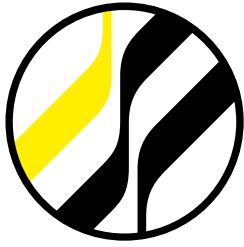


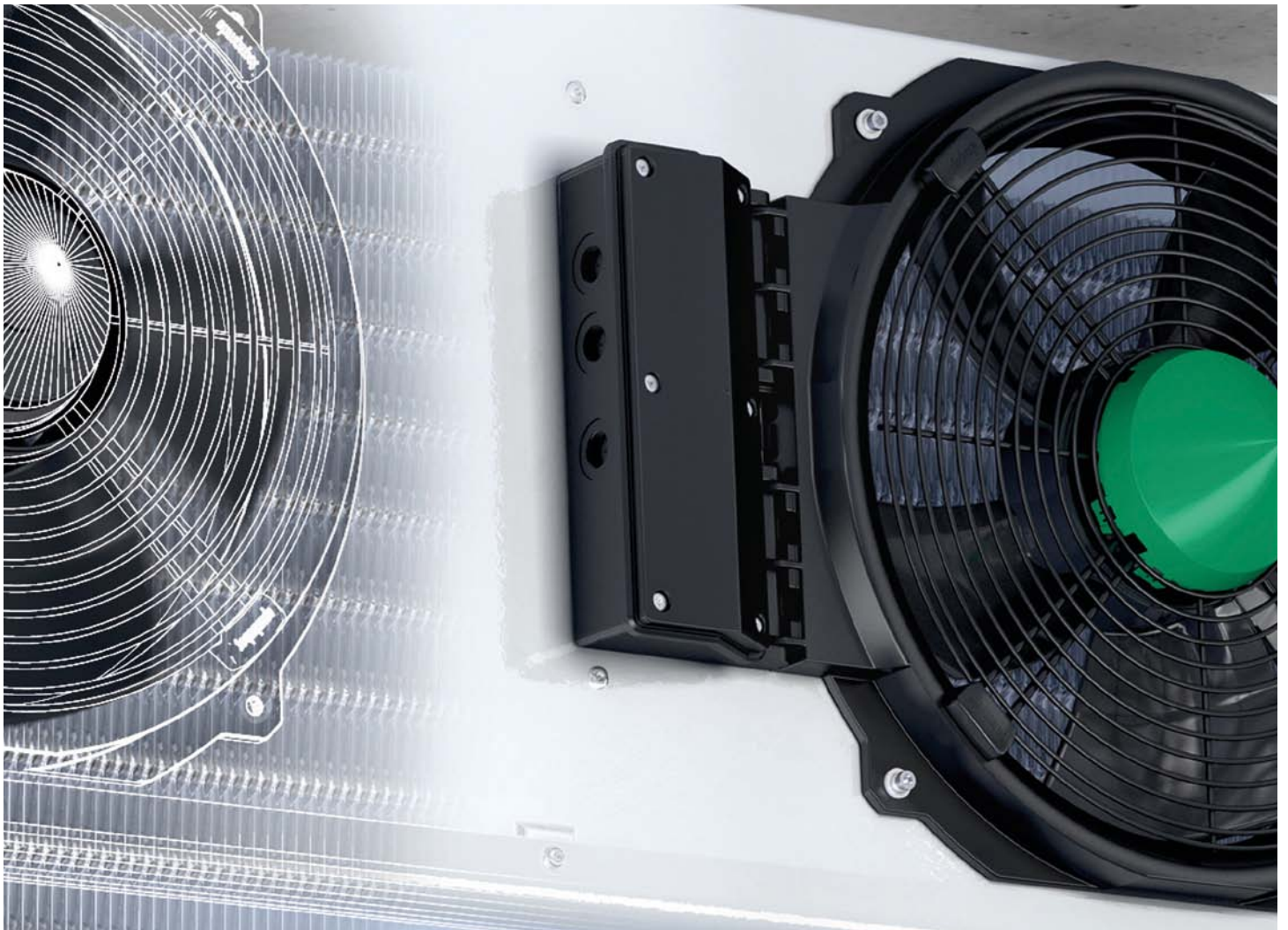
Kelvion

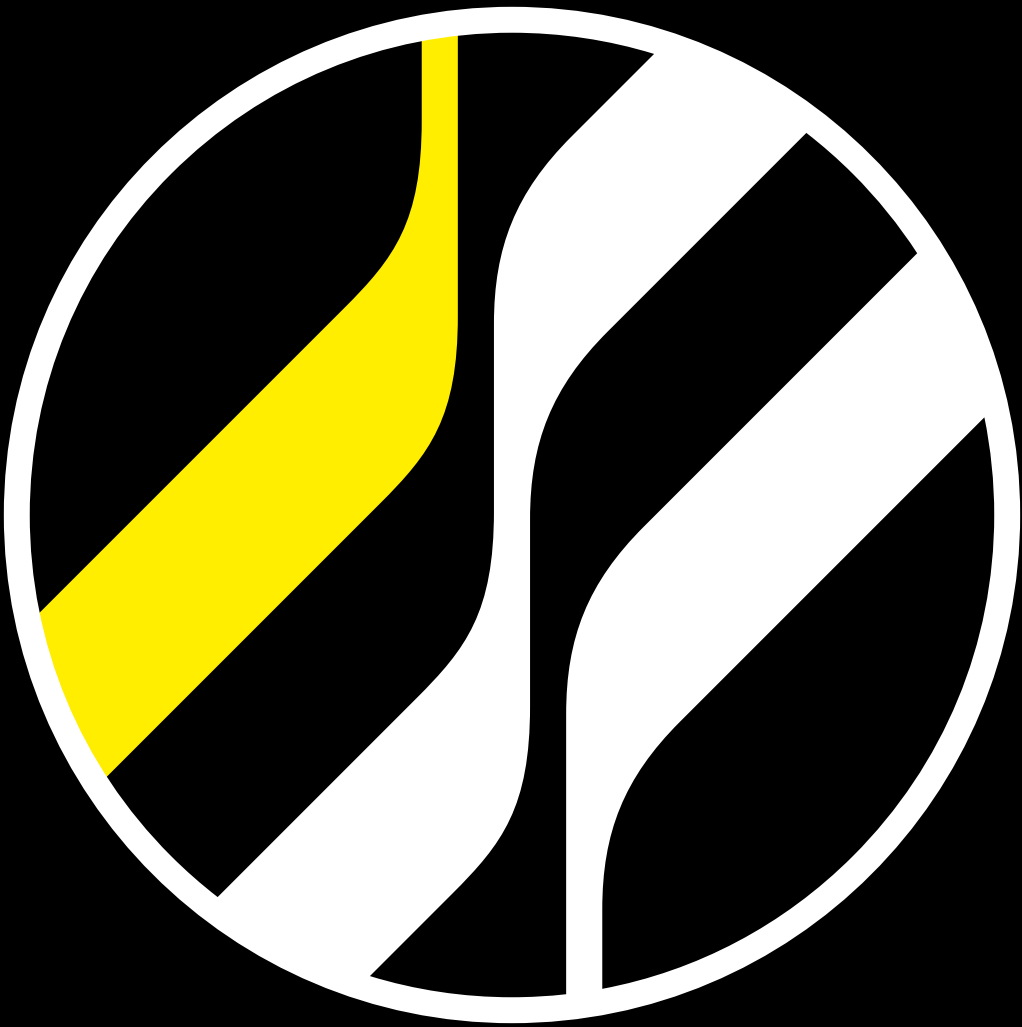


Küba Green Line Aircoolers

Küba market SP

THE STANDARD FOR BASIC REFRIGERATION APPLICATIONS





WE ARE KELVION – THE NEW BRAND IN HEAT EXCHANGE

GEA Heat Exchangers has changed: another new standalone company has been created out of the former Heat Exchanger Division of the GEA Group AG. The name Kelvion is new, but we continue as global experts in heat exchange. As always, we remain committed to earning your trust.

You'll still recognize us. We continue to develop our products, manufacture them with precision and distribute globally. We continue to offer one of the world's largest heat exchanger product portfolios: Plate heat exchangers, shell & tube heat exchangers, finned tube heat exchangers, modular cooling towers and refrigeration heat exchangers for a wide range of applications.

We operate in global markets for power generation, oil and gas, chemistry, marine applications, climate and environment, and food and beverages. From us, you can expect products with outstanding levels of efficiency, safety, and sustainability. More importantly, we care about your business, like close, trusted partners.

Customers rely on us to understand their needs, boost their performance, and deliver products that always get the job done. We compete for the toughest deals, in the harshest environments. But we're not too big to care. We're Kelvion – ready to take on the challenges of heat exchange. www.kelvion.com

Experts in Heat Exchange.

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 | 5 | Refrigerant |
| 2 | Fin spacing | 6 | Number of rows deep |
| 3 | Electric defrost | 7 | Number of fans |
| 4 | Fan diameter | | |

Refrigerant (Box 5)

