



Küba SG industrial

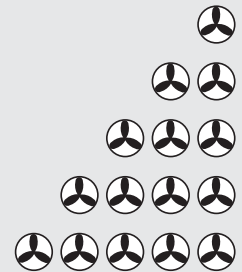




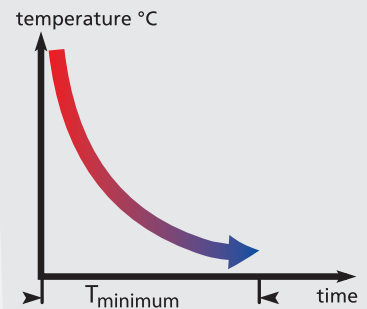
Küba SG industrial: Specific advantages

The Küba SG *industrial* is a master of customisation. No matter how great the demand for power, the Küba SG *industrial* is the answer. Its versatility allows the Küba SG *industrial* to master the most complex refrigeration tasks.

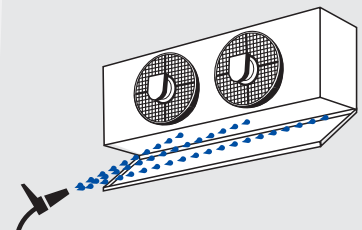
Q_0 5 — ■ ■ 170 kW



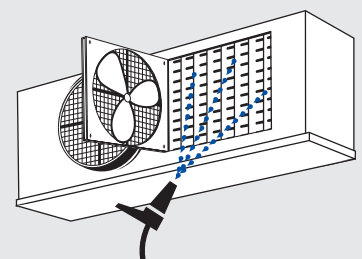
The Küba SG *industrial's* enormous air volume and directed air flow achieve maximum cooling and freezing speeds.



Even the standard design includes the hinge-down drip tray. This makes it easy to clean the cooler and it is easy to assemble to make service work easy.



To clean the heat exchanger, hinged fans are optional. This allows easy access to the heat exchanger.

