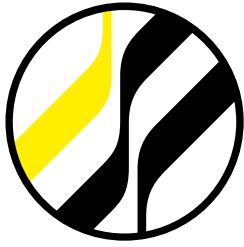


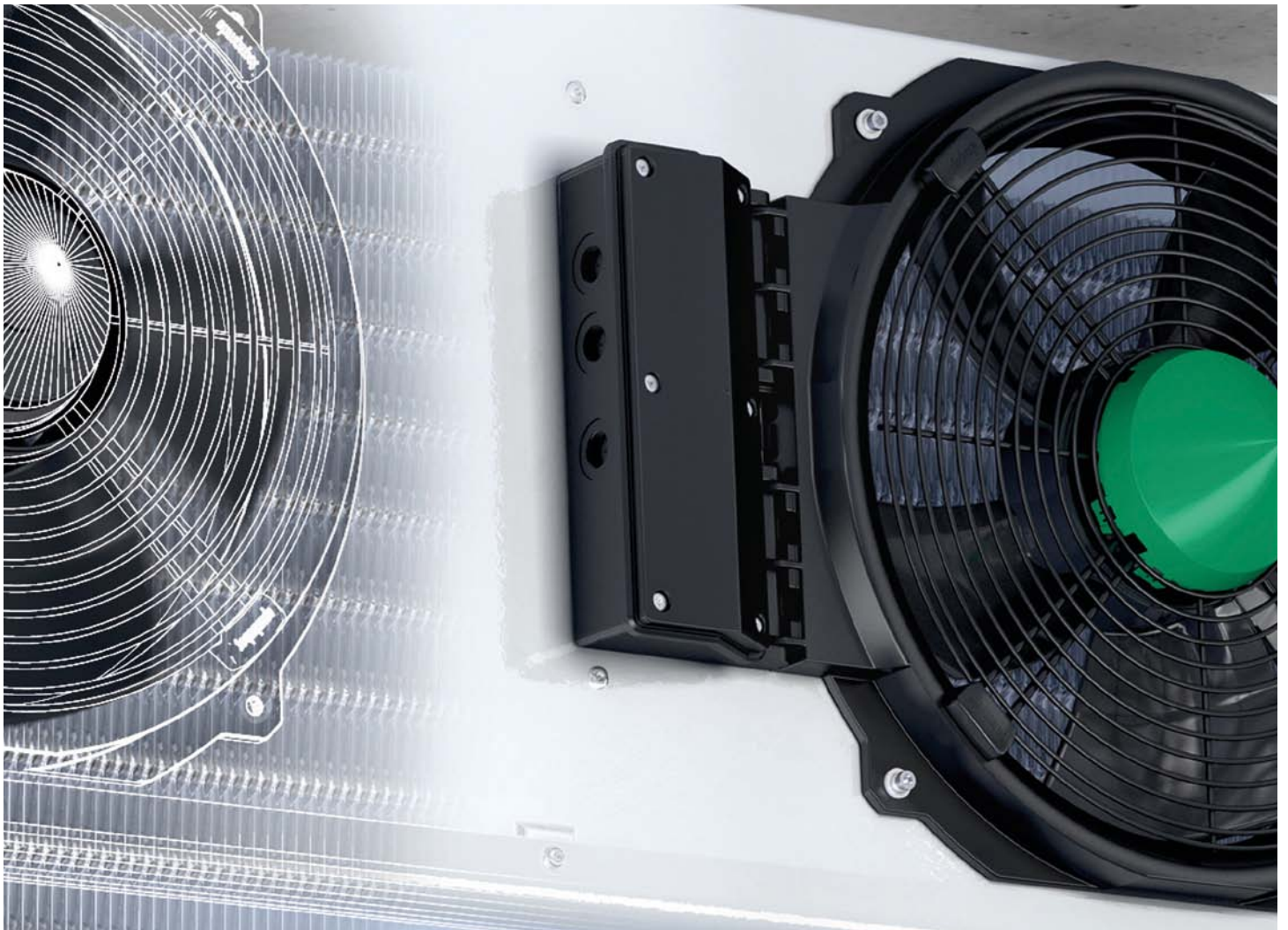
Kelvion



Küba Green Line Aircoolers

Küba market SP

THE STANDARD FOR BASIC REFRIGERATION APPLICATIONS



Küba market SP





THE STANDARD FOR **BASIC** REFRIGERATION **APPLICATIONS**



Capacity range (for SC2)

