (cylindrical internal thread, EN 10226-1 Rp 1/2)
D= cold water outlet (cylindrical internal thread, EN 10226-1 Rp 1/2)
E = Condensate drain DN16 mm (external)
G1 = Weight of the base unit
G2 = Weight of the base unit, including device casing

To avoid deposits and corrosion, the water quality for filling the registers must meet the requirements according to the regulations VDI 2035 and VDI 50930.

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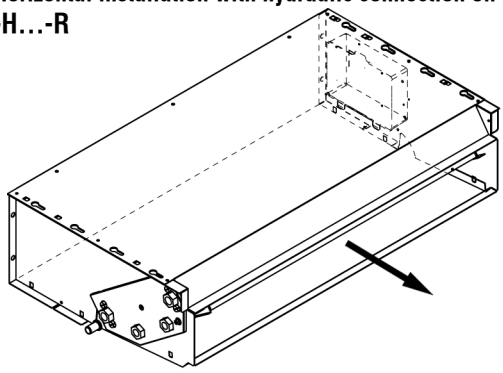
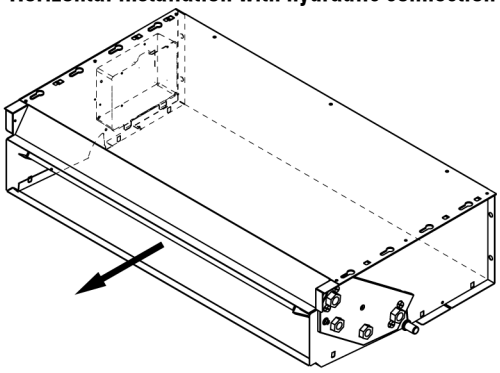
Models

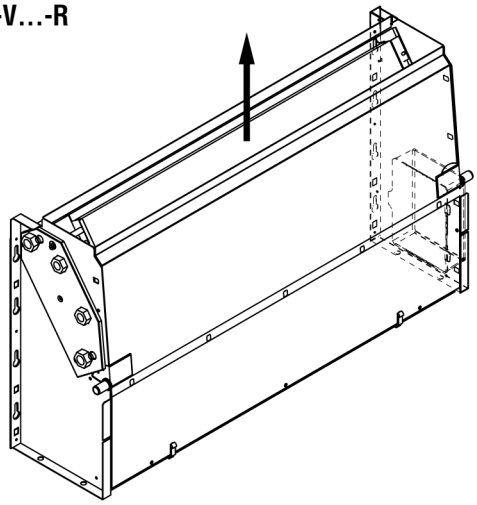
Horizontal installation with hydraulic connection on the right -H...-R



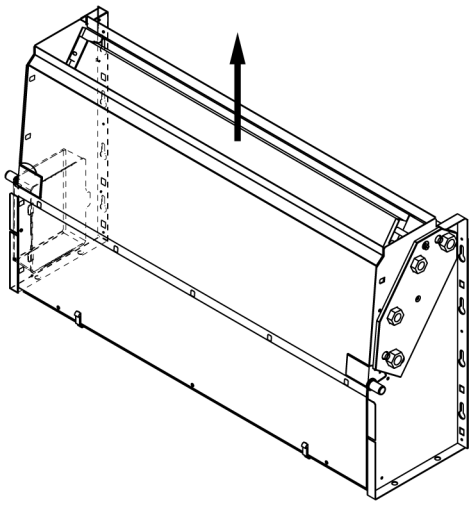
Horizontal installation with hydraulic connection on the left -H...-L



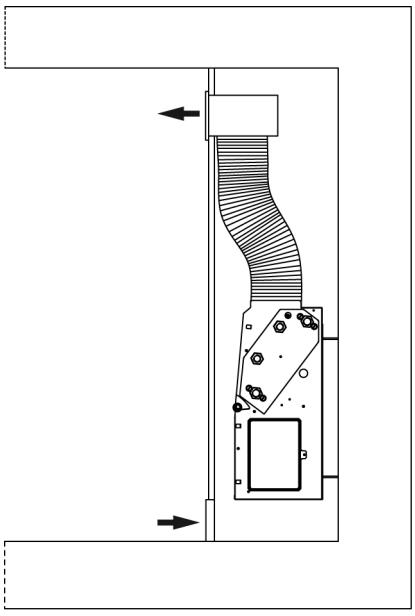
Vertical installation with hydraulic connection on the right -V...-R



Vertical installation with hydraulic connection on the left -V...-L

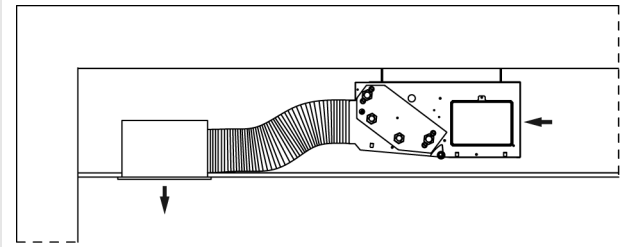


Vertical model
This unit was especially developed for wall mounting.



Horizontal model
Its compact size and low height make the Aquaris Silent fan coil unit an ideal solution for installation in false ceilings and floors, also allowing an open installation suspended from the ceiling.

Unit installed in false ceiling:



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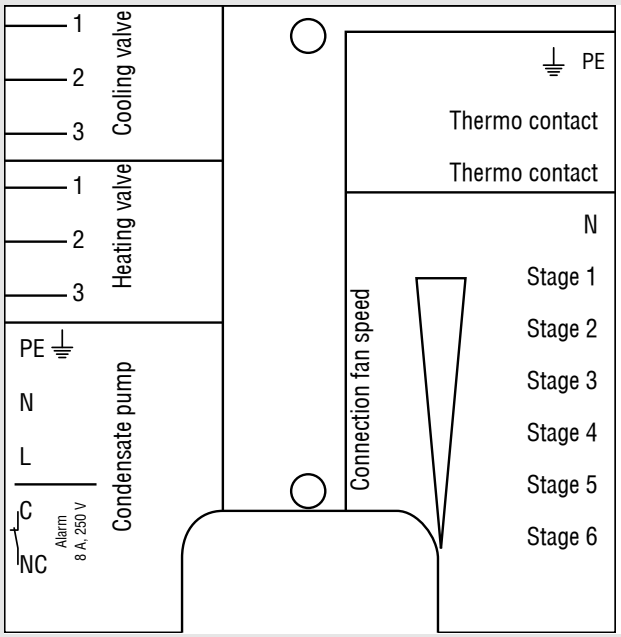
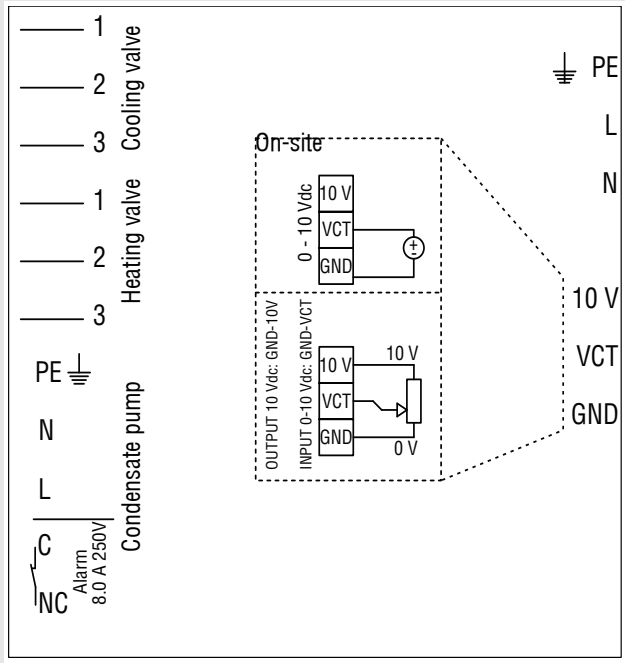
Electric connections

Electric connection diagram (SP series)



Connect the fan coil unit to the earthing cable.
Interrupt the power supply, before carrying out any electrical connection work.
SCHAKO cannot be held liable for faulty electrical connections or incorrectly dimensioned connecting cables.

Electric connection diagram (EC series)



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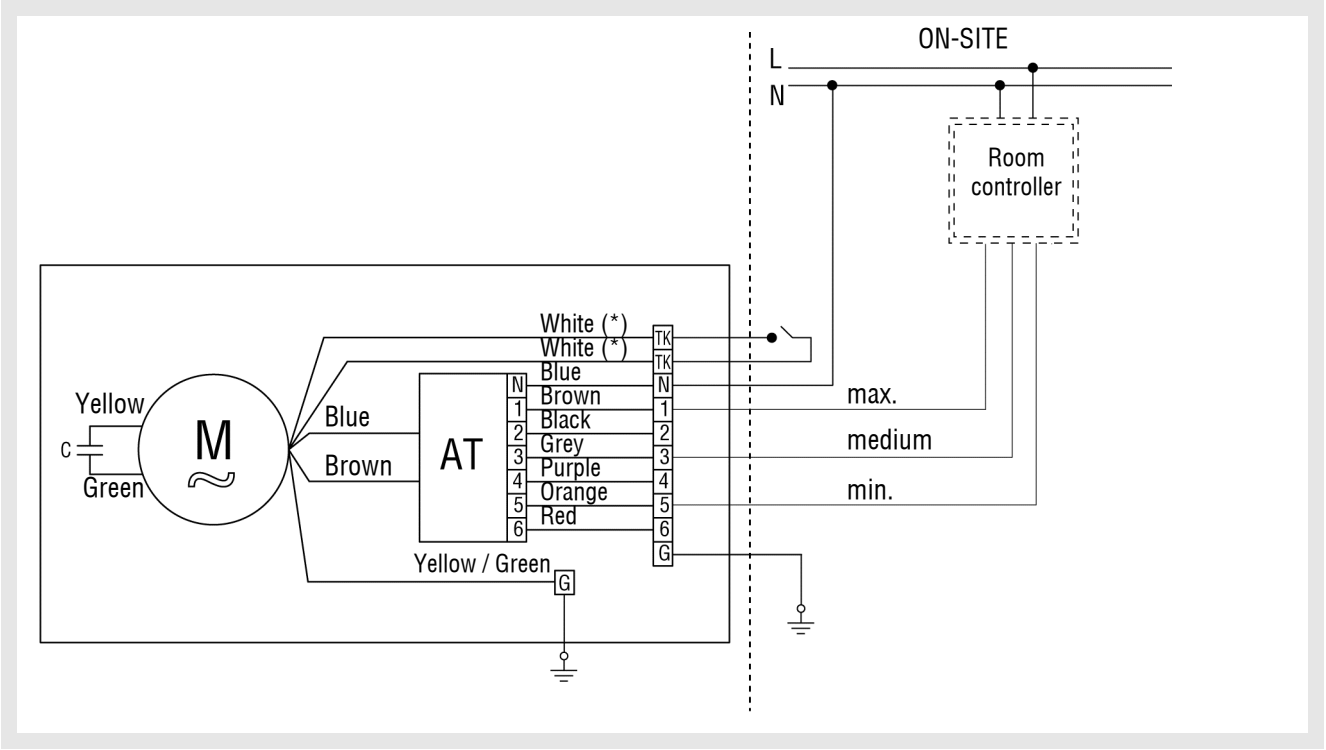
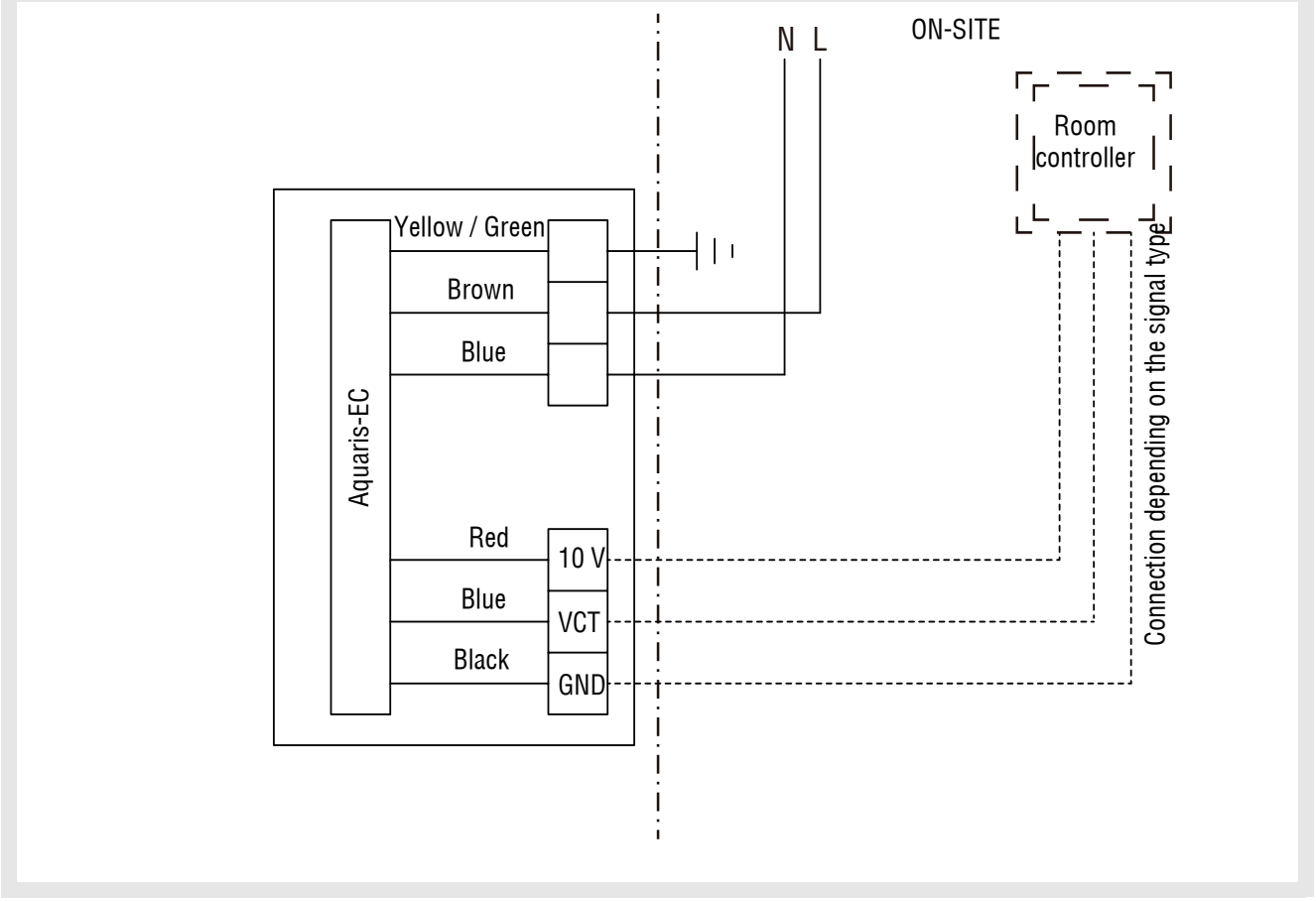
Wiring thermo contact, overload protection, operational and fault message (SP series)



Wiring thermo contact, overload protection, operational and fault message (EC series)



White (*) = potential-free thermo contact as overload protection for motor, to be provided on-site