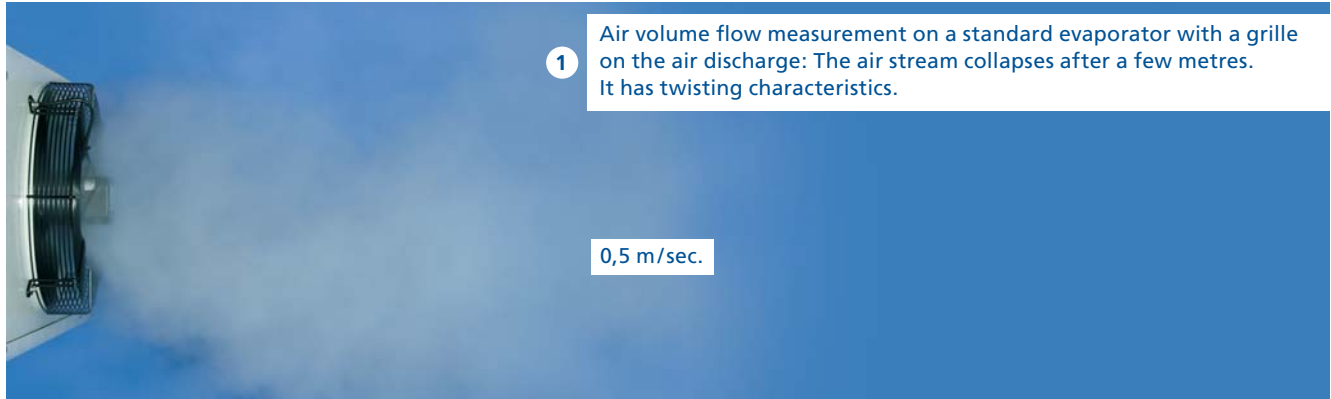




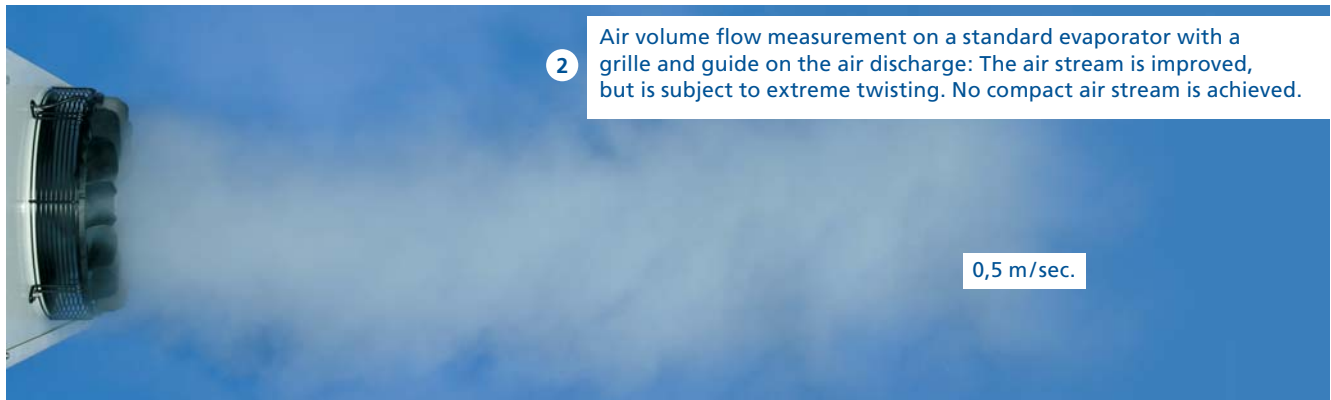
Küba SG industrial: Specific advantages

What are the effects of a long air throw range?

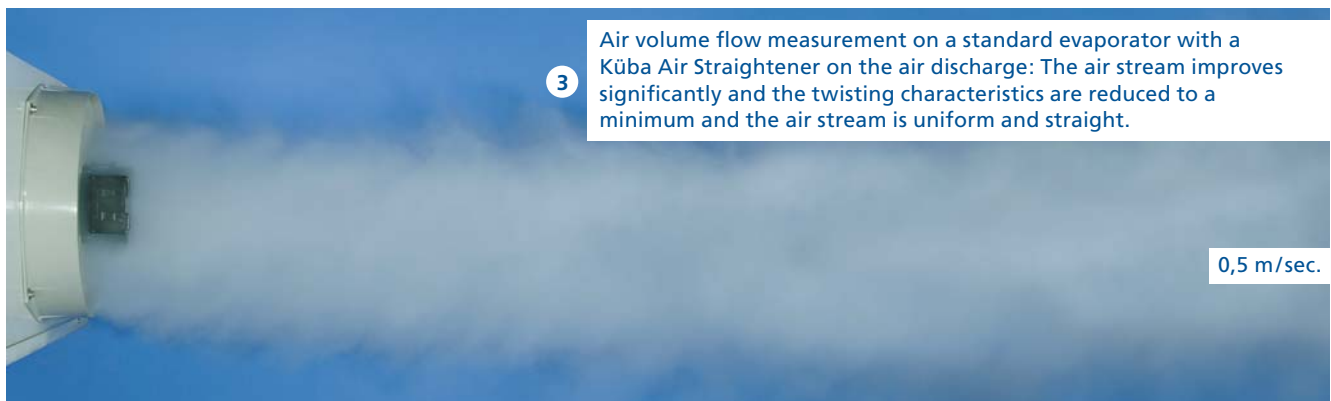
Grille



Grille and guide-wheel



Küba Air Straighteners



The illustration shows the Küba SG *commercial* line.
The illustrations also apply to the Küba SG *industrial* line.

Air throw comparison at a nominal capacity of 5.95 kW





Küba SG industrial: Specific advantages

Goods stay at a uniform temperature due to improved air distribution

Refrigeration in large, long cold storage areas can be effected with Küba Air Coolers. Very long throw ranges can be achieved with the air straighteners. This allows the chilled air to reach the most remote corners of the cold storage area. In connection with the product specific stacking, room ventilation is trouble-free. Heat pockets are prevented.