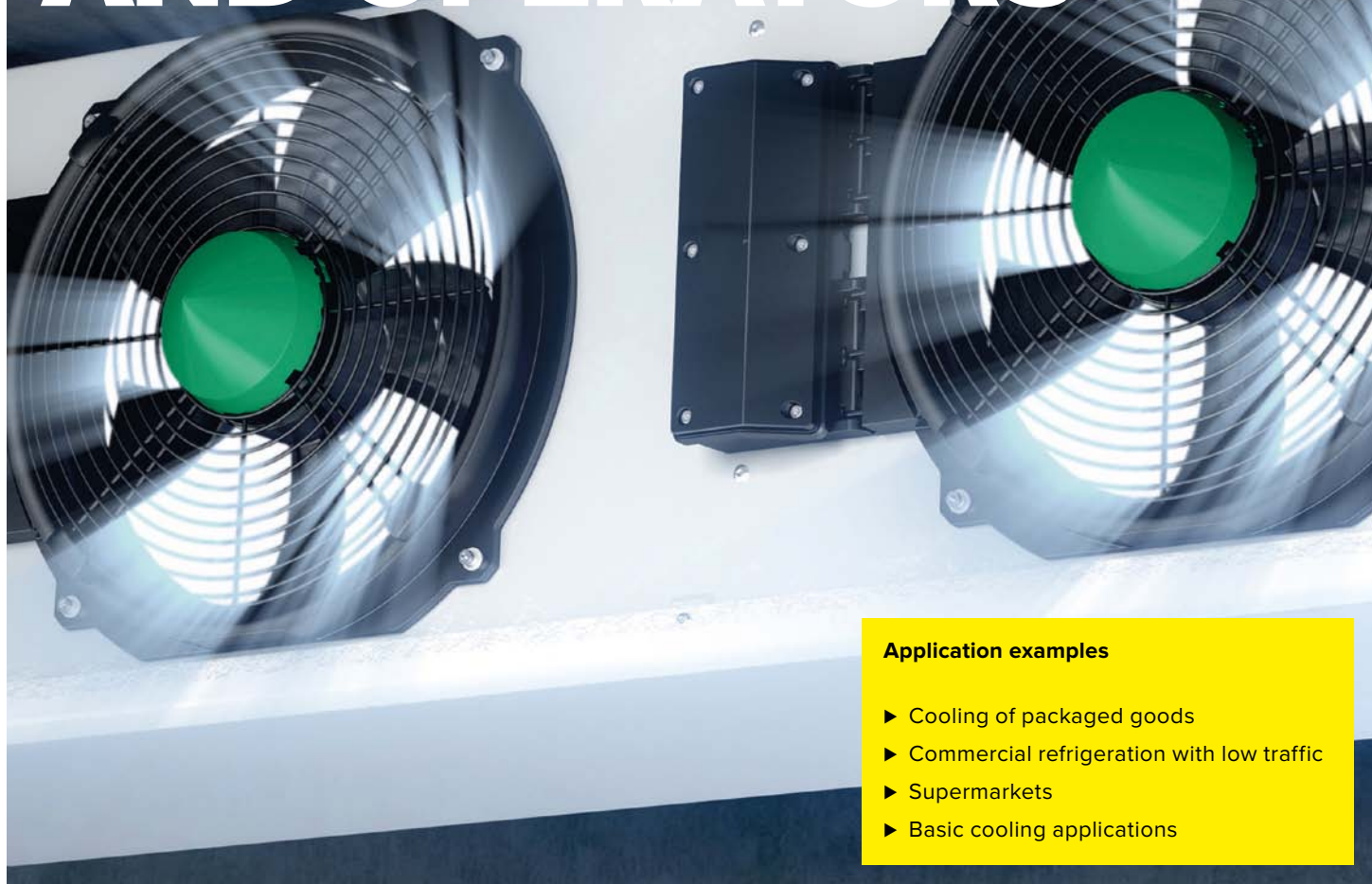
F HFC / CO₂

G Glycol



Küba market SP

APPLICATION BENEFITS FOR CONTRACTORS AND OPERATORS



Application examples

- ▶ Cooling of packaged goods
- ▶ Commercial refrigeration with low traffic
- ▶ Supermarkets
- ▶ Basic cooling applications

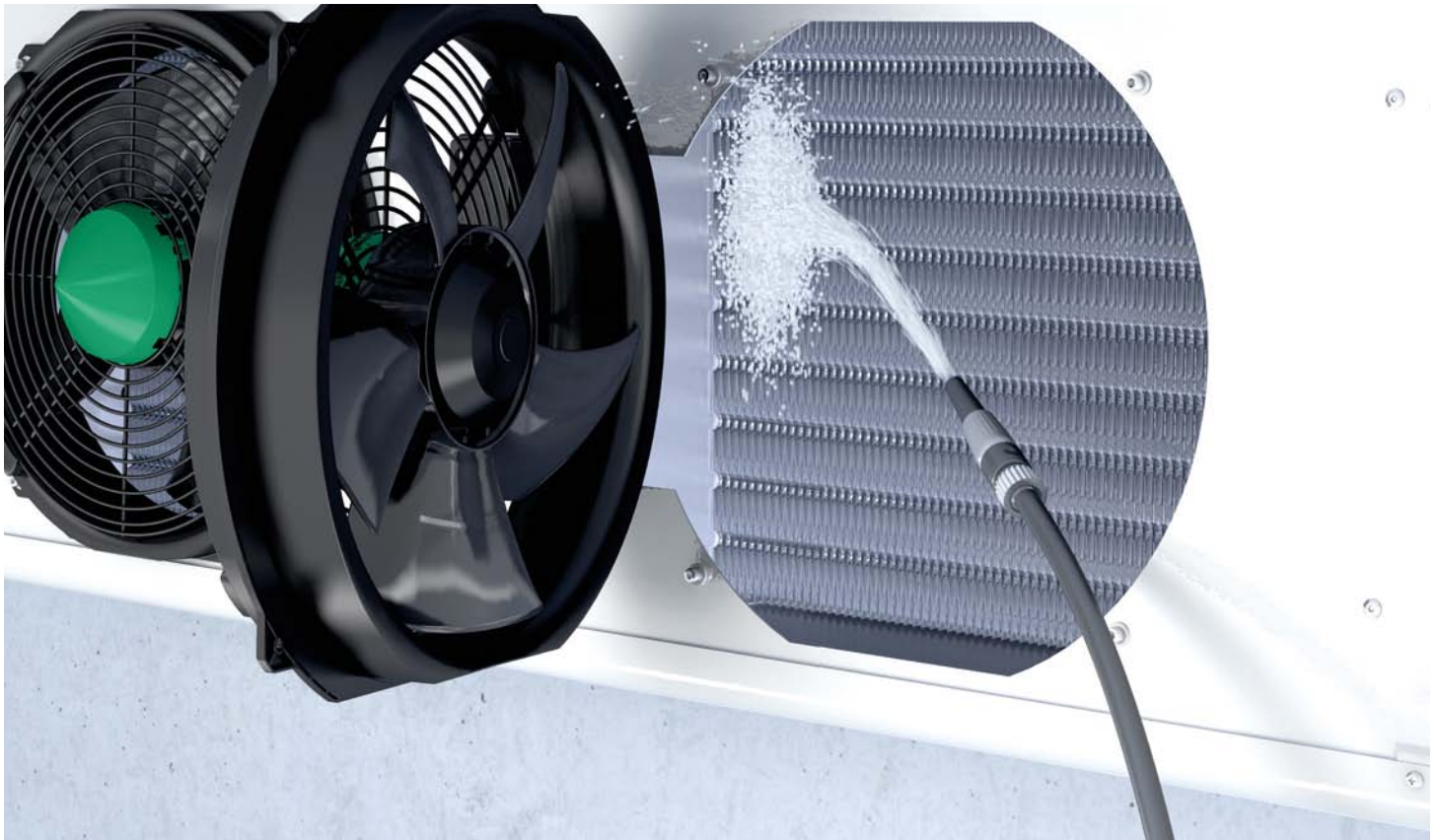
KÜBA MARKET SP: MAXIMUM ENERGY EFFICIENCY.

The energy balance of a refrigeration system is the all-deciding factor. We have thoroughly reworked the Küba market SP as a complete system and have optimized the interaction among the individual components. Energy efficiency has been significantly enhanced.