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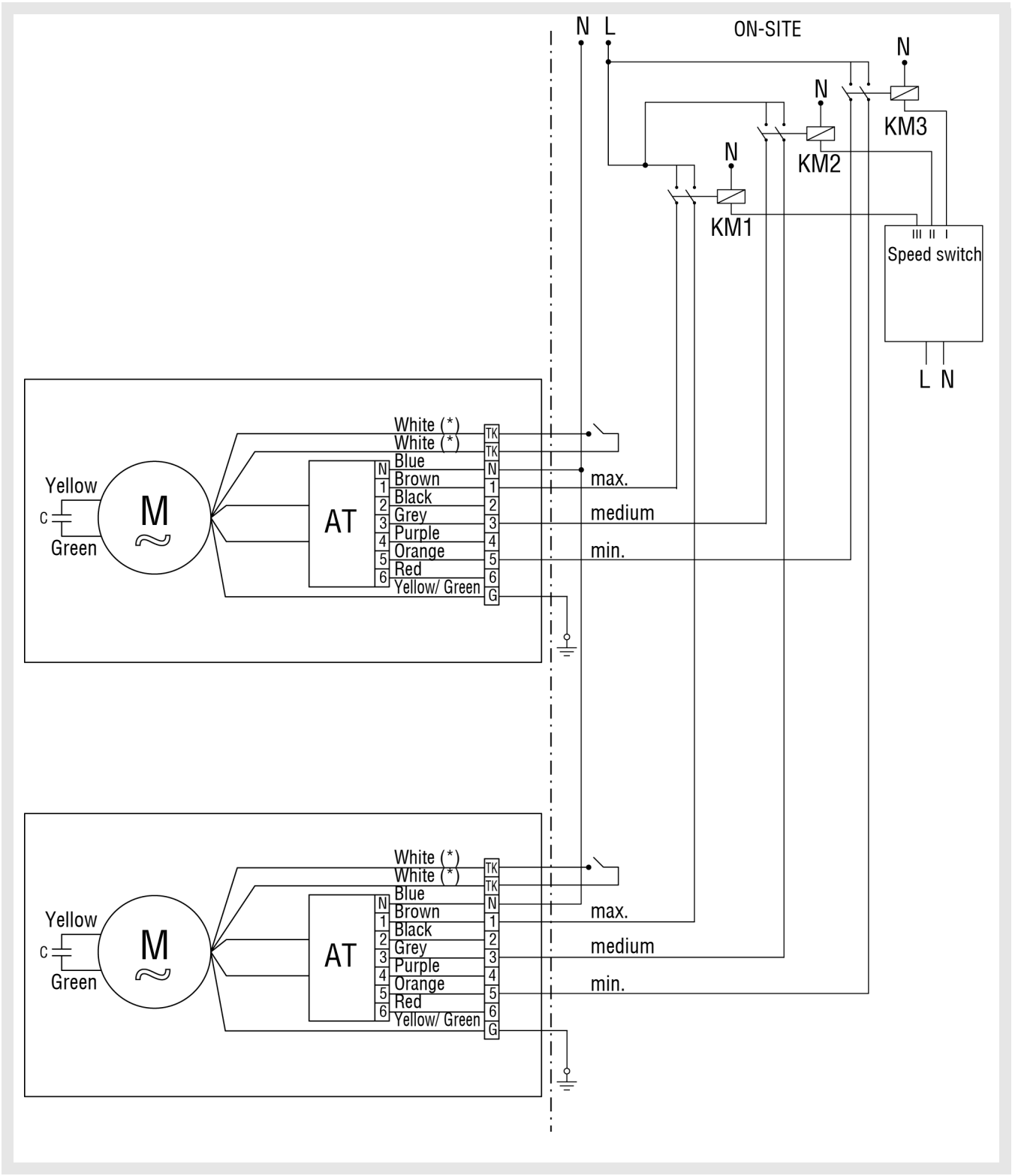
Circuit diagram (with thermo contact)
1 speed switch + 2 or more fan coils (SP series)



White (*) = potential-free thermo contact as overload protection for motor, to be provided on-site

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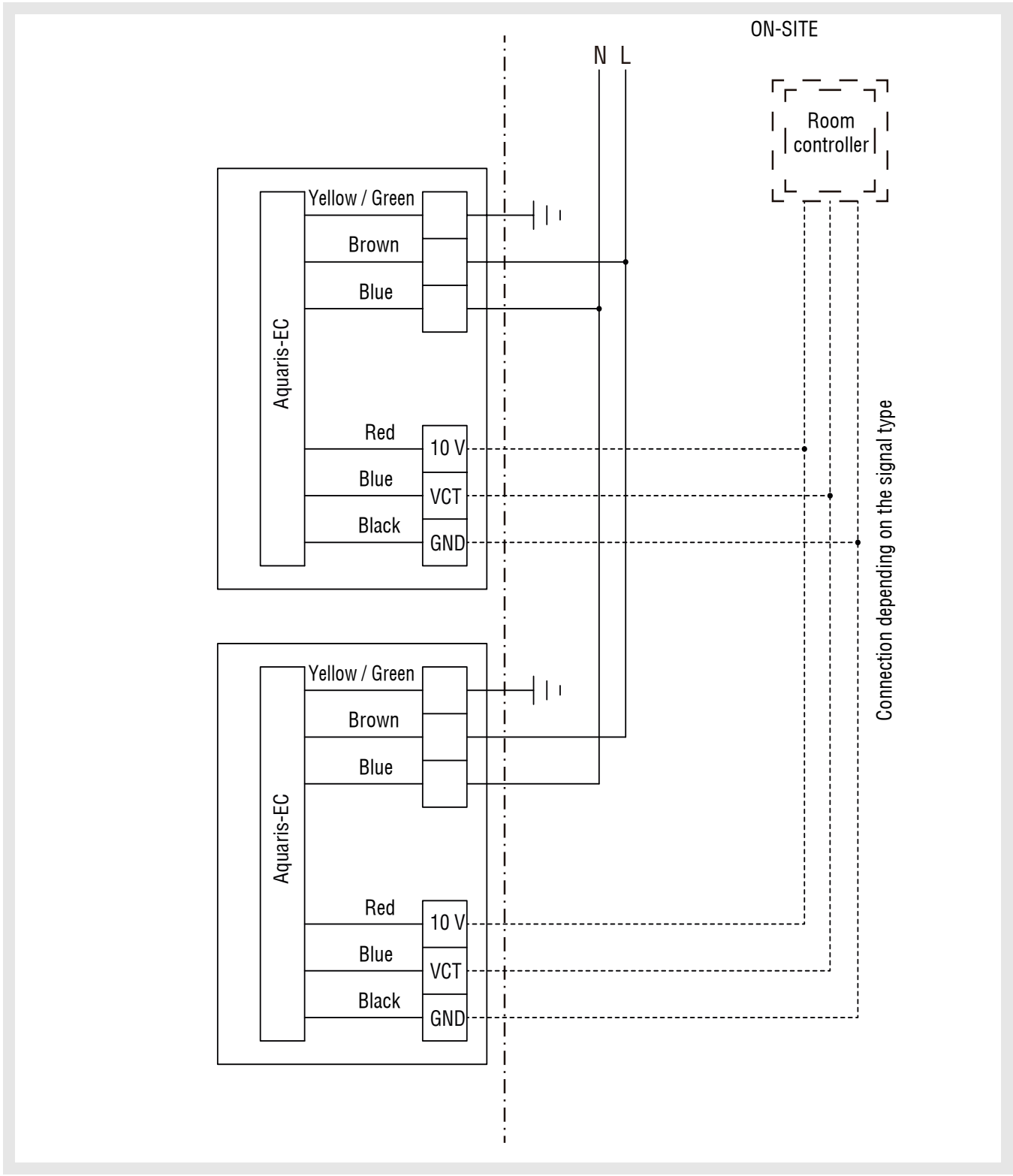
Circuit diagram (with thermo contact)
1 speed switch + 2 or more fan coils (EC series)



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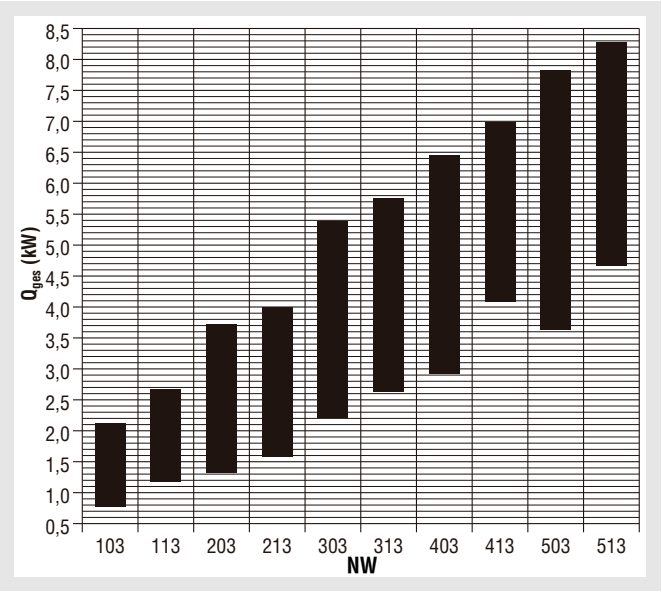
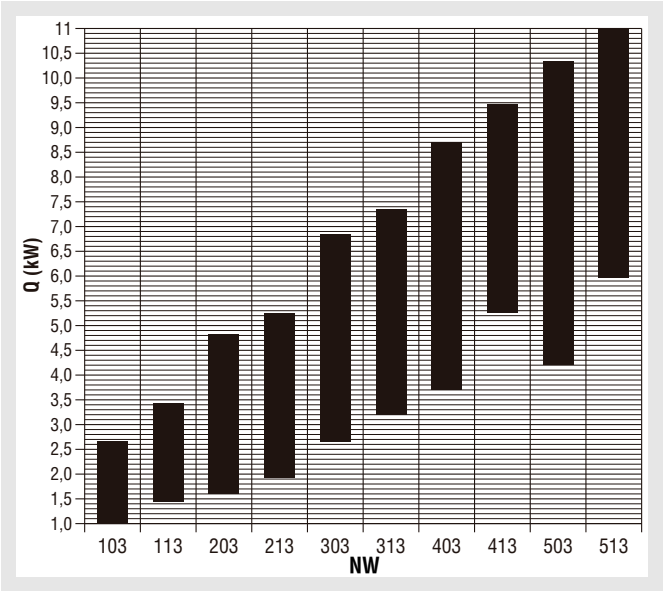
Quick selection diagrams

SP series

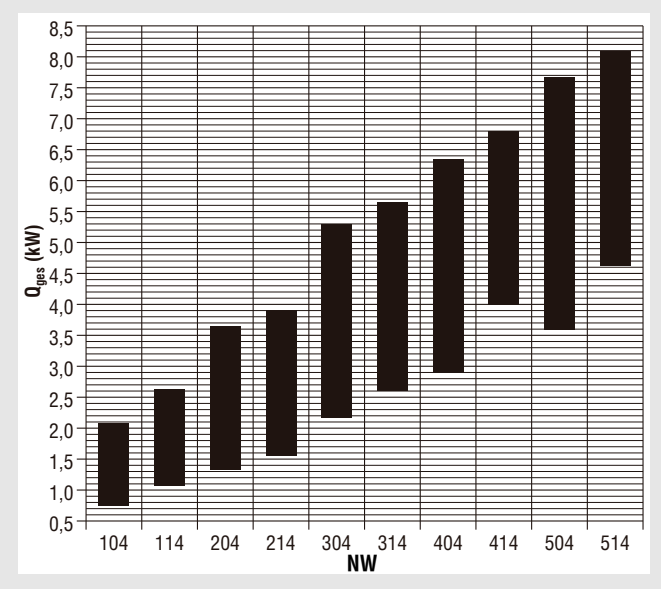
Total heating capacity (2-pipe system) (1)
(see conditions on Page °13)



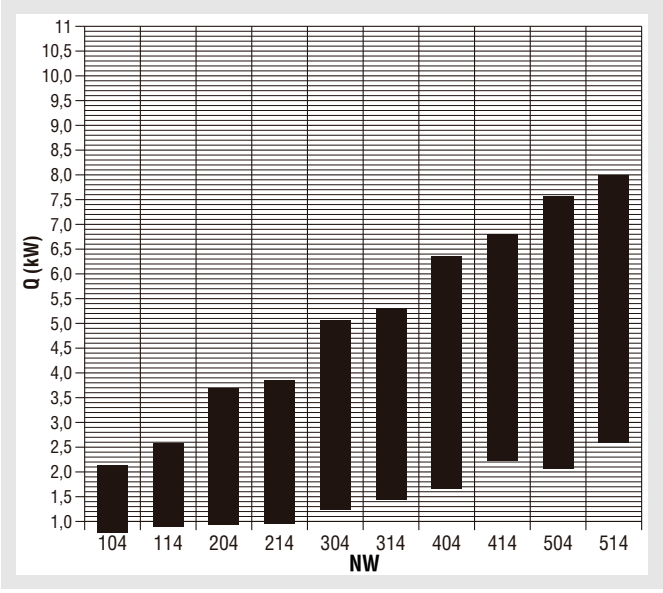
Total cooling capacity (2-pipe system) (1)
(see conditions on Page °13)



Total cooling capacity (4-pipe system) (1)
(see conditions on Page °15)



Total heating capacity (4-pipe system) (1)
(see conditions on Page °15)



(1) cooling and heating capacities at speed level 1-6

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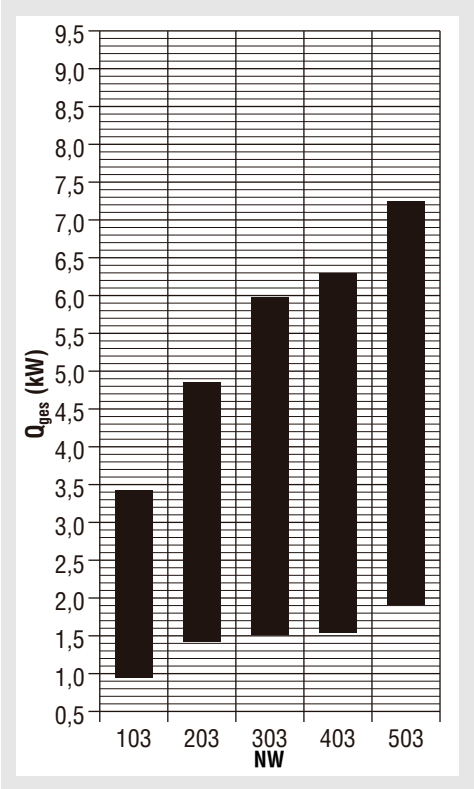
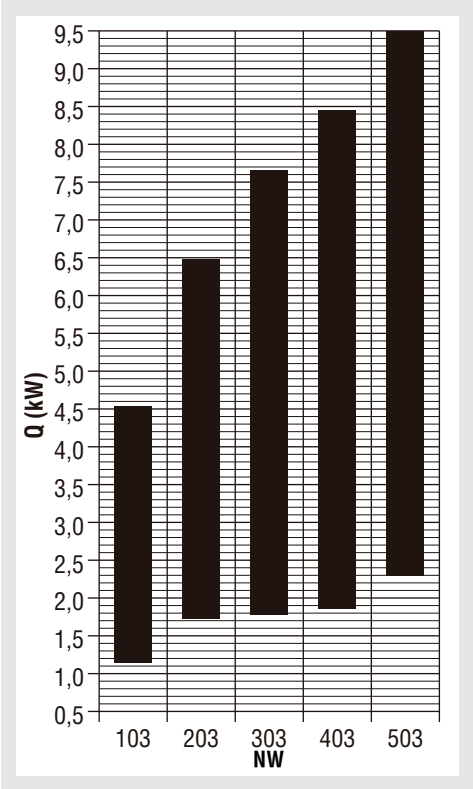
EC series