Clear advantages are:

- Even air distribution
- Short cooling times
- Uniform product cooling
- No fluctuations in product temperatures
- Quality is retained

Küba Air Straighteners ➔ short cooling times

Cooling curve comparison
Küba high performance SG Air Coolers

Without Küba Air Straighteners

- Poor room ventilation
- Large differences in product temperatures: 6K
- Relatively long cooling times

With Küba Air Straighteners

- Better distribution of cooled air
- Products are cooled more evenly: 1K
- Short cooling times
- Lower temperature difference (DT1)
- Lower operational costs

Key:

- t_0 = Evaporating temperature at coil outlet
- t_{0h} = Superheated temperature at coil outlet
- t_{L1} = Air entry temperature into the air cooler

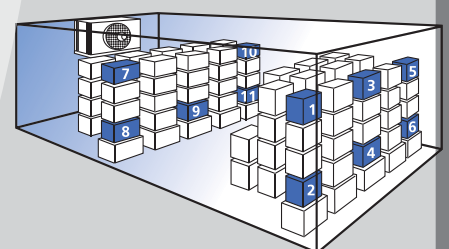
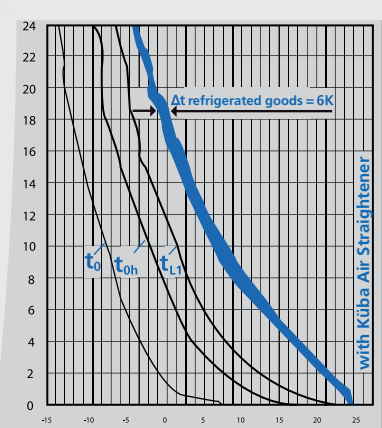
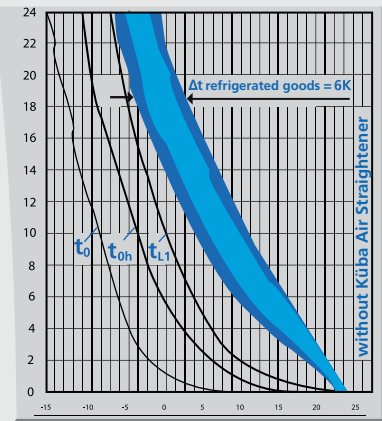
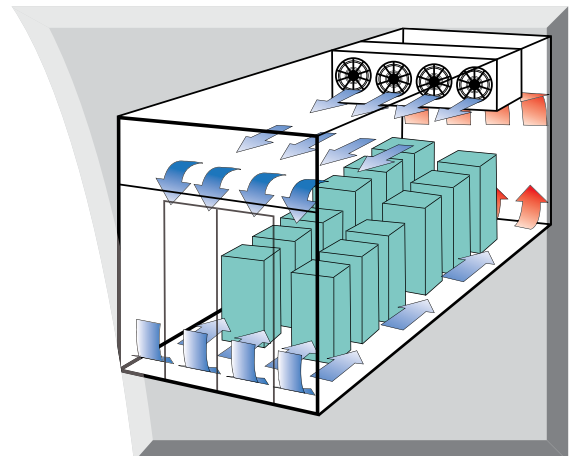
Küba Air Straighteners ➔ More uniform product temperatures

Uniform product temperatures:
Documented by measurement series in cold storage area

To perform the cooling curve comparison, a cold storage area was filled with stacks of goods. The measuring points 1-11 show the development of the product core temperature in relation to cooling time.

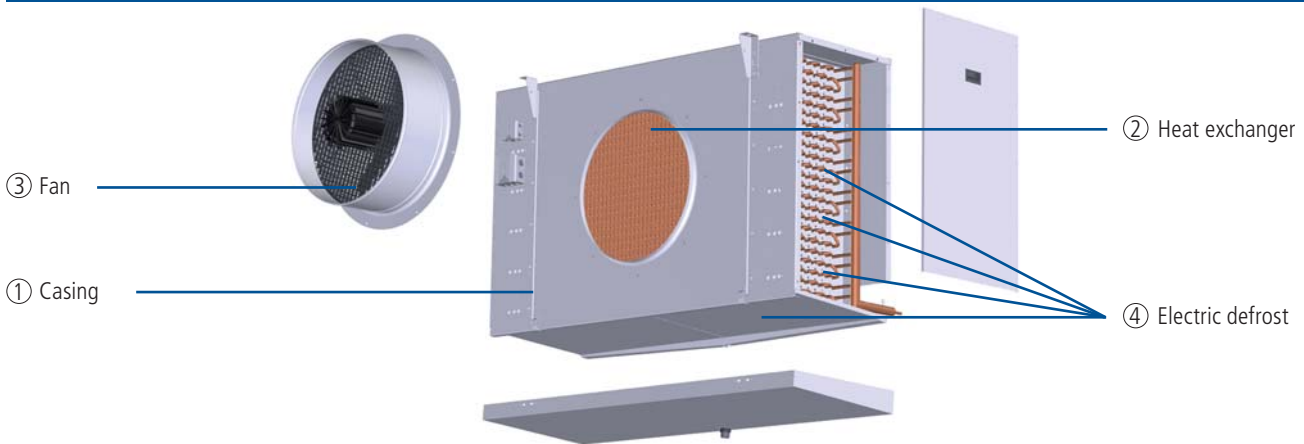
The starting conditions were identical in both trials – inlet temperature 24 °C. For the cooler without an Air straightener, the temperature difference in the stack of goods after 21 hours cooling time was 6K.