Kelvion constantly works towards product improvements that reduce output, increase efficiency and reliability, while meeting increasingly strict legal regulations. (ErP Directive)

Kelvion in this way sustainably counters constantly rising operating costs, while also consistently meeting increasingly stringent legislative requirements (e.g. ErP 2015).

- ▶ Maximum energy efficiency with reduced current consumption and a great overall system performance.
- ▶ Performance-optimized heat exchanger, with the best fan system available.
- ▶ Innovative hygienic design ensures cleaning of the heat exchanger and fan.
- ▶ High-grade powder coating and use of composite-fiber materials minimize the corrodibility
- ▶ Large connection areas to the side help to ensure accessibility during maintenance or installation



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	Ø mm	50 Hz		60 Hz			
		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 SPA (E)

Küba market SP | Fin spacing 4 mm

Type	Rating Q _e 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)				
	SC1	SC2					Inlet Ømm	Outlet Ømm		Blade Ømm	Current 230±10% V-1 50Hz	Per fan		
	kW	kW										rpm	W	A
SPA 23-F21	1.9	1.3	4.7	900	7	0.8	10 x1.0*	12 x1.0	67	230	230 V -1	1,580	30	0.25
SPA 23-F31	2.4	1.6	6.9	870	6	1.3	10 x1.0*	12 x1.0	67	230	230 V -1	1,580	30	0.25
SPA 30-F21	3.1	2.1	7.8	1,540	10	1.3	10 x1.0*	12 x1.0	65	300	230 V -1	1,360	65	0.30
SPA 30-F31	3.9	2.6	11.5	1,410	10	2.2	10 x1.0*	18 x1.0	65	300	230 V -1	1,360	65	0.30
SPA 35-F21	5.2	3.5	11.0	2,860	18	2.1	12 x1.0**	18 x1.0	72	350	230 V -1	1,430	145	0.68
SPA 35-F31	6.5	4.3	16.3	2,630	17	3.0	12 x1.0**	22 x1.0	72	350	230 V -1	1,430	145	0.68
SPA 35-F41	7.4	5.0	21.6	2,460	16	4.1	12 x1.0**	22 x1.0	72	350	230 V -1	1,430	145	0.68
SPA 45-F31	11.4	7.6	28.0	4,650	24	5.2	15 x1.0**	28 x1.5	81	450	230 V -1	1,360	270	1.20
SPA 45-F41	12.9	8.7	37.0	4,420	23	6.8	15 x1.0**	28 x1.5	81	450	230 V -1	1,360	270	1.20
SPA 45-F51	15.6	10.5	46.1	4,900	27	8.3	15 x1.0**	28 x1.5	81	450	230 V -1	1,400	490	2.71
SPA 45-F71	16.7	11.3	64.2	4,370	24	11.7	15 x1.0**	35 x1.5	81	450	230 V -1	1,400	490	2.71
SPA 23-F32	4.7	3.1	14.0	1,740	12	2.5	10 x1.0*	18 x1.0	70	230	230 V -1	1,580	30	0.25
SPA 30-F22	6.3	4.2	15.5	3,080	16	2.7	12 x1.0**	22 x1.0	68	300	230 V -1	1,360	65	0.30
SPA 30-F32	7.8	5.2	22.9	2,820	15	4.1	12 x1.0**	22 x1.0	68	300	230 V -1	1,360	65	0.30
SPA 35-F22	10.5	7.0	22.1	5,720	24	3.9	15 x1.0**	22 x1.0	75	350	230 V -1	1,430	145	0.68
SPA 35-F32	13.2	8.9	32.6	5,260	22	5.9	15 x1.0**	28 x1.5	75	350	230 V -1	1,430	145	0.68
SPA 35-F42	14.9	10.0	43.2	4,920	21	7.8	15 x1.0**	28 x1.5	75	350	230 V -1	1,430	145	0.68
SPA 45-F32	22.8	15.3	55.9	9,300	30	9.9	15 x1.0**	35 x1.5	84	450	230 V -1	1,360	270	1.20
SPA 45-F42	25.9	17.4	74.0	8,840	29	13.3	15 x1.0**	35 x1.5	84	450	230 V -1	1,360	270	1.20
SPA 45-F52	30.6	20.6	92.1	9,800	32	16.1	15 x1.0**	35 x1.5	84	450	230 V -1	1,400	490	2.71
SPA 45-F72	33.4	22.7	128.3	8,740	30	22.5	22 x1.0**	42 x1.5	84	450	230 V -1	1,400	490	2.71
SPA 23-F33	7.2	4.8	21.0	2,610	15	3.7	12 x1.0**	22 x1.0	72	230	230 V -1	1,580	30	0.25
SPA 30-F23	9.6	6.4	23.3	4,620	19	4.1	15 x1.0**	22 x1.0	70	300	230 V -1	1,360	65	0.30
SPA 30-F33	11.7	7.9	34.4	4,230	19	6.0	15 x1.0**	28 x1.5	70	300	230 V -1	1,360	65	0.30
SPA 35-F23	15.3	10.2	33.1	8,580	27	5.9	15 x1.0**	28 x1.5	77	350	230 V -1	1,430	145	0.68
SPA 35-F33	19.4	13.0	48.9	7,890	26	8.6	15 x1.0**	35 x1.5	77	350	230 V -1	1,430	145	0.68
SPA 35-F43	22.2	14.9	64.8	7,380	25	11.3	15 x1.0**	35 x1.5	77	350	230 V -1	1,430	145	0.68
SPA 45-F33	34.3	22.9	83.9	13,950	33	14.7	22 x1.0**	42 x1.5	86	450	230 V -1	1,360	270	1.20
SPA 45-F43	39.5	26.6	111.0	13,260	32	19.9	22 x1.0**	42 x1.5	86	450	230 V -1	1,360	270	1.20
SPA 45-F53	47.6	32.1	138.2	14,700	36	23.9	22 x1.0**	42 x1.5	86	450	230 V -1	1,400	490	2.71
SPA 45-F73	48.8	33.0	192.5	13,110	33	33.2	22 x1.0**	42 x1.5	86	450	230 V -1	1,400	490	2.71
SPA 23-F34	9.4	6.3	28.0	3,480	18	4.9	15 x1.0**	22 x1.0	73	230	230 V -1	1,580	30	0.25
SPA 30-F24	12.7	8.5	31.0	6,160	22	5.4	15 x1.0**	28 x1.5	71	300	230 V -1	1,360	65	0.30
SPA 30-F34	15.4	10.3	45.8	5,640	21	8.0	15 x1.0**	28 x1.5	71	300	230 V -1	1,360	65	0.30
SPA 35-F24	20.6	13.7	44.1	11,440	30	7.6	15 x1.0**	35 x1.5	78	350	230 V -1	1,430	145	0.68
SPA 35-F34	26.1	17.5	65.2	10,520	28	11.4	15 x1.0**	35 x1.5	78	350	230 V -1	1,430	145	0.68
SPA 35-F44	29.8	20.0	86.4	9,840	27	15.0	22 x1.0**	35 x1.5	78	350	230 V -1	1,430	145	0.68
SPA 45-F34	44.8	30.0	111.9	18,600	36	19.9	22 x1.0**	42 x1.5	87	450	230 V -1	1,360	270	1.20
SPA 45-F44	51.9	34.9	148.0	17,680	35	26.0	28 x1.5**	42 x1.5	87	450	230 V -1	1,360	270	1.20
SPA 45-F54	62.5	42.1	184.2	19,600	38	32.0	28 x1.5**	54 x2.0	87	450	230 V -1	1,400	490	2.71
SPA 45-F74	66.9	45.6	256.6	17,480	36	44.3	28 x1.5**	54 x2.0	87	450	230 V -1	1,400	490	2.71
SPA 35-F45	36.8	24.7	107.9	12,300	29	18.6	22 x1.0**	42 x1.5	79	350	230 V -1	1,430	145	0.68