0.9 kW    46 kW

Temperature range (t_{L1})

-25°C     +20°C

Type Designation Code

1 2 3 4 5 6 7

SP A E 35 - F 2 3

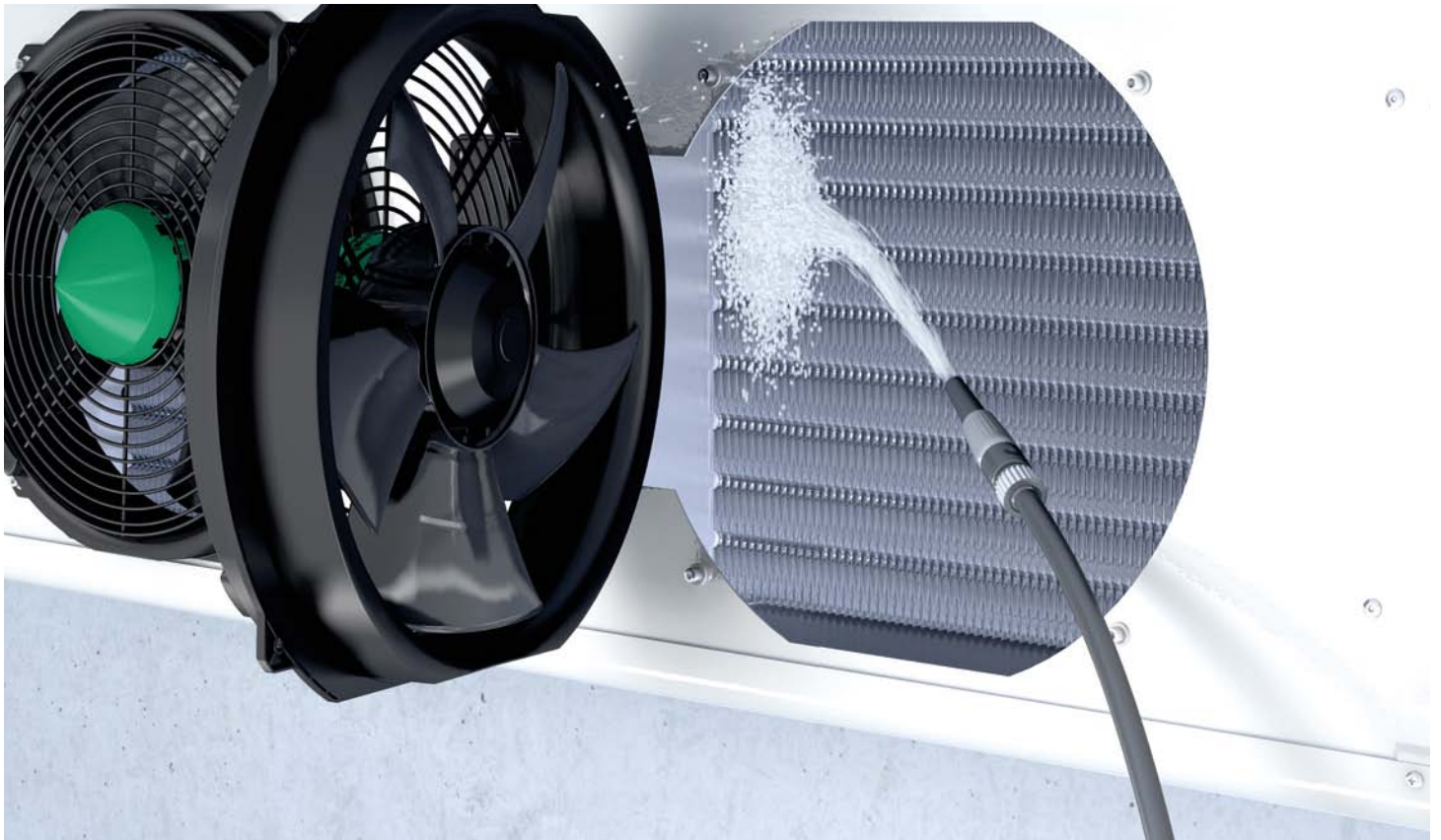
- 1 Model range designation
- 2 Fin spacing
- 3 Electric defrost
- 4 Fan diameter