The Küba SG with Air straightener achieved the outstanding result of only a 1K temperature difference.





Construction



1. Casing

- Smooth Sendzimir galvanised steel
- High-grade powder coating, papyrus white RAL 9018
 - Food quality
 - Easy to clean
 - Optimum corrosion protection
- Hinge-down drip tray and removable side panels
- Stainless steel mounting material
- Plastic drain up to 1 1/4", longer than 2", stainless steel

2. Heat exchanger

- Fin spacing
 - SGA.I: 4,5 mm
 - SGB.I: 7 mm
 - SGK.I: 12 mm
- Tube arrangement aligned, spacing 50 x 50 mm
- HFE® tube / fin system
- **SG industrial-F: FKW/CO₂**
Küba-CAL® refrigerant distributor for multiple injection
 - Tubing: Cu-special
 - Fins: Al
 - End plates: Al
- **SG industrial-G: Glycol**
Distributor tubes for multiple injection
 - Tubing: Cu-special
 - Fins: Al
 - End plates: Al
- **SG industrial-N: Pump operation, NH₃**
Distributor tubes for multiple injection
 - Tubing: VA
 - Fins: Al
 - End plates: Al

3. Fans

- Ø 500 / 560 / 630 / 710 / 800 mm
- With built-in protector to be connected on site

- Application range: -40 °C bis +45 °C
- 400 ±10% V-3~ 50Hz
- In the standard design the fans are equipped with Air Straighteners, air duct and contact protection.
- Protection class IP 54 in accordance with EN 60529
- Insulation class F in accordance with EN 60034
- Operating data can be found with Küba Select or in the technical data.
- Optional Controller:
 - Phase control
 - Transformer
 - Delta / star
 - Frequency converter

! Please observe the manufacturer's information.

Motor label data (max. allowable value +40 °C)

	50 Hz		
	min ⁻¹	W	A
SG. 50-F41-F85	1400	800	1,40
SG. 56-F41-F85	1350	1400	2,50
SG. 63-F41-F85	880	680	1,60
SG. 71-F41-F84	900	1200	2,30
SG. 80-F41-F84	930	2200	3,50

4. Electric defrost

- 230 ±10% V-1~ or 400 ±10% V-3~ -Y
- Heaters with CrNi steel sleeve
- Vapour-tight connections
- Connector cable 1,5 mm² x 1000 mm
- Designed to defrost the fin package quickly and evenly
- To prevent vapour build-up and to accomplish heat exchange with almost no loss, the heaters are mounted in special expanded tube sleeves
- Wired ready for connection to the connection box in accordance with VDE specifications



Technical data (R404A)