Standard condition t₁ t₀ DT1
 NB1/SC1 +10°C 0°C 10K
 NB2/SC2 0°C -8°C 8K

* Single injection
 ** Multiple injection
 *** Throw limit at 0.5 m/s

Subject to modification.

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.

DIMENSIONS, WEIGHTS, ELECTRIC DEFROST

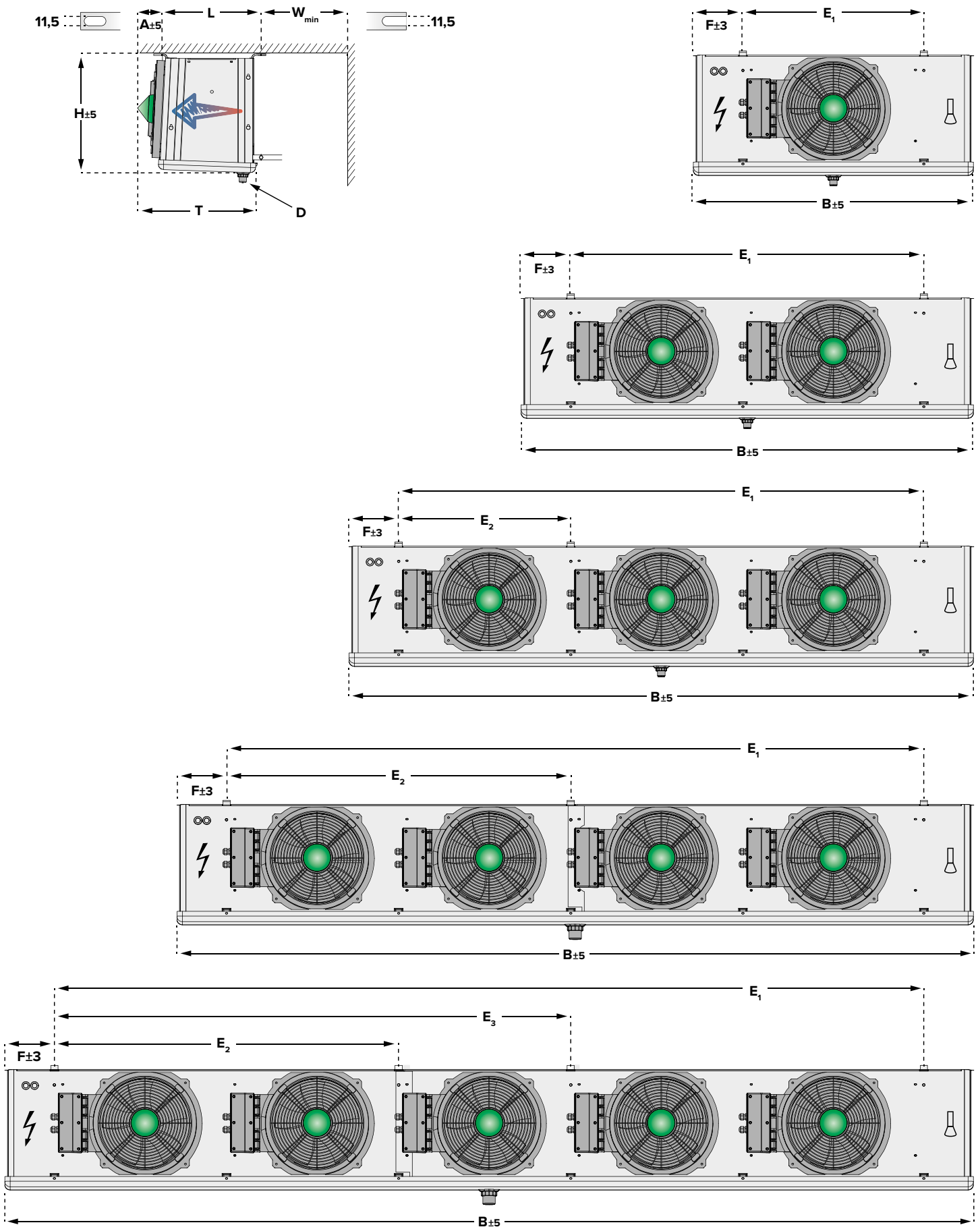
Küba market SP

Type	Dimensions										Electrical defrost 230 V-1 / 400 V-3-Y			Weight (net)		Weight (gross)		Drain
	H	B	T	L	E ₁	E ₂	E ₃	F	A	W _{min}	Coil	Tray	Total	DPA/B	DPA/B E	DPA/B	DPA/B E	D
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kW	kW	kW	kg	kg	kg	kg	inch
SP 23-21	351	760	400	335	480	-	-	140	79	200	0.5	0.4	0.9	11	12	15	16	G ¾
SP 23-31	351	760	400	335	480	-	-	140	79	200	0.5	0.4	0.9	12	13	16	17	G ¾
SP 30-21	427	960	425	360	620	-	-	170	78	200	0.6	0.6	1.2	18	19	23	24	G ¾
SP 30-31	427	960	425	360	620	-	-	170	78	200	0.6	0.6	1.2	20	21	25	26	G ¾
SP 35-21	505	1,130	607	515	730	-	-	200	105	300	0.7	0.8	1.5	28	29	35	36	G ¾
SP 35-31	505	1,130	607	515	730	-	-	200	105	300	1.4	0.8	2.2	31	32	38	39	G ¾
SP 35-41	505	1,130	607	515	730	-	-	200	105	300	1.4	0.8	2.2	34	35	41	42	G ¾
SP 45-31	657	1,330	613	510	930	-	-	200	120	400	1.7	0.9	2.6	45	47	79	81	G ¾
SP 45-41	657	1,330	613	510	930	-	-	200	120	400	2.6	0.9	3.5	50	52	83	86	G ¾
SP 45-51	662	1,330	573	470	930	-	-	200	120	400	3.5	0.9	4.4	57	62	90	95	G ¾
SP 45-71	662	1,330	573	470	930	-	-	200	120	400	4.4	0.9	5.3	66	68	100	101	G ¾
SP 23-32	351	1,210	400	335	930	-	-	140	79	200	0.9	0.8	1.7	20	21	25	26	G ¾
SP 30-22	427	1,550	425	360	1,210	-	-	170	78	200	1.0	1.0	2.0	30	32	57	58	G ¾
SP 30-32	427	1,550	425	360	1,210	-	-	170	78	200	1.0	1.0	2.0	33	35	60	61	G ¾
SP 35-22	505	1,830	607	515	1,430	-	-	200	105	300	1.3	1.3	2.6	48	50	85	87	G 1¼
SP 35-32	505	1,830	607	515	1,430	-	-	200	105	300	2.6	1.3	3.9	53	56	90	92	G 1¼
SP 35-42	505	1,830	607	515	1,430	-	-	200	105	300	2.4	1.3	3.7	58	61	95	97	G 1¼
SP 45-32	657	2,230	613	510	1,830	-	-	200	120	400	3.2	1.6	4.8	82	86	165	169	G 1¼