- 5 Refrigerant
- 6 Number of rows deep
- 7 Number of fans

Refrigerant (Box 5)

F HFC / CO₂

G Glycol



ENERGY EFFICIENCY

- ▶ The heart of the SP is the HFE fin-tube system. The thermodynamic and fluid-dynamic optimization of the air coolers – along with the effectively inter-coordinated operational modes in the refrigeration plant – enhances the energy efficiency of the refrigeration process.
- ▶ This system assures fast and energy-efficient defrosting after a long refrigeration cycle.
- ▶ The fan motors and propellers are optimally designed by means of a full bellmouth with aerodynamic design. All SP units utilize AC or EC technology fan systems.

SIMPLE INSTALLATION

- ▶ The trusted and robust casework is ideal for easy mounting. The round corners and the smooth edges of the casing parts mean no danger of injury for installation and cleaning staff.
- ▶ The integrated terminal box for electrical wiring of the fans (except SP 23) together with spring-loaded terminals enable fast and sure connections.
- ▶ Generously dimensioned connection area to the side gives access for refrigerant tubing, or installation of the expansion valve.

WITHOUT A DOUBT HYGIENIC

- ▶ The hinged fan system (except SP 23) makes thorough cleaning of the heat exchanger and the fan very easy.
- ▶ The casing has smooth, powder-coated surfaces that are easy to clean, food-safe, and environmentally friendly.
- ▶ The fan system offers an additional water-spray protection. This provides reliable protection for the fan assembly and enables intensive cleaning. Motor rating IP54 (EC). All standard AC fan units have an IP44 enclosure.

Küba market SP

BASIC VERSION

CASING

- ▶ Aluminum, Sendzimir zinc-plated steel
- ▶ Best quality powder coated edges thanks to high-grade powder coating, RAL 9010 pure white
- ▶ Food-safe
- ▶ Smooth surfaces: Easy to clean
- ▶ Removable drip tray (hinged via Mounting Kit)
- ▶ Removable side panels
- ▶ Drip tray: additional integrated splash pan
- ▶ 3° inclined fan plate

ELECTRIC DEFROST

- ▶ Tubular heater: Stainless steel
- ▶ Connections: steam-proof
- ▶ Mains voltage: 1/N/PE 230V 50/60Hz
- ▶ Readily wired for connection box
- ▶ Optimized tubular heater configurations ensure fast and even defrosting
- ▶ Aluminum tube sleeves: Ensure excellent heat transfer to the fins and thus effective defrosting cycles with optimized service life

HEAT EXCHANGER

- ▶ Tube: Copper, inner finned, Ø 12 mm
- ▶ Fins: Aluminum HFE® fins
- ▶ End plates: Aluminum
- ▶ Staggered tube system
- ▶ Fin spacing:
A = 4.0 mm
B = 7.0 mm
- ▶ Fins flared to form-fit the core tube
- ▶ Internal cleanliness according to DIN 14276
- ▶ Connection Inlet:
SPA/B 23-21,31,32 / 30-21,31: Single injection via copper pipe for solder connection, sealed
- ▶ SPA/B: Venturi distributor with multiple injection
- ▶ Connection Outlet:
Copper pipe for solder connection with schrader valve UNF 7/16", sealed