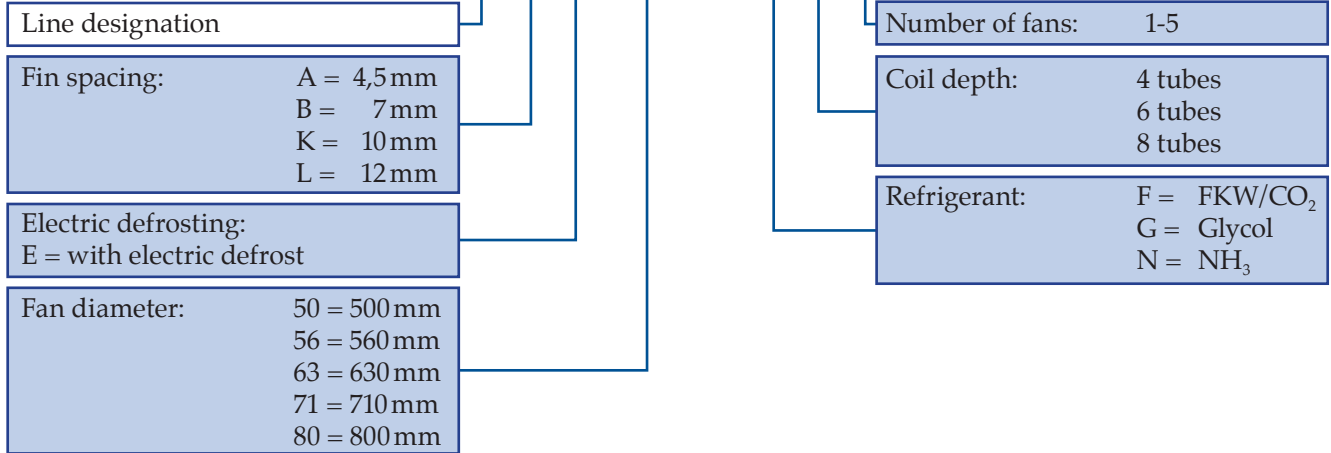
SGA-F



Nomenclature

Standard

SG A E 71 - F 6 2



SGA(E)-F

Model	Rating Q ₀ at 50 Hz		Surface	Air flow		Air throw		Tube volume	Connections			Per Fan 400 ± 10% V-3~ 50Hz (operating values at 50 Hz)		
	t _{li} ±0 °C DT1 = 8K	t _{li} -18°C DT1 = 7K		m ²	m ³ /h	m	m		dm ³	Inlet Ø mm	Outlet Ø mm	Blade Ø mm	min ⁻¹	W
50-F41	⊕	9,8	7,9	55	5900	23	15	9	10	28	500	1390	657	1,32
50-F61	⊕	12,2	9,8	82	5400	23	15	13	10	28	500	1390	657	1,32
56-F41	⊕	12,5	10,1	73	7200	28	18	12	10	28	560	1338	813	1,78
56-F61	⊕	15,7	12,5	110	6750	28	18	17	15	35	560	1338	813	1,78
56-F81	⊕	17,6	14,1	146	6300	28	18	23	15	35	560	1338	813	1,78
63-F41	⊕	15,5	12,3	99	8010	33	21	16	15	28	630	919	539	1,38
63-F61	⊕	19,2	15,3	148	7650	33	21	23	22	35	630	919	539	1,38
63-F81	⊕	21,1	16,7	198	7020	33	21	31	22	35	630	919	539	1,38
71-F41	⊕	23,1	18,5	154	11700	43	26	24	15	35	710	940	1140	2,39
71-F61	⊕	28,3	22,6	231	11000	43	26	36	22	35	710	940	1140	2,39
71-F81	⊕	31,6	25,2	308	10400	43	26	48	22	42	710	940	1140	2,39
80-F41	⊕	31,8	25,5	179	18450	48	-	28	15	42	800	940	1630	3,46
80-F61	⊕	39,5	31,5	269	17460	48	-	42	22	42	800	940	1630	3,46
80-F81	⊕	44,0	35,1	359	16200	48	-	56	22	42	800	940	1630	3,46
50-F42	⊕⊕	19,6	15,6	110	11800	33	21	17	15	35	500	1390	657	1,32
50-F62	⊕⊕	24,6	19,6	164	10800	33	21	25	15	35	500	1390	657	1,32
56-F42	⊕⊕	25,1	20,1	146	14400	39	25	22	15	35	560	1338	813	1,78
56-F62	⊕⊕	31,6	25,2	220	13500	39	25	34	22	42	560	1338	813	1,78
56-F82	⊕⊕	35,3	28,2	292	12600	39	25	45	22	42	560	1338	813	1,78
63-F42	⊕⊕	30,8	24,6	198	16020	45	29	30	22	42	630	919	539	1,38
63-F62	⊕⊕	38,6	30,8	296	15300	45	29	45	22	42	630	919	539	1,38
63-F82	⊕⊕	42,1	33,6	396	14040	45	29	60	22	42	630	919	539	1,38
71-F42	⊕⊕	46,3	37,1	308	23400	58	35	46	22	42	710	940	1140	2,39
71-F62	⊕⊕	56,8	45,3	462	22000	58	35	70	28	54	710	940	1140	2,39
71-F82	⊕⊕	63,2	50,5	616	20800	58	35	93	28	54	710	940	1140	2,39
80-F42	⊕⊕	63,7	51,0	358	36900	63	-	54	22	54	800	940	1630	3,46
80-F62	⊕⊕	79,0	63,1	538	34920	63	-	82	2x22	2x42	800	940	1630	3,46
80-F82	⊕⊕	88,0	70,2	718	32400	63	-	108	2x22	2x42	800	940	1630	3,46
50-F43	⊕⊕⊕	29,5	23,5	165	17700	40	26	25	15	42	500	1390	657	1,32
50-F63	⊕⊕⊕	37,0	29,5	246	16200	40	26	37	22	42	500	1390	657	1,32
56-F43	⊕⊕⊕	37,7	30,1	220	21600	49	32	33	15	42	560	1338	813	1,78
56-F63	⊕⊕⊕	47,5	37,8	330	20250	49	32	50	22	42	560	1338	813	1,78