SP 45-42	657	2,230	613	510	1,830	-	-	200	120	400	4.5	1.6	6.1	88	93	171	175	G 1¼
SP 45-52	662	2,230	573	470	1,830	-	-	200	120	400	6.0	1.6	7.6	100	109	182	191	G 1¼
SP 45-72	662	2,230	573	470	1,830	-	-	200	120	400	7.9	1.6	9.5	119	121	201	204	G 1¼
SP 23-33	351	1,660	400	335	1,380	450	-	140	79	200	1.2	1.1	2.3	28	29	60	62	G ¾
SP 30-23	427	2,140	425	360	1,800	590	-	170	78	200	1.5	1.5	3.0	43	45	81	83	G ¾
SP 30-33	427	2,140	425	360	1,800	590	-	170	78	200	1.5	1.5	3.0	47	49	84	86	G ¾
SP 35-23	505	2,530	607	515	2,130	700	-	200	105	300	1.8	1.8	3.6	68	70	150	153	G 1¼
SP 35-33	505	2,530	607	515	2,130	700	-	200	105	300	3.6	1.8	5.4	74	78	157	161	G 1¼
SP 35-43	505	2,530	607	515	2,130	700	-	200	105	300	3.4	1.8	5.2	82	86	165	168	G 1¼
SP 45-33	657	3,130	613	510	2,730	900	-	200	120	400	4.4	2.2	6.6	123	128	258	263	G 1¼
SP 45-43	657	3,130	613	510	2,730	900	-	200	120	400	6.5	2.2	8.7	132	138	267	273	G 1¼
SP 45-53	662	3,130	573	470	2,730	900	-	200	120	400	8.0	2.2	10.2	150	163	285	298	G 1¼
SP 45-73	662	3,130	573	470	2,730	900	-	200	120	400	10.9	2.2	13.1	175	179	310	313	G 1¼
SP 23-34	351	2,110	400	335	1,830	900	-	140	79	200	1.5	1.5	3.0	35	38	103	105	G ¾
SP 30-24	427	2,730	425	360	2,390	1,180	-	170	78	200	2.0	2.0	4.0	57	59	147	150	G 1¼
SP 30-34	427	2,730	425	360	2,390	1,180	-	170	78	200	2.0	2.0	4.0	60	63	151	153	G 1¼
SP 35-24	505	3,230	607	515	2,830	1,400	-	200	105	300	2.3	2.3	4.6	90	93	217	220	G 1¼
SP 35-34	505	3,230	607	515	2,830	1,400	-	200	105	300	4.5	2.3	6.8	98	103	226	231	G 1¼
SP 35-44	505	3,230	607	515	2,830	1,400	-	200	105	300	4.4	2.2	6.6	109	114	237	241	G 1¼
SP 45-34	657	4,030	613	510	3,630	1,800	-	200	120	400	7.2	0.7	7.9	158	166	323	331	G 1¼
SP 45-44	657	4,030	613	510	3,630	1,800	-	200	120	400	8.6	0.7	9.3	171	179	336	345	G 1¼
SP 45-54	662	4,030	573	470	3,630	1,800	-	200	120	400	10.1	0.7	10.8	195	213	360	378	G 1¼
SP 45-74	662	4,030	573	470	3,630	1,800	-	200	120	400	14.4	0.7	15.1	231	235	396	400	G 1¼
SP 35-45	505	3,930	607	515	3,530	1,400	2,100	200	105	300	5.8	0.7	6.5	137	143	294	301	G 1¼