FAN UNIT

- ▶ AC technology
- ▶ Draw-through axial fan
- ▶ Fan diameter: 230 (ESM Motor), 300, 350, 450 mm
- ▶ Permissible motor ambient temperatures (50 Hz)
 SP23: -30°C up to +50°C | SP30: -40°C up to +50°C
 SP35: -40°C up to +55°C | SP45: -40°C up to +50°C
 SP45-51 to 74: -40°C up to +45°C
- ▶ Supply voltage: 1/N/PE 230V 50/60Hz
- ▶ Motor protection: Built-in thermal contact (inaccessible)
- ▶ SP45-51 bis 74: Built-in thermal contact (accessible)
- ▶ Protection class: SP23: IP 54 | SP30-45: IP 44
- ▶ Insulation class:
- ▶ SP23: B | SP30: B | SP35: F | SP45: F | SP45-51 to 74: F
- ▶ Fans hinged (except SP23)
- ▶ Fan blade, wallring and mounted parts are made of fiber-reinforced composite material
- ▶ Condensate drain grooves integrated in the wall ring
- ▶ Wall ring ready for an integrated wall ring heating (Accessory) from Ø 300mm
- ▶ Motor Control:

	SP 23	SP 30,35,45
Phase control	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Transformer	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Delta/star	<input type="checkbox"/>	<input type="checkbox"/>
Frequency converter	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Please observe the manufacturer's information!



SP 23 = ESM-Motor
[EC Technology]



SP 30, 35, 45 = Fan system
[AC-Technology]

MOTOR LABEL DATA

Type	50 Hz				60 Hz		
	Ø mm	rpm	W	A	rpm	W	A
SP 23 21-34	230	1,000	14	0.11	1,000	14	0.11
SP 30 21-34	300	1,320	72	0.32	1,500	90	0.40
SP 35 21-45	350	1,400	180	0.81	1,600	250	1.10
SP 45 31-44	450	1,400	245	1.10	1,600	355	1.55
SP 45 51-74	450	1,390	510	2.75	1,600	710	3.11

Motor data per fan

Data provided by the manufacturer

TECHNICAL DATA SPB (E)