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Technical data (R404A) SGL-F **12 mm**

SGL(E)-F

Model	Rating Q ₀ at 50 Hz		Surface m ²	Air flow m ³ /h	Air throw m		Tube volume dm ³	Connections			Per Fan 400 ± 10% V-3~ 50Hz (operating values at 50 Hz)			
	t ₁ ±0 °C DT1 = 8K	t ₁ -18 °C DT1 = 7K			Inlet Ø mm	Outlet Ø mm		Blade Ø mm	min ⁻¹	W	A			
SGL(E)	kW	kW												
56-F83	⊗⊗⊗	40,0	32,0	177	23100	54	35	66	22	54	560	1338	813	1,78
63-F43	⊗⊗⊗	29,2	23,3	119	27600	63	41	45	22	42	630	919	539	1,38
63-F63	⊗⊗⊗	40,4	32,3	179	27000	63	41	67	22	54	630	919	539	1,38
63-F83	⊗⊗⊗	47,9	38,2	239	26100	63	41	89	28	54	630	919	539	1,38
71-F43	⊗⊗⊗	42,6	34,1	186	38400	73	44	69	28	54	710	940	1140	2,39
71-F63	⊗⊗⊗	59,8	47,8	278	37800	73	44	104	2x22	2x42	710	940	1140	2,39
71-F83	⊗⊗⊗	72,6	58,0	372	37200	73	44	138	2x28	2x42	710	940	1140	2,39
80-F43	⊗⊗⊗	60,6	48,4	217	64800	77	-	81	28	54	800	940	1630	3,46
80-F63	⊗⊗⊗	74,4	59,5	324	62640	77	-	121	2x28	2x54	800	940	1630	3,46
80-F83	⊗⊗⊗	95,8	76,5	432	61560	77	-	161	2x28	2x54	800	940	1630	3,46
50-F44	⊗⊗⊗⊗	24,7	19,8	88	26800	47	31	33	15	42	500	1390	657	1,32
50-F64	⊗⊗⊗⊗	33,9	27,1	132	26000	47	31	50	22	54	500	1390	657	1,32
56-F44	⊗⊗⊗⊗	31,4	25,1	118	32400	56	36	44	22	54	560	1338	813	1,78
56-F64	⊗⊗⊗⊗	43,9	35,1	177	31600	56	36	66	28	54	560	1338	813	1,78
56-F84	⊗⊗⊗⊗	53,4	42,6	236	30800	56	36	88	2x22	2x42	560	1338	813	1,78
63-F44	⊗⊗⊗⊗	38,9	31,1	159	36800	65	42	59	22	54	630	919	539	1,38
63-F64	⊗⊗⊗⊗	53,9	43,0	239	36000	65	42	89	28	54	630	919	539	1,38
63-F84	⊗⊗⊗⊗	63,8	51,0	318	34800	65	42	118	2x22	2x42	630	919	539	1,38
71-F44	⊗⊗⊗⊗	56,9	45,4	248	51200	78	47	92	28	54	710	940	1140	2,39
71-F64	⊗⊗⊗⊗	79,8	63,7	371	50400	78	47	138	2x28	2x54	710	940	1140	2,39
71-F84	⊗⊗⊗⊗	96,8	77,3	496	49600	78	47	184	2x28	2x54	710	940	1140	2,39
80-F44	⊗⊗⊗⊗	80,8	64,5	289	86400	79	-	107	28	64	800	940	1630	3,46
80-F64	⊗⊗⊗⊗	99,2	79,3	432	83520	79	-	161	2x28	2x54	800	940	1630	3,46
80-F84	⊗⊗⊗⊗	127,7	102,0	576	82080	79	-	214	2x28	2x54	800	940	1630	3,46
50-F45	⊗⊗⊗⊗⊗	30,9	24,7	110	33500	52	34	41	22	54	500	1390	657	1,32
50-F65	⊗⊗⊗⊗⊗	42,4	33,9	165	32500	52	34	62	22	54	500	1390	657	1,32
56-F45	⊗⊗⊗⊗⊗	39,3	31,4	148	40500	61	40	55	22	54	560	1338	813	1,78
56-F65	⊗⊗⊗⊗⊗	54,9	43,8	221	39500	61	40	82	28	54	560	1338	813	1,78
56-F85	⊗⊗⊗⊗⊗	66,7	53,3	295	38500	61	40	109	2x22	2x42	560	1338	813	1,78
63-F45	⊗⊗⊗⊗⊗	48,6	38,8	199	46000	71	46	74	22	54	630	919	539	1,38
63-F65	⊗⊗⊗⊗⊗	67,3	53,8	299	45000	71	46	111	28	54	630	919	539	1,38
63-F85	⊗⊗⊗⊗⊗	79,8	63,7	398	43500	71	46	147	2x22	2x54	630	919	539	1,38