The dimensions are only valid for the standard model design!
Note the differences in dimension among versions and accessories.

DIMENSIONAL DRAWINGS

Küba market SP



VARIANTS



MOTOR - VARIANTS

V 1.50 EC FANS WITH FIXED SPEEDS

SP 23: ESM motor with two speeds (standard)
from SP 30: EC motor with fixed speed

V 1.52 EC FAN WITH CONTROLLABLE SPEED

Controllable fan, 0 ... 10 V, for Ø 300, 350, and 450 mm

CASING - VARIANTS

V 3.09 DOUBLE-WALLED, INSULATED DRIP TRAY

Prevents condensed water from forming on the bottom side of the pan, and it reduces the transfer of defrost heat into the cold rooms.

The following dimensions are changed:

Width B: +60 mm

Height H: +30 mm

Depth T: +30 mm

PROTECTION AGAINST CORROSION

V 6.01 CORROSION PROTECTION 1

Tubing: Copper
Fins: Aluminum, epoxy-resin-coated
End plates: Aluminum protective coating
Casing: Aluminum/zinc coated steel, protective coating on both sides

V 6.04 CORROSION PROTECTION 4

Tubing: Copper
Fins: Aluminum, epoxy-resin-coated
End plates: Aluminum
Casing: Aluminum/zinc coated steel, protective coating on on one side



DEFROST - VARIANTS

V 4.01 HOT-GAS COIL IN THE DRIP TRAY (CU)
Hot-gas connection on both sides; copper

V 6.05 HOT GAS IN HEAT EXCHANGER
Hot gas circuit for coil, without
non-return valve

CO₂ - VARIANTS

V 7.45 CO₂ - DIRECT EXPANSION
up to 45 bar operating pressure

V 7.60 CO₂ - DIRECT EXPANSION
up to 60 bar operating pressure

ACCESSORIES

SHUT-UP® (+ADAPTER)

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

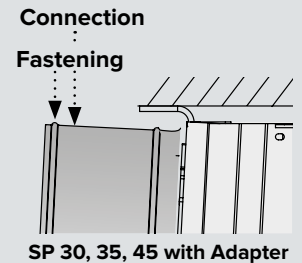
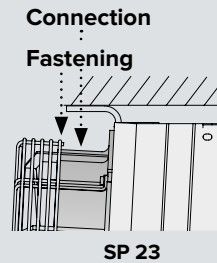
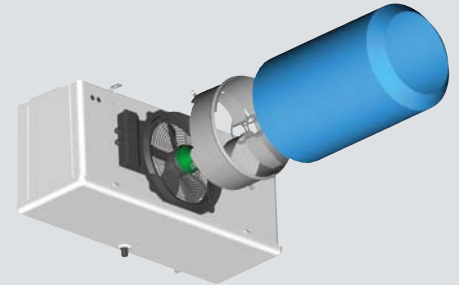
Shut-Up® is suspended over the fan unit, closing the Air Cooler. Hot air cannot escape.

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

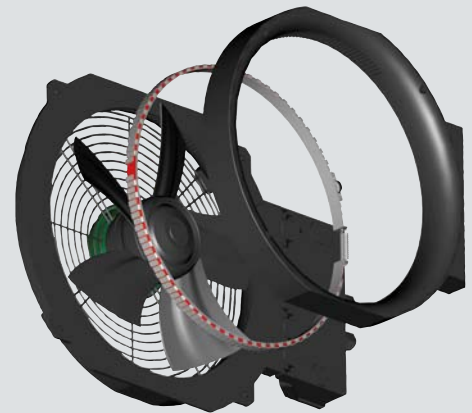
The wall ring heating prevents formation of ice between fan blade and the wall ring.

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.

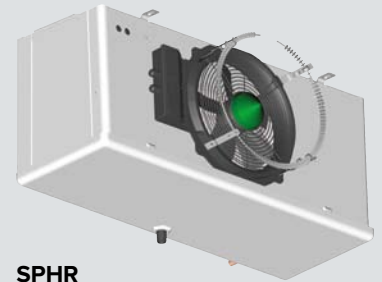
FINNED-TUBE HEATERS SPHR/SPHRZ

For air coolers with draw-through fans.
For conditioning of room air.