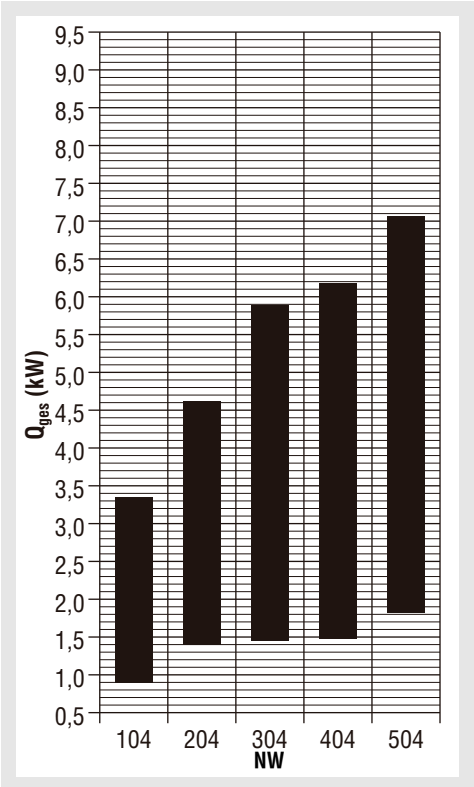
Total heating capacity (2-pipe system) (2)
(see conditions on Page °14)



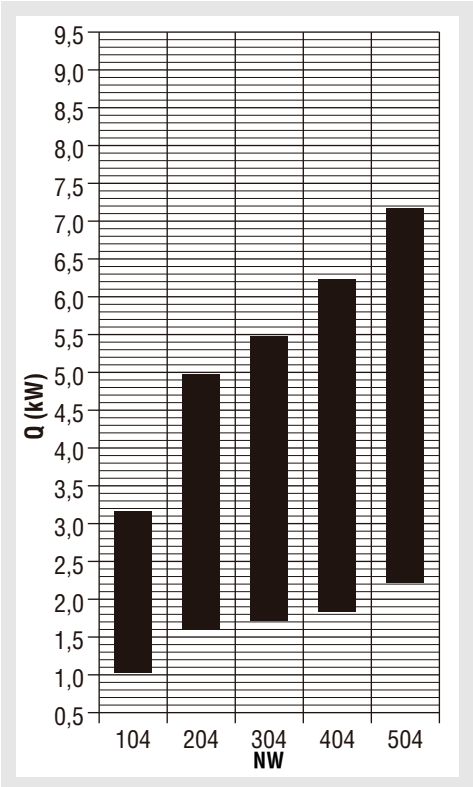
Total cooling capacity (2-pipe system) (2)
(see conditions on Page °14)



Total cooling capacity (4-pipe system) (2)
(see conditions on Page °16)



Total heating capacity (4-pipe system) (2)
(see conditions on Page °16)



(2) cooling and heating capacities at 1-10V

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Technical data

Nominal capacity 2-pipe systems

SP series

		n	Size									
			10	11	20	21	30	31	40	41	50	51
V (m^3/h) **(1)**		1-max.	385	530	750	835	1030	1135	1435	1620	1670	1825
		3-medium	270	385	485	570	850	970	1040	1275	1145	1350
		5-min.	160	235	305	355	495	575	680	940	775	1020
V (l/s) **(1)**		1-max.	107	147	208	232	286	315	399	450	464	507
		3-medium	75	107	135	158	236	269	289	354	318	375
		5-min.	44	65	85	99	138	160	189	261	215	283
Q_{ges} (kW) **(2)**		1-max.	2,11	2,65	3,70	3,98	5,37	5,75	6,45	6,97	7,81	8,27
		3-medium	1,61	2,11	2,71	3,05	4,68	5,15	5,19	5,96	6,02	6,76
		5-min.	1,06	1,45	1,90	2,14	3,10	3,49	3,82	4,83	4,51	5,54
Q_s (kW) **(2)**		1-max.	1,62	2,08	2,92	3,16	4,15	4,46	5,23	5,71	6,24	6,65
		3-medium	1,22	1,62	2,08	2,36	3,57	3,96	4,11	4,80	4,69	5,32
		5-min.	0,78	1,09	1,42	1,62	2,31	2,61	2,95	3,80	3,44	4,28
Q (kW) **(3)**		1-max.	2,68	3,44	4,83	5,24	6,83	7,35	8,69	9,47	10,32	11,01
		3-medium	2,03	2,68	3,45	3,92	5,89	6,52	6,84	7,97	7,77	8,81
		5-min.	1,29	1,80	2,36	2,68	3,81	4,32	4,93	6,33	5,73	7,10
V_W (l/h) **(2)**		1-max.	363	456	638	686	926	991	1110	1200	1345	1425
		3-medium	278	363	467	526	807	887	894	1027	1037	1164
		5-min.	182	249	327	368	534	601	657	833	777	954
Pa_{WK} (kPa) **(2)**		1-max.	18,09	26,99	19,93	22,65	50,96	57,40	10,93	12,53	17,93	19,87
		3-medium	11,29	18,09	11,51	14,18	39,99	47,30	7,46	9,53	11,35	13,92
		5-min.	5,37	9,32	6,13	7,57	19,33	23,80	4,34	6,59	6,83	9,80
Pa_{WH} (kPa) **(3)**		1-max.	14,74	22,0	16,24	18,46	41,52	46,77	8,91	10,22	14,62	16,20
		3-medium	9,20	14,74	9,38	11,55	32,58	38,53	6,10	7,77	9,25	11,34
		5-min.	4,37	7,58	4,99	6,16	15,74	19,38	3,54	5,37	5,56	7,98
T_{AK} (°C) **(2)**		1-max.	14,2	15,1	15,2	15,5	14,8	15,1	15,9	16,3	15,7	15,9
		3-medium	13,3	14,2	14,0	14,4	14,2	14,6	15,0	15,6	14,6	15,0
		5-min.	12,1	13,0	12,8	13,2	12,9	13,2	13,8	14,7	13,5	14,3
T_{AH} (°C) **(3)**		1-max.	40,7	39,2	39,1	38,6	39,7	39,2	38,0	37,4	38,3	37,9
		3-medium	42,3	40,7	41,1	40,4	40,5	39,9	39,5	38,5	40,1	39,4
		5-min.	43,9	42,7	42,9	42,4	42,8	42,3	41,5	40,0	41,9	40,6
rF_{AK} (%)		1-max.	88,0	85,2	85,1	84,1	85,6	84,7	83,3	82,2	83,7	82,8
		3-medium	90,9	88,0	89,0	87,5	87,4	85,2	86,3	84,4	87,1	85,6
		5-min.	94,4	91,9	92,4	91,4	91,6	90,5	89,9	87,2	90,3	88,1
rF_{AH} (%)		1-max.	15,3	16,5	16,6	17,1	16,1	16,5	17,7	18,3	17,3	17,7
		3-medium	14,1	15,3	15,0	15,5	15,4	15,9	16,3	17,1	15,7	16,4
		5-min.	12,9	13,7	13,6	13,9	13,7	14,0	14,6	15,9	14,3	15,3
EK (230V 50 Hz)	**W** (W)	1-max.	59,1	80,2	86,3	83,7	128,9	141,5	190,9	191,7	221,1	233,3
		3-medium	40,3	51,2	55,1	61,4	106,1	114,7	140,5	141,9	152,7	157,4
		5-min.	22,1	28,3	30,8	33,1	56,3	58,9	102,4	104,9	118	121,5
	I (A)	1-max.	0,24	0,32	0,35	0,33	0,52	0,57	0,76	0,77	0,88	0,93
		3-medium	0,16	0,20	0,22	0,25	0,42	0,46	0,56	0,57	0,61	0,63
		5-min.	0,09	0,11	0,12	0,13	0,23	0,24	0,41	0,42	0,47	0,49

Calculations with filter G2

(1) Measured at 0 Pa of available pressure

(2) Air inlet temperature = 27°C, water inlet temperature = 7°C, temperature difference = 5°C

(3) Air inlet temperature = 20°C, water inlet temperature= 50°C, same water throughput as in cooling (2)

Fan Coil Unit Aquaris Silent

EC series

	Volt (V)	Size 10	20	30	40	50
V (m^3/h) **(1)**	10	775	1125	1200	1382	1495
	6	537	713	834	995	1140
	2	217	330	369	429	513
V (l/s) **(1)**	10	215,3	312,5	333,3	383,9	415,3
	6	149,2	198,1	231,7	276,4	316,7
	2	60,3	91,7	102,5	119,4	142,5
Q_{ges} (kW) **(2)**	10	3,4	4,83	5,97	6,29	7,25
	6	2,67	3,58	4,62	5,03	6,0
	2	1,36	2,02	2,44	2,67	3,26
Q_s (kW) **(2)**	10	2,74	3,92	4,65	5,09	5,74
	6	2,1	2,81	3,52	3,98	4,67
	2	1,02	1,52	1,8	2,01	2,44
Q (kW) **(3)**	10	4,53	6,49	7,66	8,45	9,51
	6	3,47	4,65	5,8	6,61	7,74
	2	1,68	2,52	2,95	3,34	4,03
V_W (l/h) **(2)**	10	584	830	1026	1081	1246
	6	459	615	794	864	1031
	2	234	347	419	459	560
Pa_{WK} (kPa) **(2)**	10	42	32	61	10	16
	6	27	19	39	7	11
	2	8	7	13	2	4
Pa_{WH} (kPa) **(3)**	10	34	26	50	9	13
	6	22	15	32	6	9
	2	7	6	10	2	3
T_{AK} (°C) **(2)**	10	16,2	16,4	15,2	15,8	15,3
	6	15,1	15	14,2	14,9	14,6
	2	12,8	13	12,2	12,8	12,6
T_{AH} (°C) **(3)**	10	37,3	37,1	38,9	38,1	38,9
	6	39,2	39,4	40,6	39,7	40,1
	2	43	42,7	43,7	43,1	43,3
rF_{AK} (%)	10	82	81	84	84	85
	6	85	86	87	87	87
	2	92	92	94	93	93
rF_{AH} (%)	10	18	19	17	17	17
	6	17	16	15	16	16
	2	14	14	13	13	13
W (W)	10	52	59	74	77	84
	6	20	23	27	29	32
	2	6	6	7	8	8
SFP [W/ (l/s)]	10	0,242	0,189	0,222	0,201	0,202
	6	0,134	0,116	0,117	0,105	0,101
	2	0,100	0,065	0,068	0,067	0,056

Calculations with filter G2
(1) Measured at 0 Pa of available pressure
(2) Air inlet temperature = 27°C, water inlet temperature = 7°C, temperature difference = 5°C
(3) Air intake temperature = 20°C, water intake temperature= 50°C, same water throughput as in cooling (2)

Fan Coil Unit Aquaris Silent

Nominal capacity 4-pipe systems

SP series

		n	NW									
			10	11	20	21	30	31	40	41	50	51
V (m^3/h) **(1)**		1-max.	380	520	730	810	1010	1110	1395	1560	1625	1770
		3-medium	265	380	480	555	840	955	1020	1245	1125	1325
		5-min.	160	235	300	345	485	565	670	925	770	1005
V (l/s) **(1)**		1-max.	106	144	203	225	281	308	388	433	451	492
		3-medium	74	106	133	154	233	265	283	346	313	368
		5-min.	44	65	83	96	135	157	186	257	214	279
Q_{ges} (kW) **(2)**		1-max.	2,09	2,61	3,64	3,9	5,3	5,66	6,33	6,8	7,67	8,11
		3-medium	1,59	2,09	2,69	2,99	4,64	5,09	5,12	5,87	5,94	6,67
		5-min.	1,06	1,45	1,87	2,09	3,05	3,44	3,77	4,78	4,49	5,48
Q_s (kW) **(2)**		1-max.	1,61	2,05	2,86	3,09	4,08	4,38	5,13	5,56	6,11	6,51
		3-medium	1,2	1,61	2,07	2,32	3,54	3,91	4,05	4,71	4,62	5,24
		5-min.	0,78	1,09	1,4	1,58	2,27	2,57	2,91	3,76	3,42	4,23
Q (kW) **(3)**		1-max.	2,12	2,58	3,69	3,86	5,11	5,31	6,36	6,79	7,58	7,98
		3-medium	1,67	2,12	2,82	3,1	4,55	4,94	5,35	5,94	6,15	6,82
		5-min.	1,18	1,54	2,05	2,26	3,15	3,5	4,06	5,02	4,78	5,71
V_{WK} (l/h) **(2)**		1-max.	360	450	626	672	913	976	1090	1171	1320	1397
		3-medium	274	360	464	516	800	878	882	1011	1024	1149
		5-min.	182	249	322	360	525	593	650	823	773	943
V_{WH} (l/h) **(3)**		1-max.	182	223	318	332	440	458	548	585	653	687
		3-medium	143	182	243	267	392	425	461	511	530	588
		5-min.	102	132	177	194	272	301	350	433	412	492
Pa_{WK} (kPa) **(2)**		1-max.	17,79	26,37	19,29	21,85	49,74	55,87	10,58	12,01	17,37	19,18
		3-medium	11,01	17,79	11,36	13,71	39,39	46,38	7,29	9,27	11,10	13,60
		5-min.	5,37	9,32	5,99	7,28	18,79	23,23	4,26	6,46	6,77	9,61
Pa_{WH} (kPa) **(3)**		1-max.	7,39	10,50	24,92	26,97	8,45	9,05	13,40	15,04	21,43	23,43
		3-medium	4,84	7,39	15,49	18,35	6,88	7,95	9,89	11,88	14,82	17,80
		5-min.	2,64	4,20	8,87	10,48	3,61	4,33	6,08	8,86	9,51	13,01
T_{AK} (°C) **(2)**		1-max.	14,2	15,1	15,1	15,4	14,7	15,0	15,8	16,2	15,6	15,8
		3-medium	13,2	14,2	13,9	14,3	14,2	14,6	14,9	15,5	14,5	15,0
		5-min.	12,1	13,0	12,8	13,1	12,8	13,2	13,8	14,7	13,5	14,2
T_{AH} (°C) **(3)**		1-max.	36,5	34,7	35,0	34,1	35,0	34,2	33,5	32,9	33,8	33,4
		3-medium	38,6	36,5	37,4	36,6	36,1	35,3	35,6	34,2	36,2	35,3
		5-min.	41,9	39,4	40,3	39,4	39,3	38,4	38,0	36,1	38,4	36,9
rF_{AK} (%)		1-max.	88,1	85,3	85,3	84,4	85,8	84,9	83,6	82,5	83,9	83,1
		3-medium	91,0	88,1	89,1	87,8	87,4	86,3	86,5	84,6	87,3	85,8
		5-min.	94,4	91,9	92,6	91,6	91,8	90,7	90,0	87,3	90,5	88,3
rF_{AH} (%)		1-max.	19,1	21,1	20,8	21,8	20,8	21,7	22,6	23,3	22,2	22,8
		3-medium	17,0	19,1	18,2	19,1	19,6	20,4	20,1	21,8	19,4	20,5
		5-min.	14,3	16,4	15,6	16,4	16,5	17,3	17,7	19,5	17,2	18,8
EK (230V 50 Hz)	**W** (W)	1-max.	58,8	79,8	85,6	83,9	127,6	140,4	185,9	186,6	215,9	228,9
		3-medium	40,0	51,1	55,0	61,1	105,5	114,1	138,5	139,7	150,4	155,0
		5-min.	22,1	28,2	30,7	33,1	56,1	58,8	101,7	104,1	117,4	120,5
	I (A)	1-max.	0,26	0,35	0,37	0,36	0,55	0,61	0,81	0,81	0,94	1,00
		3-medium	0,17	0,22	0,24	0,27	0,46	0,50	0,60	0,61	0,65	0,67
		5-min.	0,10	0,12	0,13	0,14	0,24	0,26	0,44	0,45	0,51	0,52