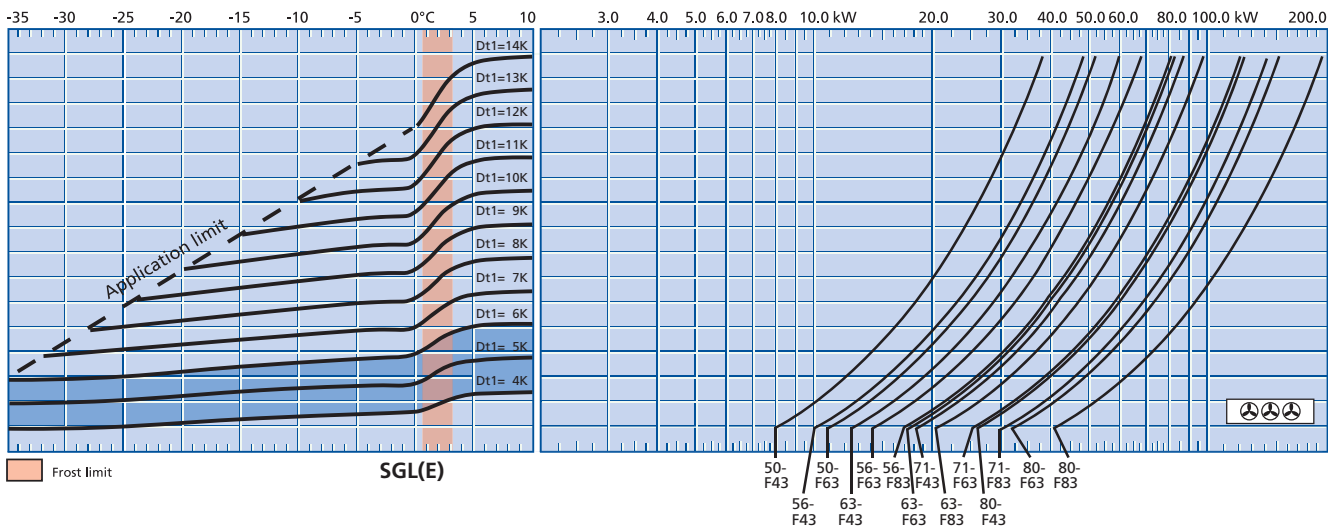
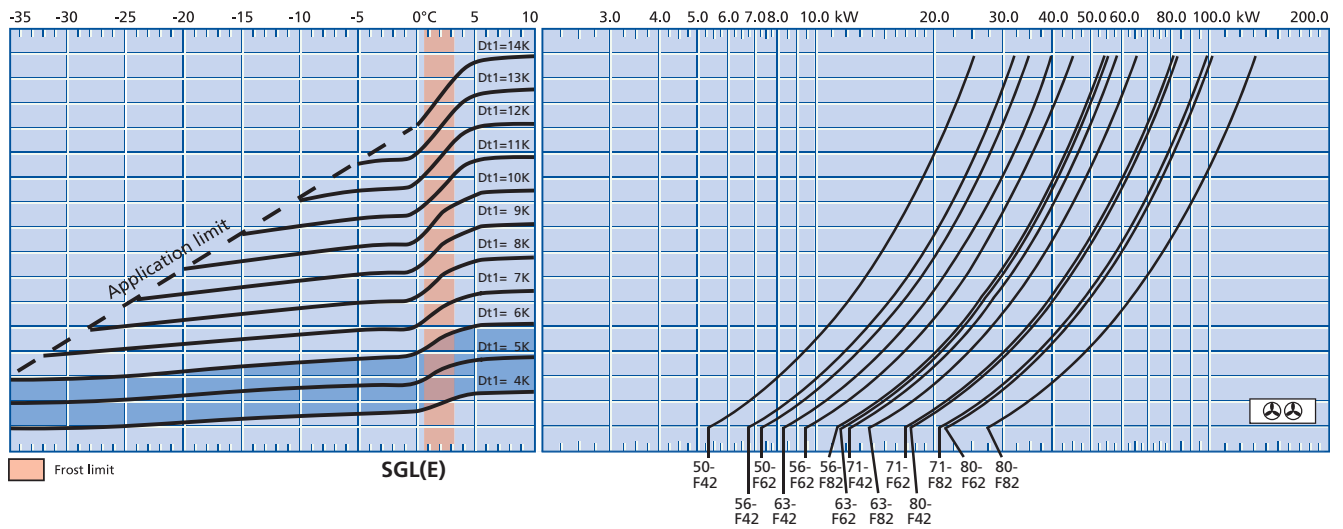