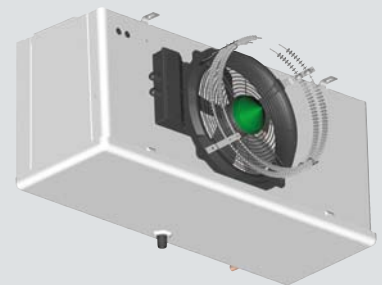
- ▶ SPHR = Standard design
- ▶ SPHRZ = Additional heater
- ▶ SPHR + SPHRZ = Greater heating capacity

Selection table, Technical data & Dimensions:

Type	Description	Current				Capacity			
		L1 A	L2 A	L3 A	Total A	L1 kW	L2 kW	L3 kW	Total kW
SP 23	SPHR 23	4.3	-	-	4.3	1.0	-	-	1.0
SP 30	SPHR 30	5.9	-	-	5.9	1.3	-	-	1.3
SP 35	SPHR 35	7.6	-	-	7.6	1.7	-	-	1.7
SP 45	SPHR 45	10.7	-	-	10.7	2.5	-	-	2.5
SP 23	SPHR + SPHR 23 Z	4.3	4.3	-	8.6	1.0	1.0	-	2.0
SP 30	SPHR + SPHR 30 Z	5.9	5.9	-	11.8	1.3	1.3	-	2.6
SP 35	SPHR + SPHR 35 Z	7.6	7.6	-	15.2	1.7	1.7	-	3.4
SP 45	SPHR + SPHR 45 Z	10.7	10.7	-	21.4	2.5	2.5	-	5.0

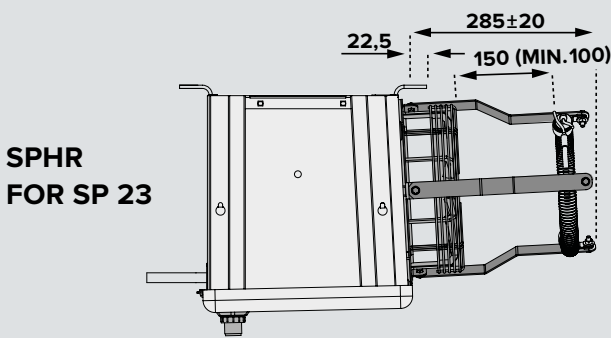


SPHR

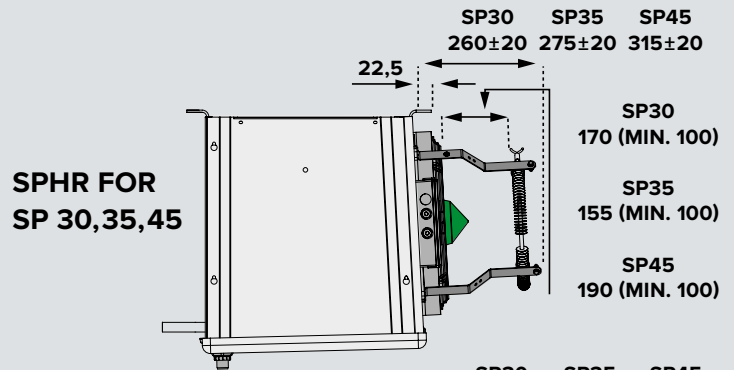


SPHR+SPHRZ

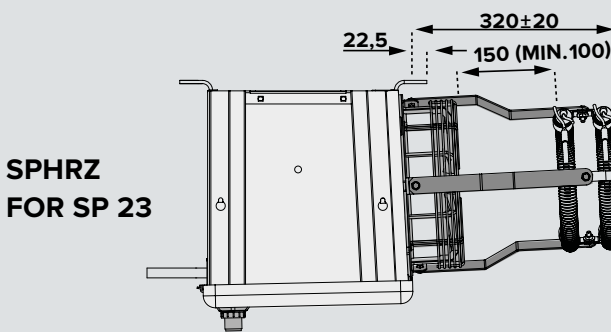
Dimensions:



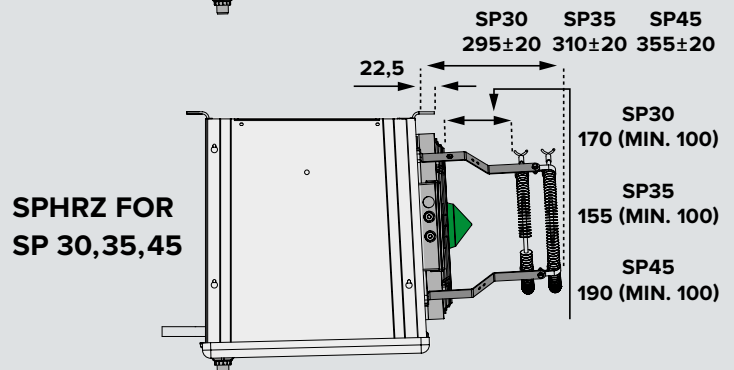
SPHR
FOR SP 23



SPHR FOR
SP 30,35,45



SPHRZ
FOR SP 23



SPHRZ FOR
SP 30,35,45

NOTE:

This unit is operated only when the air-cooler fans are in use, to prevent overheating of the ceiling of the cold room.
Be sure to observe the relevant safety instructions. 1 SPHR/Z per fan unit required.

AIR HOSES (MUST BE PROVIDED ON SITE)

Ventilation can be optimised with textile / PVC air hoses.

- ▶ Applications in work rooms and production areas
- ▶ Cooled goods that are sensitive to draft (i.e. flowers, ripening cheeses)

Advantages:

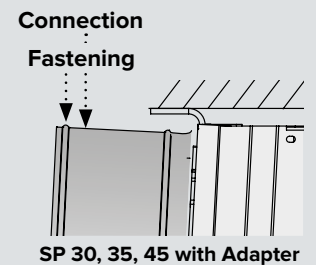
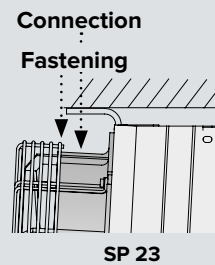
The air hoses make uniform air distribution possible at very low air speeds.

- ▶ Working in a draft-free environment yields low illness rates
- ▶ Maximum protection for sensitive cooled goods
- ▶ No condensation water: temperatures do not fall below the dew point because air can penetrate the woven material



Dimensions (Connection):

Type	Küba market SP		
	Fan blade Ø mm	Connection Ø mm	Fixation Ø mm
SP 30	300	360	369
SP 35	350	427	436
SP 45	450	558	567



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