Calculations with filter G2

(1) Measured at 0 Pa of available pressure

(2) Air inlet temperature = 27°C, water inlet temperature = 7°C, temperature difference = 5°C

(3) Air inlet temperature = 20°C, water inlet temperature = 70°C, temperature difference = 10°C

Fan Coil Unit Aquaris Silent

EC series

	Volt (V)	NW 10	20	30	40	50
V (m^3/h) **(1)**	10	753	1047	1171	1345	1440
	6	513	685	800	931	1070
	2	210	316	353	412	474
V (l/s) **(1)**	10	209,2	290,8	325,3	373,6	400
	6	142,5	190,3	222,2	258,6	297,2
	2	58,3	87,8	98,1	114,4	131,7
Q_{ges} (kW) **(2)**	10	3,34	4,62	5,88	6,18	7,07
	6	2,59	3,48	4,48	4,8	5,73
	2	1,32	1,95	2,35	2,58	3,05
Q_S (kW) **(2)**	10	2,69	3,73	4,57	4,99	5,58
	6	2,03	2,73	3,41	3,78	4,45
	2	0,99	1,47	1,73	1,94	2,28
Q (kW) **(3)**	10	3,16	4,49	5,49	6,22	7,17
	6	2,56	3,55	4,4	5,05	5,95
	2	1,42	2,12	2,54	2,92	3,43
V_{WK} (l/h) **(2)**	10	574	794	1011	1062	1215
	6	445	598	770	825	985
	2	227	335	404	443	524
V_{WH} (l/h) **(3)**	10	272	386	472	534	616
	6	220	305	378	434	511
	2	122	182	218	251	295
Pa_{WK} (kPa) **(2)**	10	41	29	60	10	15
	6	26	18	37	7	10
	2	8	6	12	2	3
Pa_{WH} (kPa) **(3)**	10	15	35	10	13	19
	6	10	23	7	9	14
	2	4	9	2	3	5
T_{AK} (°C) **(2)**	10	16,2	16,2	15,2	15,7	15,2
	6	15	14,9	14,1	14,7	14,4
	2	12,7	12,9	12,1	12,7	12,4
T_{AH} (°C) **(3)**	10	32,5	32,7	33,9	33,7	34,8
	6	34,8	35,4	36,3	36,1	36,5
	2	40,1	40	41,3	41	41,5
rF_{AK} (%)	10	82	82	84	84	85
	6	85	86	88	87	88
	2	93	92	94	93	94
rF_{AH} (%)	10	24	24	22	22	21
	6	21	20	19	20	19
	2	16	16	15	15	15
W (W)	10	51	56	72	76	82
	6	19	22	26	29	31
	2	6	6	7	8	8
SFP [W/ (l/s)]	10	0,244	0,193	0,221	0,203	0,205
	6	0,133	0,116	0,117	0,112	0,104
	2	0,103	0,068	0,071	0,070	0,061

Calculations with filter G2
(1) Measured at 0 Pa of available pressure
(2) Air inlet temperature = 27°C, water inlet temperature = 7°C, temperature difference = 5°C
(3) Air inlet temperature = 20°C, water inlet temperature = 70°C, temperature difference = 10°C

Fan Coil Unit Aquaris Silent

Sound power level

2- and 4-pipe systems (SP series)

NW	n	L_W [dB/ Okt] fm (Hz)							L_{WA} [dB(A)]
		125	250	500	1000	2000	4000	8000	
10	max.	55,8	50,0	50,2	46,1	43,1	35,9	30,4	51,7
	medium	43,9	42,0	41,5	35,4	30,6	23,6	28,7	41,9
	min.	50,4	34,4	28,3	20,1	18,9	20,8	28,7	36,4
11	max.	52,5	57,6	54,8	52,8	50,8	45,3	37,8	57,9
	medium	42,9	47,7	47,3	44,3	41,3	33,5	29,5	49,1
	min.	41,1	38,7	37,7	31,4	26,6	21,9	28,5	38,4
20	max.	45,9	49,4	50,6	45,9	43,1	34,1	29,6	51,4
	medium	40,7	39,6	40,0	33,8	27,9	21,9	28,7	40,2
	min.	40,4	28,2	24,7	17,0	18,0	21,0	28,8	31,5
21	max.	48,1	52,3	53,3	48,9	46,5	38,6	31,2	54,4
	medium	42,9	43,1	43,5	37,9	32,9	24,1	28,6	43,8
	min.	42,0	31,1	29,1	21,9	19,4	20,5	28,9	33,0
30	max.	50,5	55,3	56,3	53,8	51,5	44,2	36,8	58,5
	medium	46,7	50,5	51,2	48,3	45,4	36,1	30,8	53,0
	min.	42,7	41,8	39,1	34,9	28,4	22,2	28,7	40,5
31	max.	51,9	57,8	58,4	56,4	54,2	47,8	40,8	61,1
	medium	49,3	53,5	54,4	52,1	49,6	41,7	34,5	56.7
	min.	43,2	43,0	43,0	38,6	33,1	24,1	28,8	43,8
40	max.	52,3	57,1	57,8	54,6	50,9	43,7	35,7	59,3
	medium	45,1	49,9	51,5	48,3	43,0	34,6	30,2	52,6
	min.	37,5	42,0	42,4	40,7	36,4	29,6	29,6	44,8
41	max.	54,5	59,9	60,7	57,1	54,6	49,0	40,8	62,3
	medium	49,3	54,3	55,5	51,4	48,6	41,6	34,0	56,6
	min.	42,2	47,4	48,4	44,6	41,4	34,2	30,6	49,7
50	max.	56,0	59,2	60,3	58,6	56,0	50,2	41,9	63,1
	medium	46,9	49,2	51,4	48,8	45,3	35,5	26,5	53,1
	min.	38,8	41,8	42,8	39,7	34,6	25,3	22,3	44,0
51	max.	57,1	60,9	62,1	60,5	57,9	52,8	44,7	65,0
	medium	50,1	53,1	55,0	52,6	50,2	42,0	32,6	57,2
	min.	43,4	46,8	49,1	45,8	42,3	32,0	24,3	50,4

Measured sound power level in accordance with ISO standard 3744

2- and 4-pipe systems (EC series)

NW	Volt (V)	L_W [dB/ Okt] fm (Hz)							L_{WA} [dB(A)]
		125	250	500	1000	2000	4000	8000	
10	10	57	59	61	56	52	48	41	62
	6	49	51	53	46	42	34	32	52
	2	45	32	30	20	22	21	28	34
20	10	53	57	58	54	52	47	39	59
	6	49	47	49	44	41	32	32	50
	2	45	26	25	16	20	22	28	33
30	10	56	60	58	56	54	50	42	61
	6	47	51	50	46	46	35	29	52
	2	36	35	29	20	20	19	27	32
40	10	57	58	58	53	50	44	37	59
	6	47	49	49	44	39	31	32	50
	2	45	28	26	22	24	23	29	33
50	10	54	59	58	54	52	46	39	60
	6	49	50	49	45	42	33	32	51
	2	46	30	27	27	29	24	30	36

Measured sound power level in accordance with ISO standard 3744

Fan Coil Unit Aquaris Silent

Characteristics with ceiling diffuser DBB and ventilation grille lb 1

2-conductor system

	n	NW									
		10	11	20	21	30	31	40	41	50	51
V (m^3/h)	max.	360	470	630	725	910	985	1155	1360	1295	1490
	medium	255	355	435	515	775	865	905	1130	990	1180
	min.	155	225	275	325	460	530	625	865	715	935
Q_{tot} (kW) (2)	max.	2,01	2,43	3,28	3,62	4,92	5,21	5,58	6,22	6,57	7,23
	medium	1,54	1,99	2,50	2,84	4,38	4,74	4,70	5,50	5,42	6,15
	min.	1,03	1,40	1,74	1,99	2,92	3,27	3,58	4,55	4,24	5,19
Q_s (kW) (2)	max.	1,54	1,90	2,56	2,85	3,77	4,01	4,45	5,03	5,15	5,73
	medium	1,16	1,52	1,91	2,18	3,32	3,62	3,70	4,38	4,18	4,80
	min.	0,76	1,05	1,30	1,50	2,17	2,44	2,75	3,57	3,22	4,00

4-pipe system

	n	Size									
		10	11	20	21	30	31	40	41	50	51
V (m^3/h)	max.	355	460	620	710	890	965	1130	1330	1280	1465
	medium	255	350	430	505	765	845	890	1110	980	1165
	min.	155	220	270	320	455	525	615	855	715	925
Q_{tot} (kW) (2)	max.	1,99	2,40	3,24	3,57	4,84	5,13	5,50	6,13	6,51	7,15
	medium	1,54	1,97	2,48	2,79	4,33	4,66	4,65	5,43	5,38	6,09
	min.	1,03	1,37	1,72	1,97	2,90	3,25	3,54	4,52	4,24	5,15
Q_s (kW) (2)	max.	1,52	1,86	2,52	2,80	3,70	3,94	4,38	4,95	5,11	5,66
	medium	1,16	1,50	1,89	2,15	3,29	3,56	3,65	4,32	4,15	4,75
	min.	0,76	1,03	1,28	1,48	2,15	2,42	2,72	3,54	3,22	3,96
Q (kW) (3)	max.	2,02	2,40	3,33	3,63	4,72	4,97	5,70	6,18	6,68	7,12
	medium	1,62	2,01	2,62	2,91	4,28	4,56	4,90	5,64	5,61	6,29
	min.	1,15	1,47	1,91	2,14	3,02	3,33	3,83	4,77	4,55	5,40

Calculations with filter G2
(2) air inlet dry bulb temperature of 27°C and wet bulb temperature of 19°C, water inlet temperature of 7°C, Temperature difference = 5°C
(3) Air inlet temperature = 20°C, water inlet temperature = 70°C, temperature difference = 10°C

Correction factors for Aquaris Silent with lb 1 ventilation grille

System	Correction factors
2-pipe	0,96
4-pipe	0,97

Correction factors for cooling capacity

Water intake/water outlet temperature (°C)									
Air intake temperature = 27°C					Air intake temperature = 26°C				
6/12	7/12	7/13	8/14	10/15	6/12	7/12	7/13	8/14	10/15
1,02	1	0,93	0,84	0,74	0,91	0,93	0,84	0,76	0,70

Correction factors for heating capacity

Water intake/water outlet temperature (°C)				
90/70	70/60	70/50	60/40	40/30
1,32	1	0,84	0,60	0,30

Fan Coil Unit Aquaris Silent

Sound pressure level (L_P)

$$R = \frac{S \times \alpha}{1 - \alpha}$$

$$L_P = L_W + 10 \times \left[\log_{10} \left(\frac{Q}{4 \times \pi \times r^2} + \frac{4}{R} \right) + \log_{10}(N) \right] + 0,5$$

Q = Direction of noise source
r = Distance from noise source (m)
R = Room constant
S = Sum of the room surface areas
α = Average value of the room absorption coefficient
N = Number of fan coil units in the room

Q value

α	**Type of building:**
0,03	Minimum value
0,05	Factories, indoor swimming pools, large churches, classrooms.
0,10	Hospital rooms, small churches.
0,15	Apartments, offices, hotel rooms, conference rooms, theatres.
0,25	Reading rooms, television studios, department stores
0,40	Radio studios, music halls

Calculation example for the sound pressure L_p in dB(A)

Available values:

L_W = 48.1 [dB(A)]
Q = 2
r = 1.5 m
S = 140 m^2
α = 0.15 (hotel room)
N = 1 (1 fan coil unit in the room)

$$R = \frac{140 \times 0,15}{1 - (0,15)} = 24,71$$

$$L_P = 48,1 + 10 \times \left[\log_{10} \left(\frac{2}{4 \times \pi \times 1,5^2} + \frac{4}{24,71} \right) + \log_{10}(1) \right] + 0,5 = 42,2\,dB(A)$$

Sound pressure level L_P (2- and 4-pipe systems)

	n	NW									
		10	11	20	21	30	31	40	41	50	51
L_p [dB(A)] (4)	max.	51,7	57,9	51,4	54,4	58,5	61,1	59,3	62,3	63,1	65
	medium	41,9	49,1	40,2	43,8	53	56,7	52,6	56,6	53,1	57,2
	min.	36,4	38,4	31,5	33,0	40,5	43,8	44,8	49,7	44,0	50,4
L_p [dB(A)] (5)	max.	45,9	52,1	45,6	48,5	52,7	55,2	53,4	56,5	57,2	59,1
	medium	36,0	43,3	34,3	37,9	47,2	50,8	46,8	50,8	47,3	51,3
	min.	30,6	32,6	25,6	27,2	34,7	37,9	38,9	43,8	38,2	44,5
L_p [dB(A)] (6)	max.	40,3	46,5	40,0	43,0	47,2	49,7	47,9	51,0	51,7	53,6
	medium	30,5	37,8	28,8	32,4	41,6	45,3	41,2	45,3	41,7	45,8
	min.	25,1	27,0	20,1	21,6	29,1	32,4	33,4	38,3	32,6	39,0

(4) Measured sound power level in accordance with ISO standard 3744
(5) Approximate sound pressure levels (L_P) of a room of a surface area of 140 m^2 and a room volume of 100 m^3 (Q = 2; r = 1.5 m; α = 0.15)
(6) Approximate sound pressure levels (L_P) of a room of a surface area of 478 m^2 and a room volume of 400 m^3 (Q = 2; r = 3.0 m; α = 0.15)

Fan Coil Unit Aquaris Silent

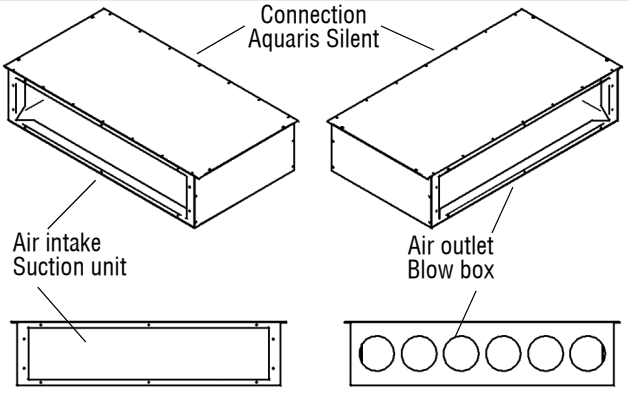
Accessories

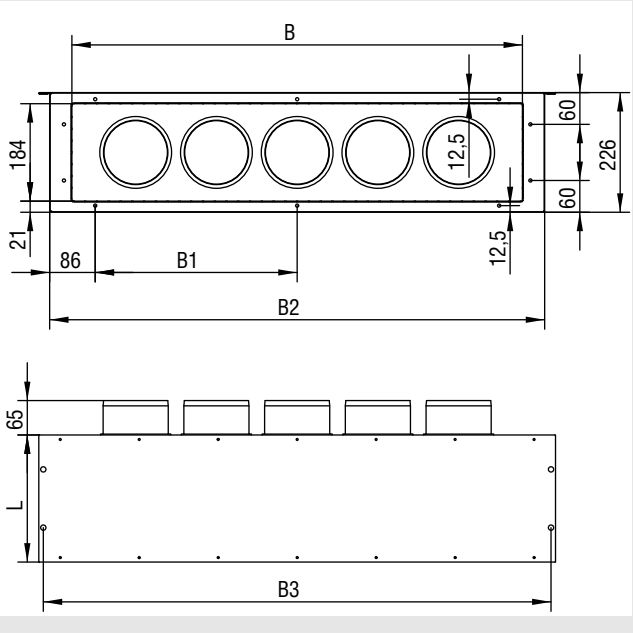
Plenum boxes for supply (-PZ) and return air (-PA)

The boxes consist of galvanised sheet steel and are lined with sound and heat insulation. The following insulations are possible:

- Insulation 1: thermal insulation made of polyethylene 10 mm in thickness, particularly suitable for avoiding condensate formation in the supply air box (cooling).
- Insulation 2: sound and heat insulation made of mineral wool 20 mm in thickness, particularly suitable for reducing sound pressure and avoiding condensate formation.
- Insulation 3: sound and heat insulation made of mineral wool 40 mm in thickness, particularly suitable for reducing sound pressure at frequencies below 100 Hz, and avoiding condensate formation.