Küba market SP | Fin spacing 7 mm

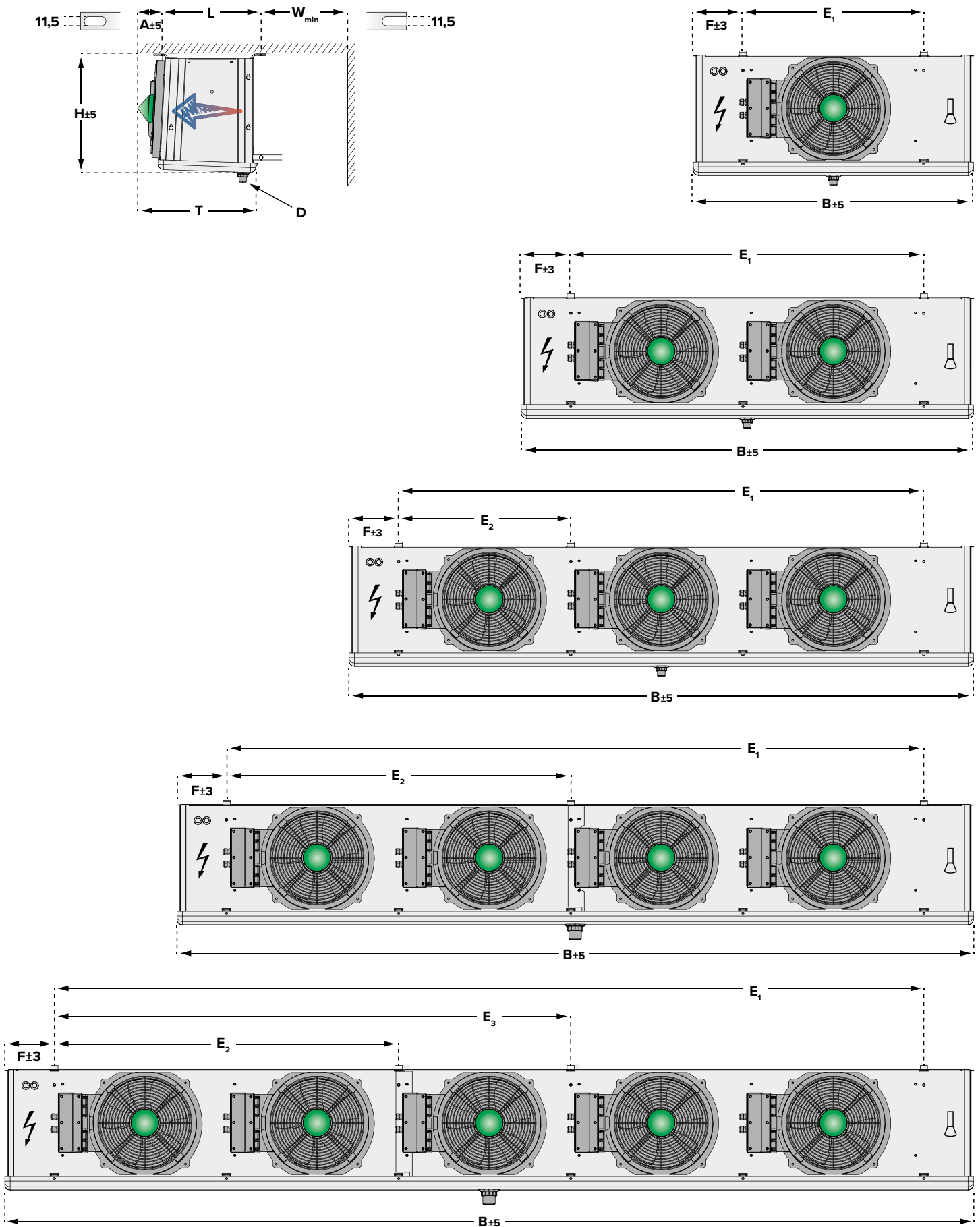
Type	Rating Q _o at 50 Hz, DT1, R404A		Cooling surface m ²	Air flow m ³ /h	Air throw *** m	Tube volume dm ³	Connections		Sound L _{WA} dB(A)	Fans (Operational values at 50 Hz)				
	SC2	SC3					Inlet Ømm	Outlet Ømm		Blade Ømm	Current 230±10% V-1 50Hz	Per fan		
	kW	kW										rpm	W	A
SPB 23-F21	0.9	0.6	2.8	980	7	0.8	10 x1.0*	12 x1.0	67	230	230 V-1	1,580	30	0.25
SPB 23-F31	1.2	0.8	4.2	890	7	1.3	10 x1.0*	12 x1.0	67	230	230 V-1	1,580	30	0.25
SPB 30-F21	1.5	1.1	4.3	1,660	11	1.3	10 x1.0*	12 x1.0	65	300	230 V-1	1,360	65	0.30
SPB 30-F31	2.0	1.4	6.4	1,590	11	2.2	10 x1.0*	18 x1.0	65	300	230 V-1	1,360	65	0.30
SPB 35-F21	2.4	1.6	6.6	3,040	19	2.1	12 x1.0**	18 x1.0	72	350	230 V-1	1,430	145	0.68
SPB 35-F31	3.3	2.4	9.8	2,940	19	3.0	12 x1.0**	22 x1.0	72	350	230 V-1	1,430	145	0.68
SPB 35-F41	4.0	2.9	12.9	2,820	18	4.1	12 x1.0**	22 x1.0	72	350	230 V-1	1,430	145	0.68
SPB 45-F31	5.6	4.0	16.7	5,010	26	5.2	15 x1.0**	28 x1.5	81	450	230 V-1	1,360	270	1.20
SPB 45-F41	6.8	5.1	22.1	4,870	25	6.8	15 x1.0**	28 x1.5	81	450	230 V-1	1,360	270	1.20
SPB 45-F51	8.7	6.5	27.6	5,650	31	8.3	15 x1.0**	28 x1.5	81	450	230 V-1	1,400	490	2.71
SPB 45-F71	10.3	7.9	38.4	5,270	29	11.7	15 x1.0**	35 x1.5	81	450	230 V-1	1,400	490	2.71
SPB 23-F32	2.3	1.7	8.4	1,780	12	2.5	10 x1.0*	18 x1.0	70	230	230 V-1	1,580	30	0.25
SPB 30-F22	3.0	2.1	8.6	3,320	17	2.7	12 x1.0**	22 x1.0	68	300	230 V-1	1,360	65	0.30
SPB 30-F32	4.0	2.9	12.8	3,180	16	4.1	12 x1.0**	22 x1.0	68	300	230 V-1	1,360	65	0.30
SPB 35-F22	4.9	3.3	13.2	6,080	25	3.9	15 x1.0**	22 x1.0	75	350	230 V-1	1,430	145	0.68
SPB 35-F32	6.6	4.5	19.5	5,880	24	5.9	15 x1.0**	28 x1.5	75	350	230 V-1	1,430	145	0.68
SPB 35-F42	8.0	5.8	25.8	5,640	24	7.8	15 x1.0**	28 x1.5	75	350	230 V-1	1,430	145	0.68
SPB 45-F32	11.3	8.0	33.4	10,020	32	9.9	15 x1.0**	35 x1.5	84	450	230 V-1	1,360	270	1.20
SPB 45-F42	13.6	10.3	44.3	9,740	31	13.3	15 x1.0**	35 x1.5	84	450	230 V-1	1,360	270	1.20