The supply air boxes have three different connections: connection flange (optional), connection (standard, open) and connecting plate with connection piece (optional).





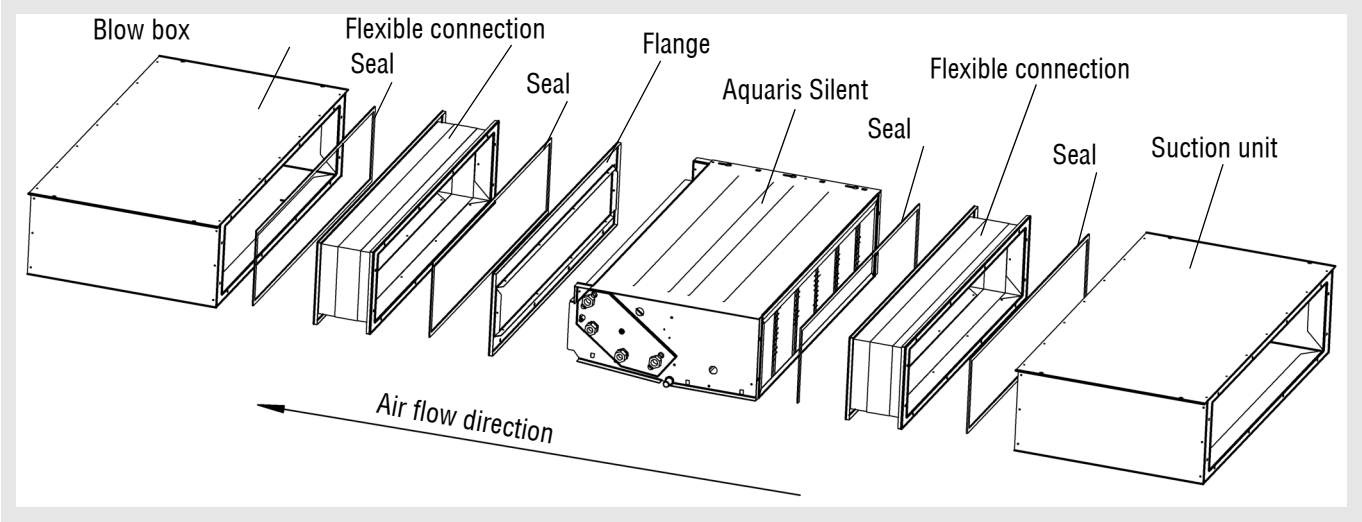
Model	B (mm)	B1 (mm)	B2 (mm)	B3 (mm)	Number of bores	Max. number of connection pieces		L (mm)	Insulation
						Ø 125	Ø 160 (*)		
10-11	720	548	636	744	8	4	3	from 200 to 1100	0 = none 1= 10 mm 2= 20 mm 3= 40 mm
20-21	935	382	851	959	10	5	4		
30-31	1270	549	1186	1294	10	7	6		
40-41	1375	401	1291	1399	12	8	7		
50-51	1620	483	1536	1644	12	9	8		

(*) Not for acoustic insulation 3

Model	Box weight (kg)									
	L-200	L-300	L-400	L-500	L-600	L-700	L-800	L-900	L-1000	L-1100
10-11	5,23	6,79	8,35	9,91	11,47	13,03	14,59	16,15	17,17	19,27
20-21	6,43	8,33	10,23	12,13	14,03	15,93	17,83	19,73	21,63	23,53
30-31	8,30	10,73	13,16	15,59	18,02	20,45	22,88	25,31	27,74	30,17
40-41	8,89	11,48	14,07	16,66	19,25	21,84	24,43	27,02	29,61	32,20
50-51	10,26	13,23	16,20	19,17	22,14	25,11	28,08	31,05	34,02	36,99

Fan Coil Unit Aquaris Silent

Assembly example



Insertion loss and pressure loss

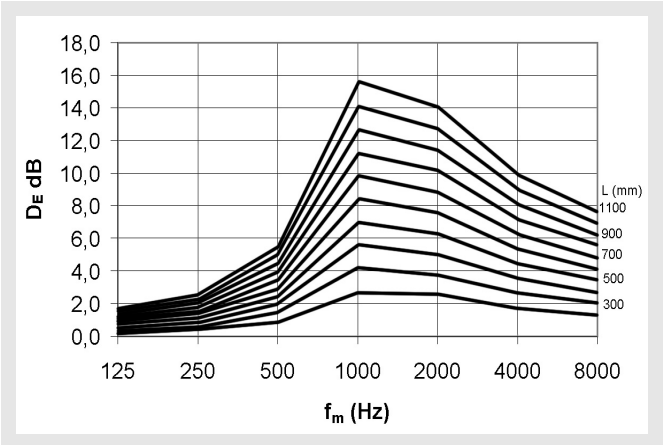
All data for the insertion loss and pressure loss is included in the Aquaris Silent layout program. Below only data of size 1 are shown.

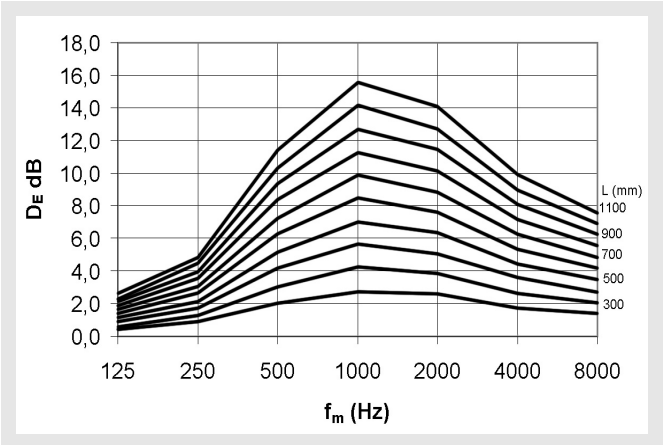
Plenum box P..-1 with insulation 2

L	f_m (Hz)						
(mm)	125	250	500	1000	2000	4000	8000
200	0,3	0,5	1	2,8	2,6	1,8	1,4
300	0,5	0,7	1,5	4,3	3,8	2,7	2,1
400	0,6	0,9	2	5,7	5,1	3,6	2,8
500	0,8	1,2	2,5	7,1	6,4	4,5	3,5
600	0,9	1,4	3	8,5	7,7	5,4	4,2
700	1,1	1,6	3,5	9,9	8,9	6,3	4,9
800	1,3	1,9	4	11,3	10,2	7,2	5,6
900	1,4	2,1	4,5	12,8	11,5	8,1	6,3
1000	1,6	2,3	5	14,2	12,8	9	7
1100	1,7	2,6	5,5	15,6	14,1	9,9	7,7
	D_e (dB/Okt)						

Plenum box P..-1 with insulation 3

L	f_m (Hz)						
(mm)	125	250	500	1000	2000	4000	8000
200	0,5	0,9	2,1	2,8	2,6	1,8	1,4
300	0,7	1,3	3,1	4,3	3,8	2,7	2,1
400	1	1,8	4,2	5,7	5,1	3,6	2,8
500	1,2	2,2	5,2	7,1	6,4	4,5	3,5
600	1,4	2,7	6,3	8,5	7,7	5,4	4,2
700	1,7	3,1	7,3	9,9	8,9	6,3	4,9
800	1,9	3,6	8,4	11,3	10,2	7,2	5,6
900	2,2	4	9,4	12,8	11,5	8,1	6,3
1000	2,4	4,5	10,4	14,2	12,8	9	7
1100	2,6	4,9	11,5	15,6	14,1	9,9	7,7
	D_e (dB/Okt)						



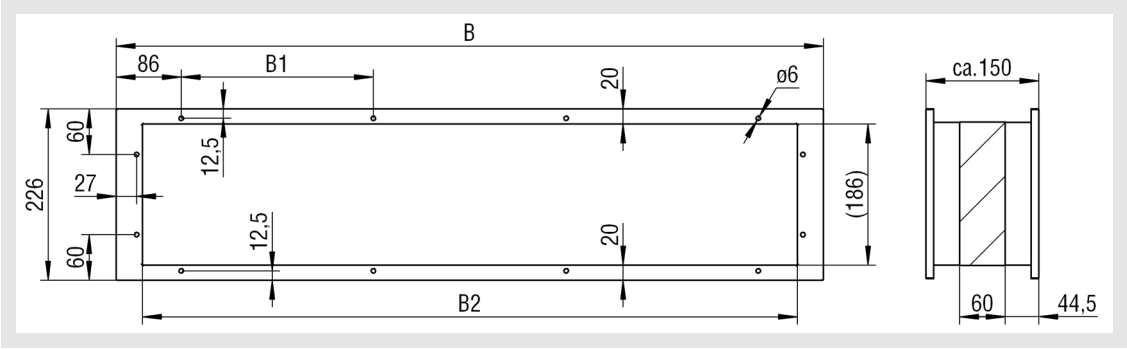


Fan Coil Unit Aquaris Silent

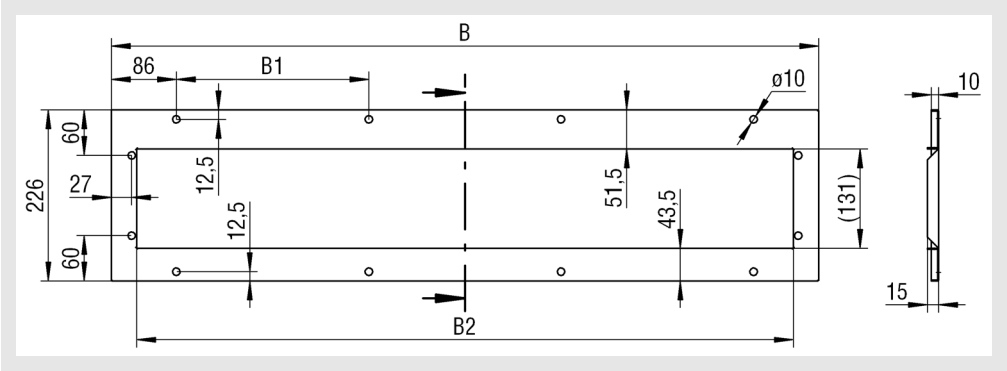
Connecting the air ducts

The unit is connected to the air ducts via flexible connections **(-FS-F),** which prevent vibrations from being transmitted to the system, or via a flange **(-FL)**.

Flexible connection (-FS-F)



Flange (-FL)

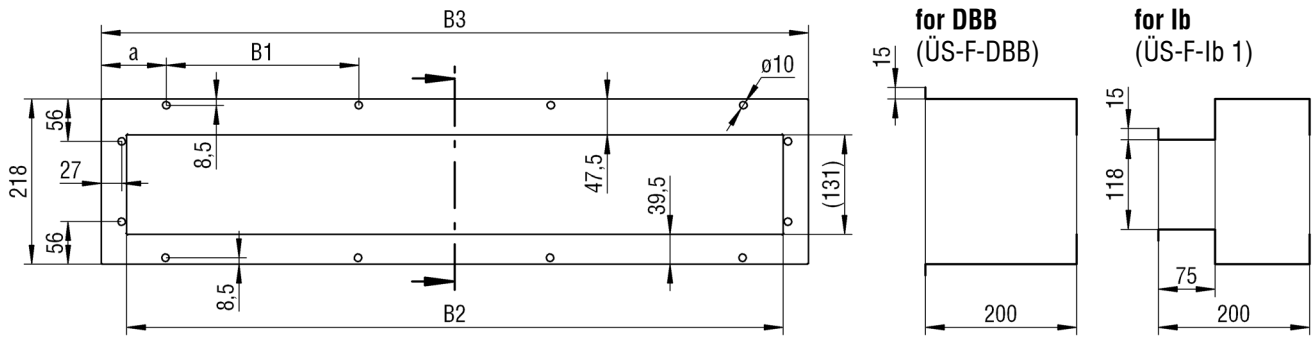


Model	B (mm)	B1 (mm)	B2 (mm)	Weight (kg)	
				-FS-F	-FL
10/11	720	548	651	1,90	0,88
20/21	935	381,5	866	2,38	1,11
30/31	1270	549	1201	3,13	1,48
40/41	1375	401	1306	3,36	1,59
50/51	1620	482,5	1551	3,91	1,86

Fan Coil Unit Aquaris Silent

Connection piece (-ÜS-F)

For units equipped with a Ib ventilation grille **(-ÜS-F-Ib 1)** or a DBB diffuser **(-ÜS-F-DBB)**.

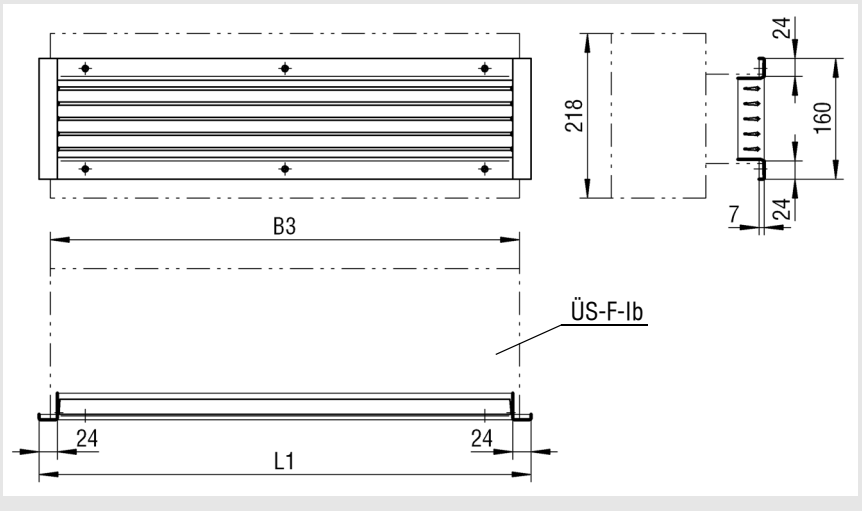


Model	DBB	Ib 1	B1 (mm)	B2 (mm)	B3 (mm)	Number of bores	a (mm)	Weight -ÜS-F (Kg)
10	825/215	825/215	548	651	820	8	136	5,1
11	825/215	825/215	548	651	820	8	136	
20	1025/215	1025/215	381,5	866	1020	10	128	6,1
21	1225/215	1225/215	381,5	866	1220	10	228	7,3
30	1525/215	1525/215	549	1201	1520	10	211	8,79
31	1525/215	1525/215	549	1201	1520	10	211	
40	1525/215	1525/215	401	1306	1520	12	159	8,68
41	2025/215	2025/215	401	1306	2020	12	409	11,74
50	2025/215	2025/215	482,5	1551	2020	12	286	9,04
51	2025/215	2025/215	482,5	1551	2020	12	286	11,48

Fan Coil Unit Aquaris Silent

Ib 1 ventilation grille

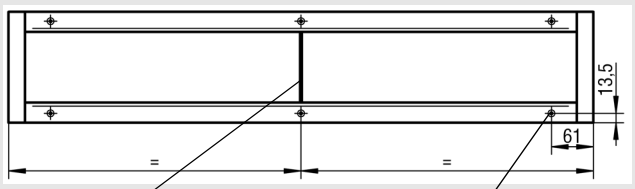
Intake grille with individually controllable, aerodynamic air deflection blades. Made of galvanised sheet steel or painted to RAL 9010 (white).



Available sizes

L1 (mm)	B3 (mm)
650	620
850	820
1050	1020
1250	1220
1550	1520
1650	1620
2050	2020

Screw mounting (SM)

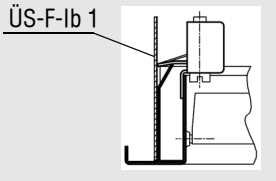


Intermediate rail

650 mm	-
850-1250 mm	1
1550-2050 mm	2

Indentation for slotted shallow-raised countersunk-head tapping screw DIN ISO 7051 pitch 3.9 (on-site)

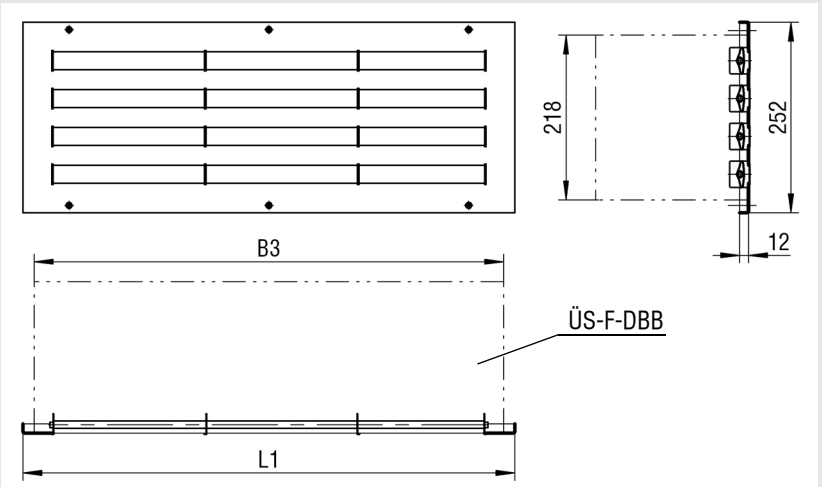
Concealed mounting (for grilles ≤ 1250 mm in length)



Fan Coil Unit Aquaris Silent

Ceiling diffuser DBB

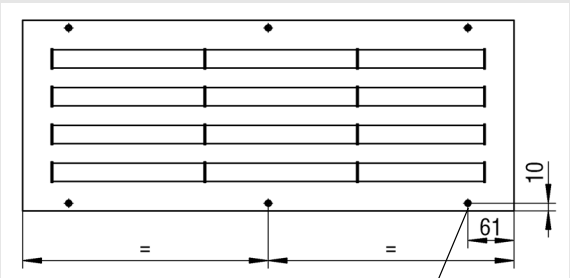
The ceiling diffuser consists of a front cover made of sheet steel painted to RAL 9010 (white) with individually controllable air deflection blades made of plastic similar to RAL colour 9005 (black), 9010 (white) or painted aluminium.



Available sizes

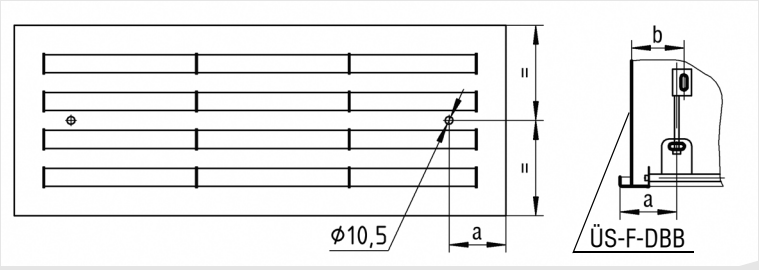
L1 (mm)	B3 (mm)	a (mm)	b (mm)
650	620	75	68
850	820	125	118
1050	1020		
1250	1220		
1550	1520		

Screw mounting (SM)

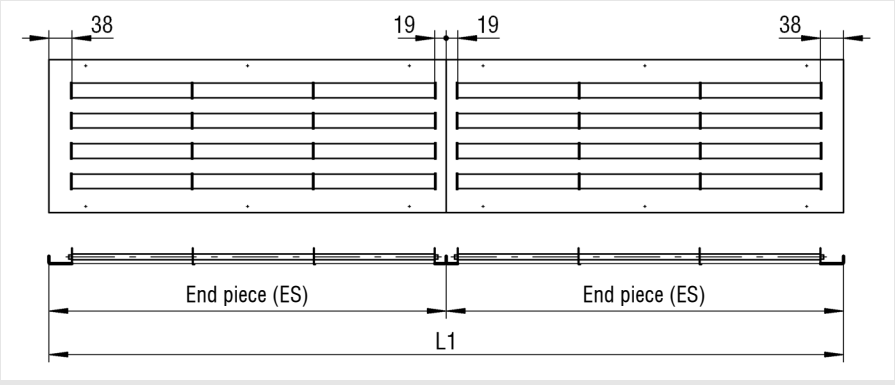


Indentation for slotted shallow-raised countersunk-head tapping screw DIN ISO 7051 pitch 3.9 (on-site)

Concealed mounting (for grilles ≤ 1250 mm in length)



2-part band design



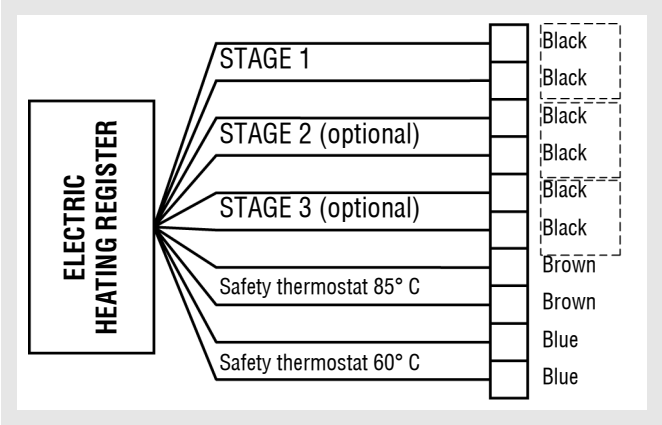
L1 (mm)
1650
1850
2050

Fan Coil Unit Aquaris Silent

Electric heating register (-BE)

Electric heating register consisting of a galvanised steel frame, heating coils mad e of stainless steel, with an without blades and 2 safety temperature controls.

Circuit diagram



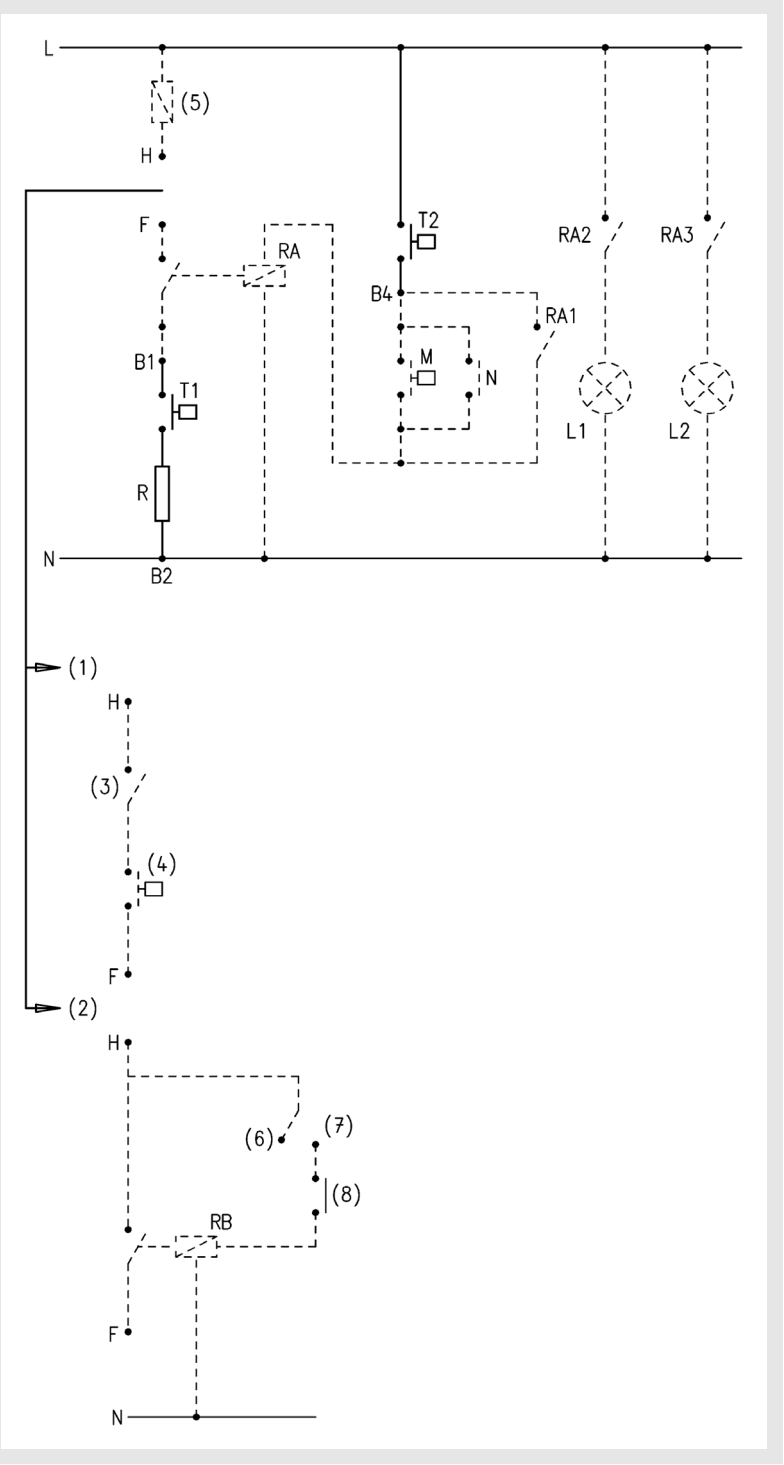
with blades

without blades

Electr. heating register	P (kW)	Model	n= max. V (m^3/h)	n= max. ΔT (K)	n = medium V (m^3/h)	n = medium ΔT (K)	n= min. V (m^3/h)	n= min. ΔT (K)
BE1	1,25	103	385	9,7	270	13,8	160	23,3
		113	530	7,0	385	9,7	235	15,9
BE2	2,0	203	750	8,0	485	12,3	305	19,6
		213	835	7,2	570	10,5	355	16,8
BE3	2,5	303	1030	7,2	850	8,8	495	15,1
		313	1135	6,6	970	7,7	575	13,0
BE4	2,75	403	1435	5,7	1040	7,9	680	12,1
		413	1620	5,1	1275	6,4	940	8,7
BE5	3,0	503	1670	5,4	1145	7,8	775	11,6
		513	1825	4,9	1350	6,6	1020	8,8

Fan Coil Unit Aquaris Silent

Example of a connection diagram



SCHAKO scope of delivery:

B1/B2/B3/B4	Terminals (in terminal box of the unit)
T1	Safety thermostat with automatic restart
T2	Safety thermostat, recommended for manual restart
R	Electric heating register

Not included in the SCHAKO scope of delivery:

M	Manual reset button
N	Reset from central control unit
RA/RB/RA1	Electric control sensor/contactor/circuit closer
RA2	"Operation" auxiliary contact L1
RA3	"Fault" auxiliary contact L2
L1	Operation LED
L2	Fault LED

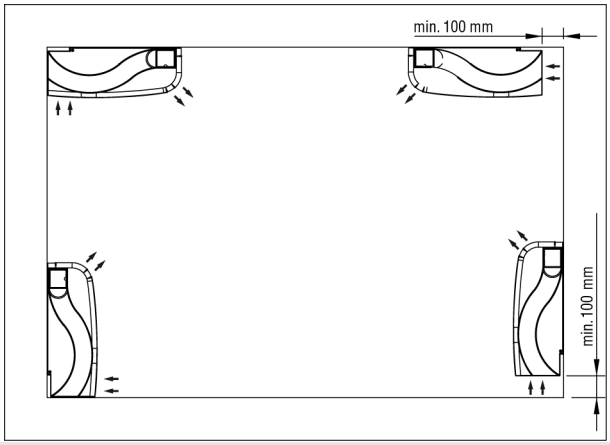
(1)	Connection option 1
(2)	Connection option 2
(3)	Switch
(4)	Room control device
(5)	Fuse
(6)	Off
(7)	Automatic operation
(8)	On / Off

Fan Coil Unit Aquaris Silent

Device casing

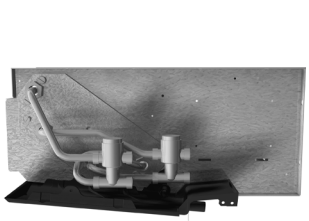
For installation in open space, SCHAKO can offer a device casing consisting of plastic side walls (similar to RAL 9010), a galvanised steel sheet (RAL 9010) and aluminium parts (RAL 9010).

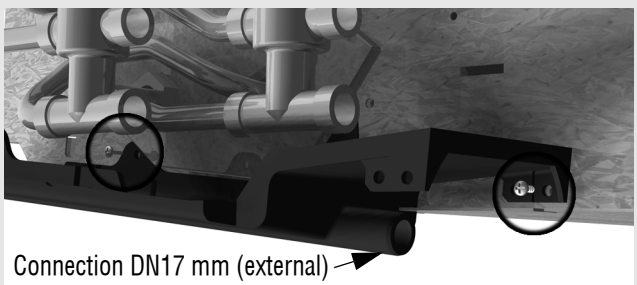
Example of assembly with device casing



Additional valve condensate pan (-KW)

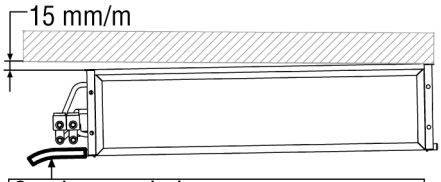
The additional condensate pan is made of plastic and is suitable for the horizontal and the vertical version. The condensate pan collects the condensates that may be produced in the valve kit and removes the water of condensation formed at the cooling register.