SPB 45-F52	17.2	13.3	55.1	11,300	37	16.1	15 x1.0**	35 x1.5	84	450	230 V-1	1,400	490	2.71
SPB 45-F72	20.7	15.9	76.8	10,540	34	22.5	22 x1.0**	42 x1.5	84	450	230 V-1	1,400	490	2.71
SPB 23-F33	3.5	2.5	12.5	2,670	16	3.7	12 x1.0**	22 x1.0	72	230	230 V-1	1,580	30	0.25
SPB 30-F23	4.5	3.0	13.0	4,980	20	4.1	15 x1.0**	22 x1.0	70	300	230 V-1	1,360	65	0.30
SPB 30-F33	6.0	4.3	19.2	4,770	20	6.0	15 x1.0**	28 x1.5	70	300	230 V-1	1,360	65	0.30
SPB 35-F23	7.2	5.3	19.8	9,120	28	5.9	15 x1.0**	28 x1.5	77	350	230 V-1	1,430	145	0.68
SPB 35-F33	9.8	7.2	29.3	8,820	28	8.6	15 x1.0**	35 x1.5	77	350	230 V-1	1,430	145	0.68
SPB 35-F43	11.9	8.8	38.7	8,460	27	11.3	15 x1.0**	35 x1.5	77	350	230 V-1	1,430	145	0.68
SPB 45-F33	16.9	12.1	50.2	15,030	35	14.7	22 x1.0**	42 x1.5	86	450	230 V-1	1,360	270	1.20
SPB 45-F43	20.6	14.9	66.4	14,610	34	19.9	22 x1.0**	42 x1.5	86	450	230 V-1	1,360	270	1.20
SPB 45-F53	26.4	19.1	82.7	16,950	40	23.9	22 x1.0**	42 x1.5	86	450	230 V-1	1,400	490	2.71
SPB 45-F73	30.4	24.2	115.2	15,810	38	33.2	22 x1.0**	42 x1.5	86	450	230 V-1	1,400	490	2.71
SPB 23-F34	4.6	3.5	16.7	3,560	18	4.9	15 x1.0**	22 x1.0	73	230	230 V-1	1,580	30	0.25
SPB 30-F24	6.0	4.2	17.3	6,640	23	5.4	15 x1.0**	28 x1.5	71	300	230 V-1	1,360	65	0.30
SPB 30-F34	7.9	6.0	25.5	6,360	22	8.0	15 x1.0**	28 x1.5	71	300	230 V-1	1,360	65	0.30
SPB 35-F24	9.7	6.9	26.4	12,160	31	7.6	15 x1.0**	35 x1.5	78	350	230 V-1	1,430	145	0.68
SPB 35-F34	13.2	9.5	39.0	11,760	30	11.4	15 x1.0**	35 x1.5	78	350	230 V-1	1,430	145	0.68
SPB 35-F44	16.0	11.6	51.7	11,280	30	15.0	22 x1.0**	35 x1.5	78	350	230 V-1	1,430	145	0.68
SPB 45-F34	22.3	16.7	66.9	20,040	38	19.9	22 x1.0**	42 x1.5	87	450	230 V-1	1,360	270	1.20
SPB 45-F44	27.2	20.6	88.6	19,480	37	26.0	28 x1.5**	42 x1.5	87	450	230 V-1	1,360	270	1.20
SPB 45-F54	34.9	26.4	110.2	22,600	43	32.0	28 x1.5**	54 x2.0	87	450	230 V-1	1,400	490	2.71
SPB 45-F74	41.5	31.9	153.6	21,080	40	44.3	28 x1.5**	54 x2.0	87	450	230 V-1	1,400	490	2.71
SPB 35-F45	19.8	14.9	64.6	14,100	31	18.6	22 x1.0**	42 x1.5	79	350	230 V-1	1,430	145	0.68