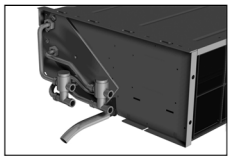


Valve kit

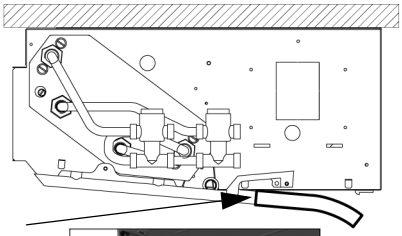
Fan coil unit



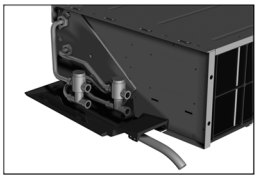
Condensate drain
The condensate water discharge should be located at the lowest level of the fan coil unit.



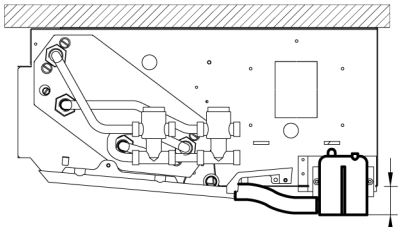
Fan coil unit + pan

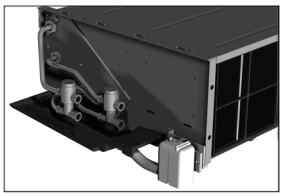


Connection DN17 mm (external)



Fan coil unit + pan + condensate pump





Fan Coil Unit Aquaris Silent

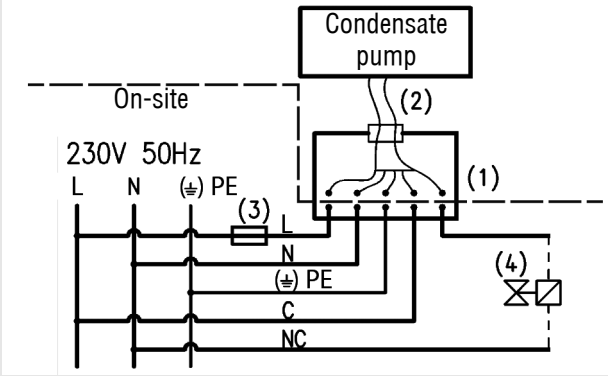
Condensate pump (-KP)

Mounting a condensate pump allows the condensates produced by the Aquaris Silent to be removed, if the water discharge level is higher than the condensate discharge level. The delivered condensate pump is equipped as standard with a potential-free alarm contact (NC contact). The alarm contact can be used on site to trigger an alarm or to put the device out of operation.

Technical Data:

Max. delivery:	20 l/h
Max. delivery height:	10 m (amount of condensate 4 l/h)
Maximum pressure:	14 m (amount of condensate 0 l/h)
Sound level:	< 28 dB (A)
Power supply:	230 V - 50/60 Hz - 14 W
Switching points:	On (18 mm) Off (12 mm) alarm (21 mm)
Safety contact:	NC 8 A resistive load 250V
Overheating protection:	90°C (autom. restart)
Pump type:	Rotor pump:
Protection class:	IP54
Dimensions bend:	165 x 165 x 60 mm
Dimensions cover:	750 x 80 x 60 mm

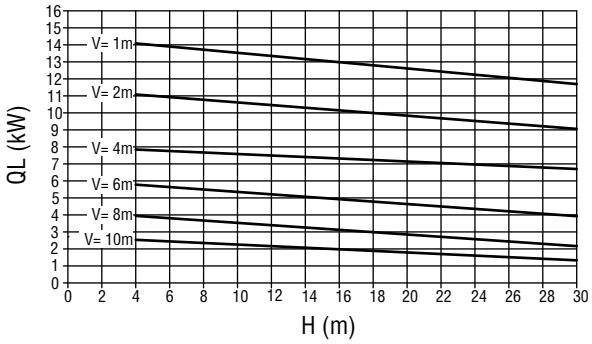
Circuit diagram of the safety contact:



(1) Electric connection switch
(2) Cable
(3) 630 mA fuse
(4) Aquaris Silent

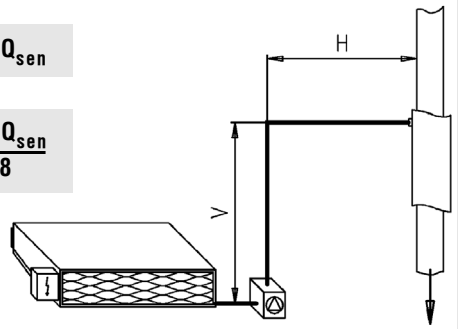
L = red
N = blue
PE (ground) = yellow/green
C = black
NC = black

The diagram shows the capacity of the condensate pump as a function of the vertical distance (V) and the horizontal distance H (relative to the latent cooling capacity).



$$Q_L = Q_{ges} - Q_{sen}$$

$$Q_V = \frac{Q_{ges} - Q_{sen}}{0{,}68}$$



Q_L (kW) = Latent capacity
Q_{ges} (kW) = Total capacity
Q_{sen} (kW) = Sensible capacity
Q_V (l/h) = Amount of condensate
H (m) = Horizontal distance
V (m) = Vertical distance

Fan Coil Unit Aquaris Silent

Control units

- Basic control unit
- Economic control unit (integrated regulation)
- Comfort control unit

Basic control unit
Room thermostats for 2-pipe fan coil units
Model RAB21 (only SP series)

- Control for heating or cooling
- On/Off control output for valve
- Manual 3-speed/OUT fan switch
- Operating voltage AC 24...250 V

Model RCC10 (only SP series)

- Control for heating and cooling
- Outputs for On/Off valve actuators
- Outputs for three-speed fan
- Control either by room temperature or return air temperature, as desired
- Automatic switchover between heating and cooling mode by means of sensor QAH11.1
- Comfort/Eco/Stand-by switchover contact input
- Operating voltage AC 230 V

Room temperature controller for 2-pipe fan coil units comprising electric heating element
Model RCC20 (only SP series)

- Outputs for On/Off valve actuators
- Outputs for three-speed fan
- Control either by room temperature or return air temperature, as desired
- Manual 3-speed/OUT fan switch
- Standard, Economy, Antifreeze operating modes or OFF
- Operating voltage 230 V AC

Room temperature controller for 4-pipe fan coil units
Model RCC30 (only SP series)

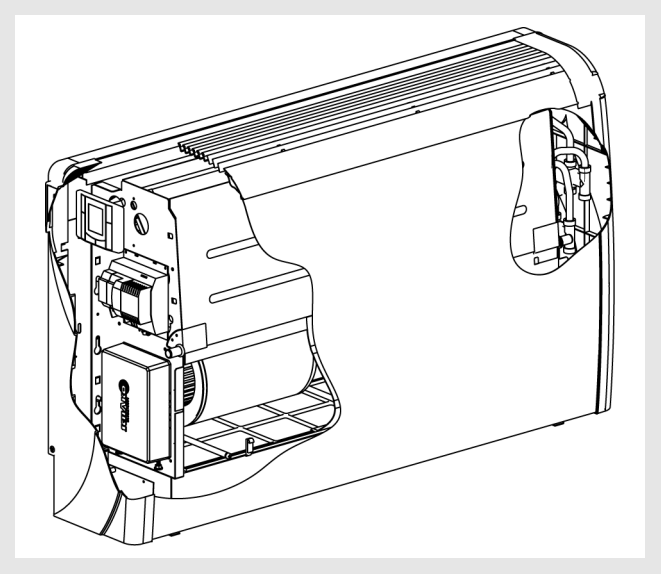
- Outputs for On/Off valve actuators
- Outputs for three-speed fan
- Control either by room temperature or return air temperature, as desired
- Standard, Economy, Antifreeze operating modes or OFF
- Operating voltage AC 230 V

Room temperature controller for 2-pipe fan coil units comprising or excluding electric heating element and for 4-pipe fan coil units
Model RDG

- Display with background lighting
- Automatic switchover with selected fan speed III, II or I, control 0-10 for EC fans (RDG160)
- Automatic switchover between heating and cooling mode by means of sensor QAH11.1
- Connection of return air sensor as an option
- Operating modes: Comfort, Economy and Protective modes
- PWM regulation as an option
- Automatic mode with timer program

Fan Coil Unit Aquaris Silent

Economic control unit (integrated regulation)



Advantages of integrated regulation (mounted and wired):
- Modern regulation at a favorable price (PLUG & PLAY)
- No switch panel required for installation
- Less wiring and thus lower electric installation costs
- A valve kit allows optimum adaptation of the control valve to the fan coil unit

Room temperature control Room operating unit with two-wire interface QAA07.3 / QAA07.5

- Two-wire interface for control unit
- Measurement of the ambient air temperature
- LCD for display of the selected ambient temperature, operating modes and power stage of the fan
- Automatic mode with timer program (QAA07.5)
- Flat design for optimum adaptation in the room and to the fan coil unit

Control unit for fan coil unit ACC071 (modular)
2 control possibilities, 3 power stages of the fan (ACC071.2) or EC motor control (ACC071.4).
Connection to 2 pipelines or 2 pipelines + electric heating register (with base module ACE071.4 output up to 1.8 kW PWM control) or 4 lines (with additional module ACE071.3)

- 14 Aquaris Silent applications, selectable via DIP switch
- Control of the fan speed
- Valve control, thermal drives at 230 V AC
- Two communication possibilities: communication KNX LTE mode (with base module ACE072.1) or Modbus communication (with base module ACE072.2)
- Connection of up to 8 control units to the same ambient unit by means of communication bus KNX

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Comfort control unit
Room controller with bus communication (LonMark)
Model RXC21.5 (2- or 4-pipe)
Model RXC22.5 (2-pipe and heating element)

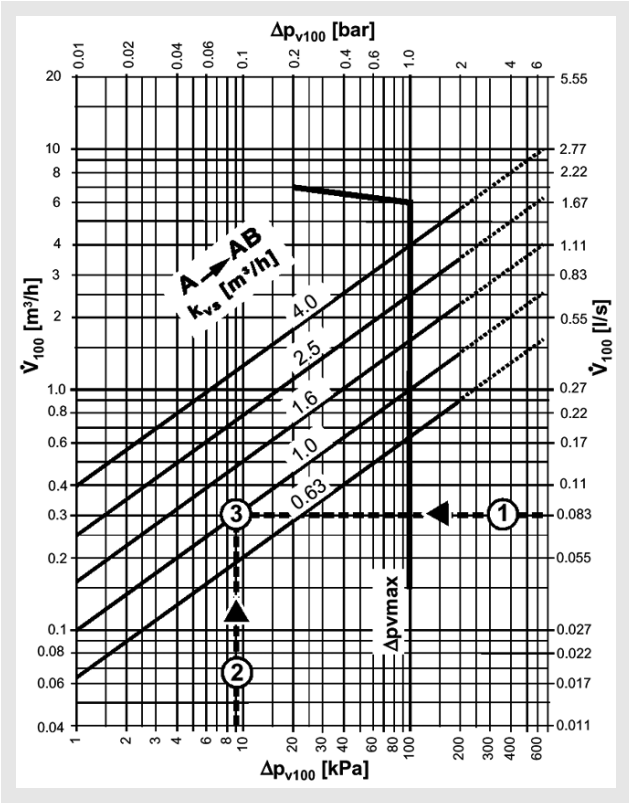
- Integrated room controller (mounted and wired) for fan coil units with bus communication compatible with LonMark

Room units	QAX 30.1	QAX 31.1	QAX 32.1	QAX 33.1	QAX 34.1
					
Integrated room temperature sensor	x	x	x	x	x
Adjustment of the room temperature setpoint		x	x	x	x
Selection of the operating mode (Comfort/Stand-by or Economic)			x	x	x
Selection of the operating mode (Comfort/Stand-by or Economic) and of the fan speeds				x	x
LCD display for room temperature, operating mode and fan speeds					x

Fan Coil Unit Aquaris Silent

Valves and actuators

Type		DN (mm)	Connection	K_{VS} (m^3/h)	Δp_S (kPa)	K_{VS} By-pass (m^3/h)	Δp_{max} (kPa)	Actuator	
								100 N	105 N
V V P 46 (2-door) 	VVP469.10-0.63	**10**	$G^{1/2}$ B	0,63	150	0,44	100	SSA	STA
	VVP469.10-1.0			1		0,7			
	VVP469.10-1.6			1,6		1,12			
	VVP469.15-2.5	**15**	$G^{3/4}$ B	2,5	150	1,75	100	SSA	STA
	VVP469.20-4.0	**20**	G1B	4	150	2,8	100	SSA	STA
V X P 46 (3-door) 	VXP469.10-0.63	**10**	$G^{1/2}$ B	0,63	150	0,44	100	SSA	STA
	VXP469.10-1.0			1		0,7			
	VXP469.10-1.6			1,6		1,12			
	VXP469.15-2.5	**15**	$G^{3/4}$ B	2,5	150	1,75	100	SSA	STA
	VXP469.20-4.0	**20**	G1B	4	150	2,8	100	SSA	STA
V M P 46 (4-door) 	VMP469.10-0.63	**10**	$G^{1/2}$ B	0,63	150	0,44	100	SSA	STA
	VMP469.10-1.0			1		0,7			
	VMP469.10-1.6			1,6		1,12			
	VMP469.15-2.5	**15**	$G^{3/4}$ B	2,5	150	1,75	100	SSA	STA
	VMP469.20-4.0	**20**	G1B	4	150	2,8	100	SSA	STA



Model STA

- Actuating power 105 N
- Direct mounting
- Connecting cable 1.2 m or 5 m
- Position indicator
- Two-wire connection

STA21: Operating voltage 230 V AC, actuator signal 2-point
STA71: Operating voltage 24 V AC/DC, actuator signal 2-point or PWM (pulse width modulation)

Model SSA

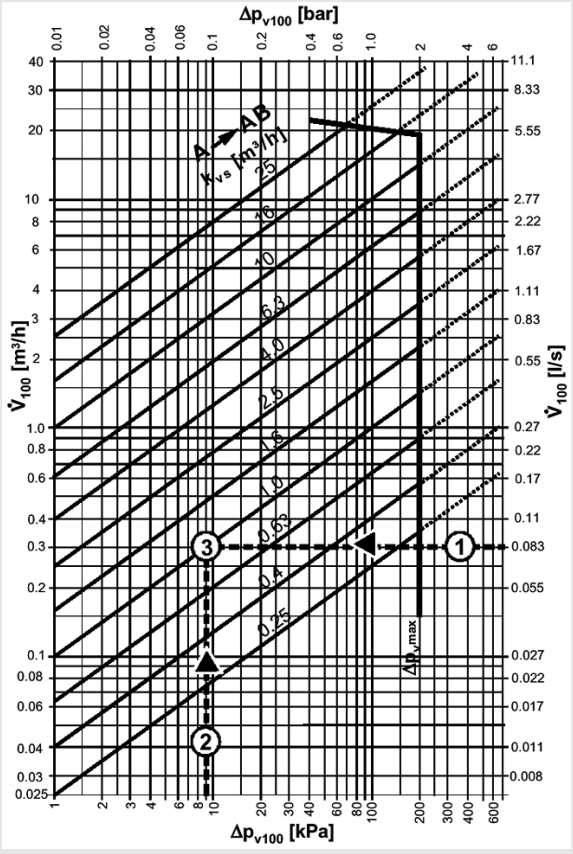
- Actuating power 100 N
- Automatic detection of the valve stroke
- Direct mounting
- Manual adjustment and position indicator
- Connecting cable lengths 1.5, 2.5 and 4.5 m

SSA31: Operating voltage 230 V AC, actuator signal 3-point
SSA61: Operating voltage 24 V AC/DC, actuator signal 0 ... 10 V
SSA81: Operating voltage 24 V AC, actuator signal 3-point

Fan Coil Unit Aquaris Silent

Type		DN (mm)	Connection	K_{vs} (m^3/h)	Δp_S (kPa)	K_{vs} By-pass (m^3/h)	Δp_{max} (kPa)	Actuator	
								100 N	105 N
V V P 45 (2-door) 	VVP45.10-0.4	**10**	$G^{1/2}$ B	0,4	600	0,28	200	SSB (200 N)	
	VVP45.10-0.63			0,63		0,44			
	VVP45.10-1			1,0		0,70			
	VVP45.10-1.6			1,6		1,12			
	VVP45.25-6.3	**25**	$G1^{1/4}$ B	6,3	300	4,4	300	SSB (300 N)	
	VVP45.25-10		$G1^{1/2}$ B	10		10		SSC (300 N)	
V X P 45 (3-door) 	VXP45.10-0.4	**10**	$G^{1/2}$ B	0,4	600	0,28	200	SSB (200 N)	
	VXP45.10-0.63			0,63		0,44			
	VXP45.10-1			1,0		0,70			
	VXP45.10-1.6			1,6		1,12			
	VXP45.25-6.3	**25**	$G1^{1/4}$ B	6,3	300	4,4	300	SSB (300 N)	
	VXP45.25-10		$G1^{1/2}$ B	10		10		SSC (300 N)	
V M P 45 (4-door) 	VMP45.10-0.4	**10**	$G^{1/2}$ B	0,4	600	0,28	200	SSB (200 N)	
	VMP45.10-0.63			0,63		0,44			
	VMP45.10-1			1,0		0,70			
	VMP45.10-1.6			1,6		1,12			

Selection kvs value



Model SSB

- Actuating power 200 N
- Automatic detection of the valve stroke
- Direct mounting
- Manual adjustment and position indicator
- Connecting cable length 1.5 m

SSB31: Operating voltage 230 V AC, actuator signal 3-point
SSB61: Operating voltage 24 V AC/DC, actuator signal 0 ... 10 V
SSB81: Operating voltage 24 V AC, actuator signal 3-point

Model SSC

- Actuating power 300 N
- Automatic detection of the valve stroke
- Direct mounting
- Manual adjustment with position and direction of rotation indicator

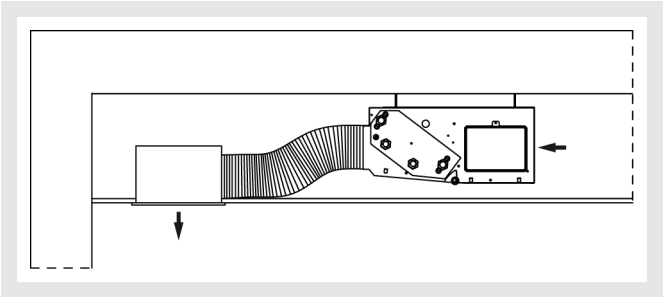
SSC31: Operating voltage 230 V AC, actuator signal 3-point
SSC61: Operating voltage 24 V AC/DC, actuator signal 0 ... 10 V
SSC81: Operating voltage 24 V AC, actuator signal 3-point

Fan Coil Unit Aquaris Silent

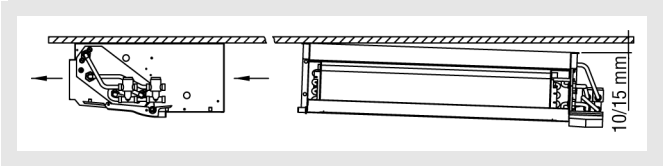
Installation

Horizontal mounting

When mounting the fan coil 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.

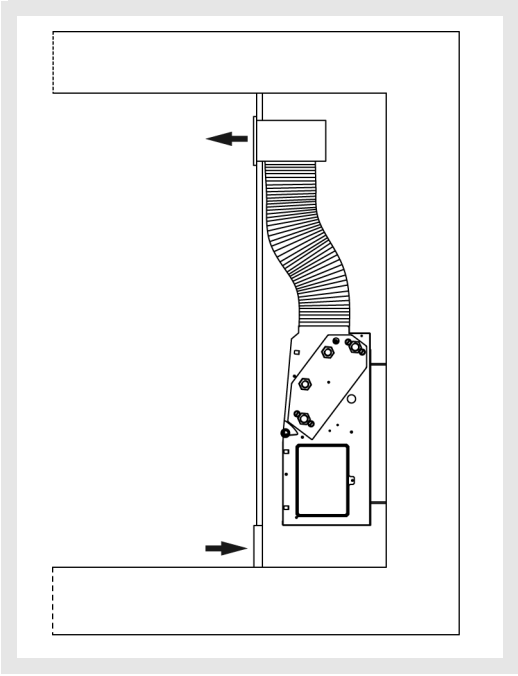


In case of a horizontal installation of the fan coil, a gradient of 10-15 mm towards the condensate discharge must be realised.



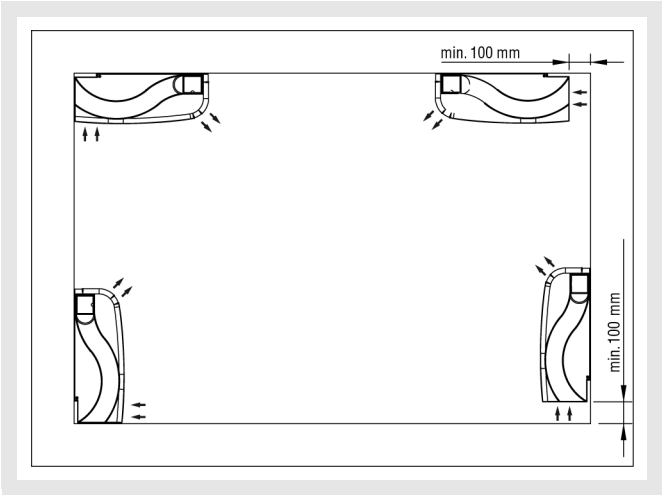
Vertical installation

The fan coil is mounted vertically on the lateral sheet metal frame using fastening material approved by the building supervisory authorities. If the fan coil has a device casing, the latter is fastened to the sheet metal frame of the fan coil by means of the fishplates.



Installation with casing

To ensure correct air flow, devices with device casing or without return air grilles must be installed at a minimum distance of 100 mm from the wall (horizontal installation) or from the floor (vertical installation).



Maintenance

The Aquaris Silent series is distinguished by particularly simple maintenance. The required maintenance is limited to cleaning and replacing the filter and an annual cleaning of the condensate discharge according to the standards of VDI 6022. Thanks to the self-lubricating friction bearings, the motorised fan is maintenance-free.

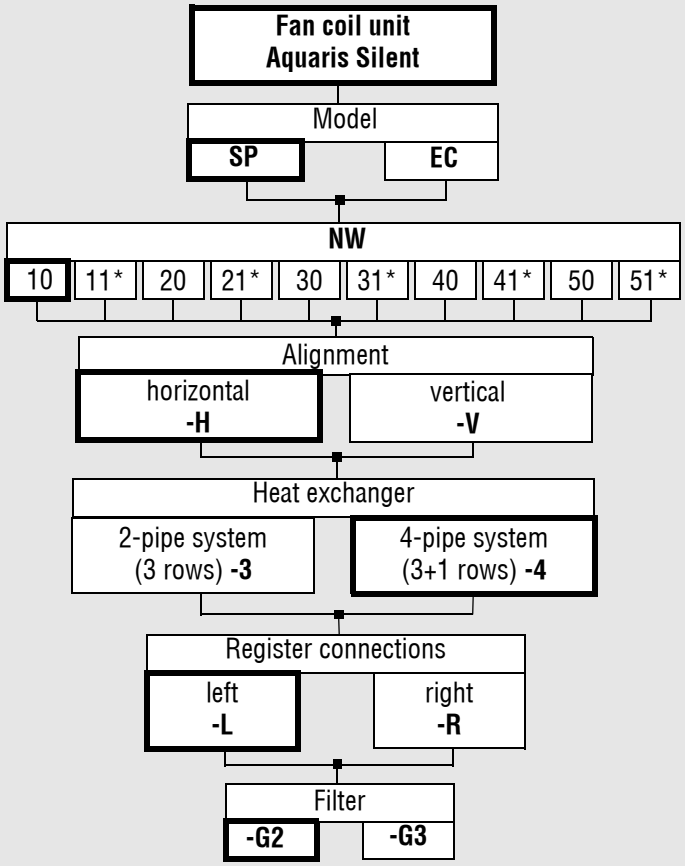
Fan Coil Unit Aquaris Silent

Legend

NW		=	Nominal width
n		=	Speed
G_1	(kg)	=	Weight of base unit
G_2	(kg)	=	Weight of base unit plus housing
V	(m^3/h) [l/s]	=	Volumetric flow
Q_{ges}	(kW)	=	Total cooling capacity
Q_s	(kW)	=	Sensible cooling capacity
Q	(kW)	=	Heating capacity
V_W	(l/h)	=	Water throughput
V_{WK}	(l/h)	=	Water throughput with cooling
V_{WH}	(l/h)	=	Water throughput with heating
Pa_{WK}	(kPa)	=	Water-side pressure drop with cooling
Pa_{WH}	(kPa)	=	Water-side pressure drop with heating
T_{AK}	(°C)	=	Air outlet temperature with cooling
T_{AH}	(°C)	=	Air outlet temperature with heating
rF_{AK}	(%)	=	Relative air outlet humidity with cooling
rF_{AH}	(%)	=	Relative air outlet humidity with heating
EK	(W/A)	=	Electrical properties (watt / ampere)
L_W	(dB)	=	Sound power level
L_{WA}	[dB(A)]	=	A-weighted sound power level
f_m	(Hz)	=	Frequency value after octave band
D_e	(dB/Okt)	=	Insertion loss
L_P	[dB(A)]	=	Sound pressure level
W	(W)	=	Current consumption
I	(A)	=	Current intensity
SFP	[W/ (l/s)]	=	Specific fan capacity
DN	(mm)	=	Diameter, nominal width
K_{vs}	(m^3/h)	=	Nominal flow value of cold water through the fully open valve (H100) at a differential pressure of 100 kPa (1 bar)
Δp_t	(kPa)	=	Maximum allowed differential pressure for the valve
Δp_{tmax}	(kPa)	=	Maximum allowed differential pressure for the actuator of the valve
Δt	(K)	=	Temperature difference electric heating register
P	(kW)	=	Capacity electric heating register

Fan Coil Unit Aquaris Silent

Order details



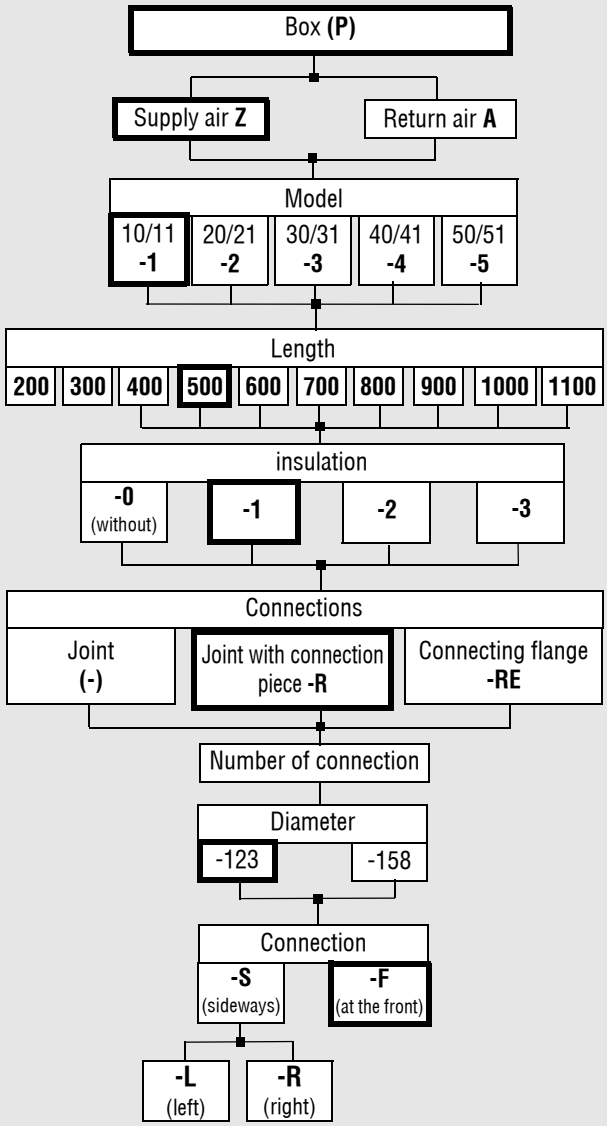
* only for SP model

Order example: Aquaris Silent SP/10/H/4/L/G2

Accessories:

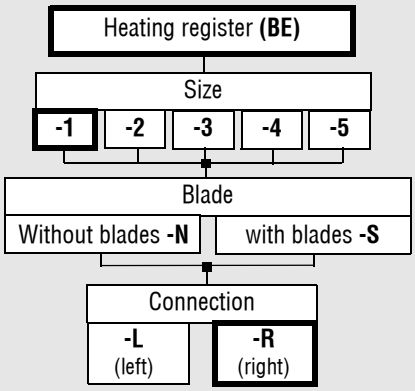
Device casing	Plenum boxes for supply **(-PZ)** and return air **(-PA)**
Transition piece **(-ÜS-F)**	Additional valve condensate pan **(-KW)**
Flange **(-FL)**	Condensate pump **(-KP)**
Flexible connections **(-FS-F)**	Valve kit
Electric heating register **(-BE)**	Control units
Ib 1 ventilation grille	Valves and actuators
Ceiling Diffuser Model DBB	

Order details plenum box:



Order example: P-Z-1/500/1/R/1/123/F

Order details heating register:



Order example: BE1SR

Fan Coil Unit Aquaris Silent

Specification texts

Aquaris Silent fan coil unit for horizontal or vertical installation in false ceilings or floors or free-standing/suspended mounting with casing. The housing of the device consists of profiles and covers made of galvanised sheet steel and provided with polyethylene heat and sound insulation with a thickness of 6 mm. The motorised fan consists of double-sided intake-operated centrifugal blowers with direct drive. The heat exchangers or registers have a base frame of galvanised steel, aluminium ribs and copper pipes.
Condensate pan made of galvanised steel. Filter class G2 and G3 (as an option) (EN 779); filter made of a synthetic non-woven fabric on a
plastic frame.
Product: SCHAKO Type **Aquaris Silent**

Model:

- SP (AC motor)
- EC (EC motor)

Size:

- 10 / 11* / 20 / 21* / 30 / 31* / 40 / 41* / 50 / 51*
  (*only for SP model)

Alignment:

- H (horizontal)
- V (vertical)

Heat exchanger:

- 2-pipe system
- 4-pipe system
- Hydraulic connection on the right
- Hydraulic connection on the left

Filter:

- Efficiency G2
- Efficiency G3 (according to the order)

Accessories:

- Diffuser box with insulation **(-PZ)**
- Suction unit with damping **(-PA)**
- Flexible connections **(-FS-F)**
- Flange **(-FL)**
- Ib 1 ventilation grille
- DBB diffuser
- Transition piece **(-ÜS-F)**
- Device casing
- Electric heating register **(-BE)**
- Additional valve condensate pan **(-KW)**
- Condensate pump **(-KP)**
- Valve kit
- Control units
- Valves and actuators

Selection program for a quick and accurate design

Our selection program allows the optimum performance of each model to be determined.