Standard condition t₁ t₀ DT1
 NB2/SC2 +10°C 0°C 10K
 NB3/SC3 0°C -8°C 8K
 * Single injection
 ** Multiple injection
 *** Throw limit at 0.5 m/s

Subject to modification.

DIMENSIONAL DRAWINGS

Küba market SP



ACCESSORIES

SHUT-UP® (+ADAPTER)

The Shut-Up® optimises the defrosting procedure, especially in deep-freeze applications.

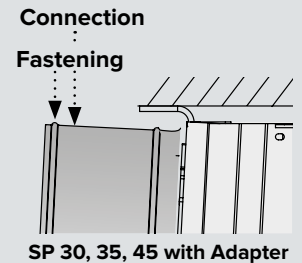
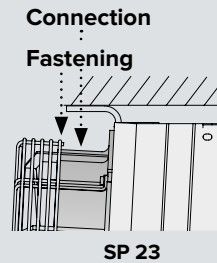
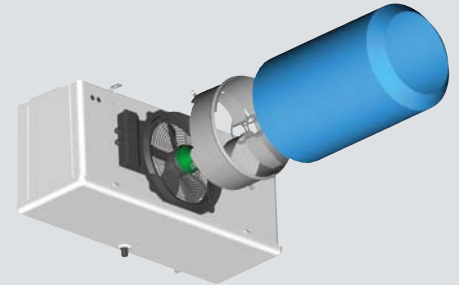
Shut-Up® is suspended over the fan unit, closing the Air Cooler. Hot air cannot escape.

Construction:

High-tech microfiber, tearproof, UV-resistant, form- and temperature resistant, rot-proof, food-safe, washable at 30°C, chemical purification P

Selection table & Dimensions:

Type	Küba market SP			Küba Shut-Up®	
	Fan blade Ø mm	Connections Ø mm	Fixture Ø mm	Air outlet Ø mm	Length mm
SP 23	230	253	258	149	390
SP 30	300	360	369	254	490
SP 35	350	427	436	344	610
SP 45	450	558	567	430	684



NOTE:

Due to the additional external pressure, the air quantity and Air Cooler capacity change: With using Shut-Up®: Air volume reduces by 10% (-5% cooling capacity) 1 Shut-Up® per fan unit required. Delivery not mounted. For SP 23, you do not need an additional to install a Shut-Up®.

WALL RING HEATING WH

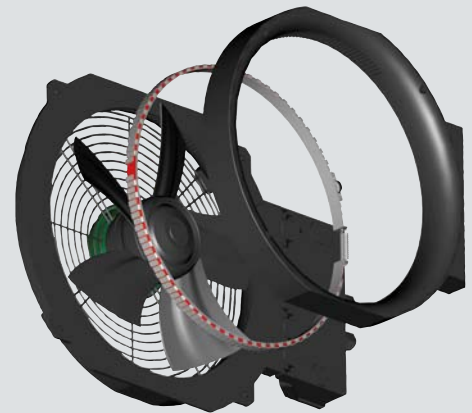
The wall ring heating prevents formation of ice between fan blade and the wall ring.

Construction:

- ▶ Maximum energy efficiency, optimal control behavior, and reduced output (up to 87 % less).
- ▶ Heat retention in the wall ring, no steam formation, no overheating.
- ▶ Protection from contact by completely integrating the heating element.

Selection table & Technical data:

Type	Description	Current	Capacity
		A	W
SP 23		not available	
SP 30	WH 30	0.5	118
SP 35	WH 35	0.9	209
SP 45	WH 45	1.2	266



NOTE:

Küba wall ring heating WH is only available for SP 30, SP 35, SP 45. 1 wall ring heating WH per fan unit required.