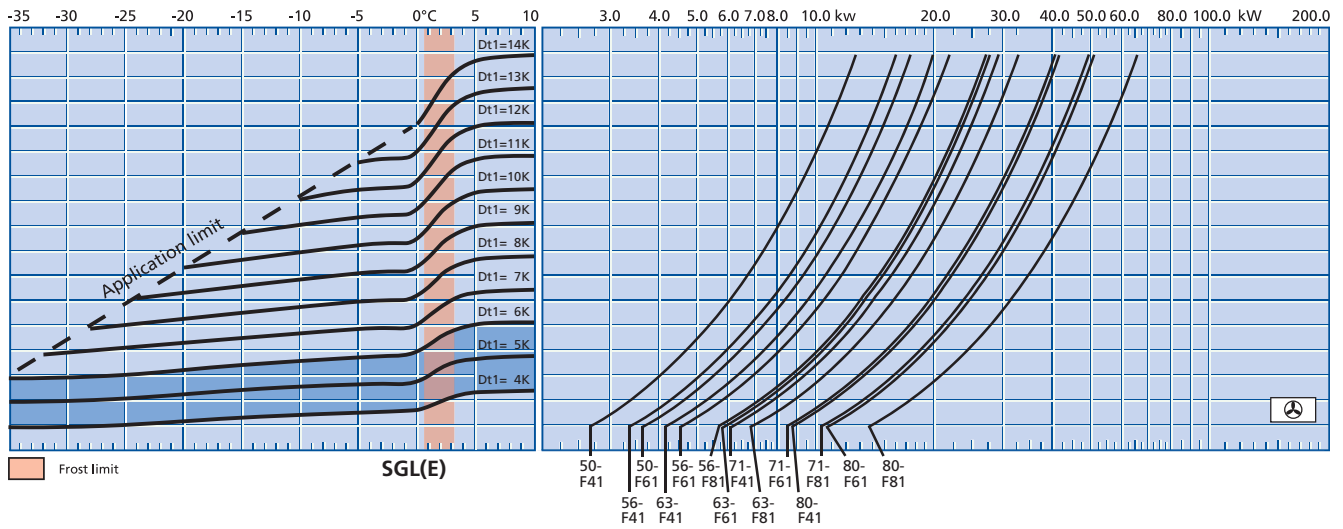
Q_v chart (EN328, R404A)

SGL-F



t_{l1} [°C] Air inlet temperature

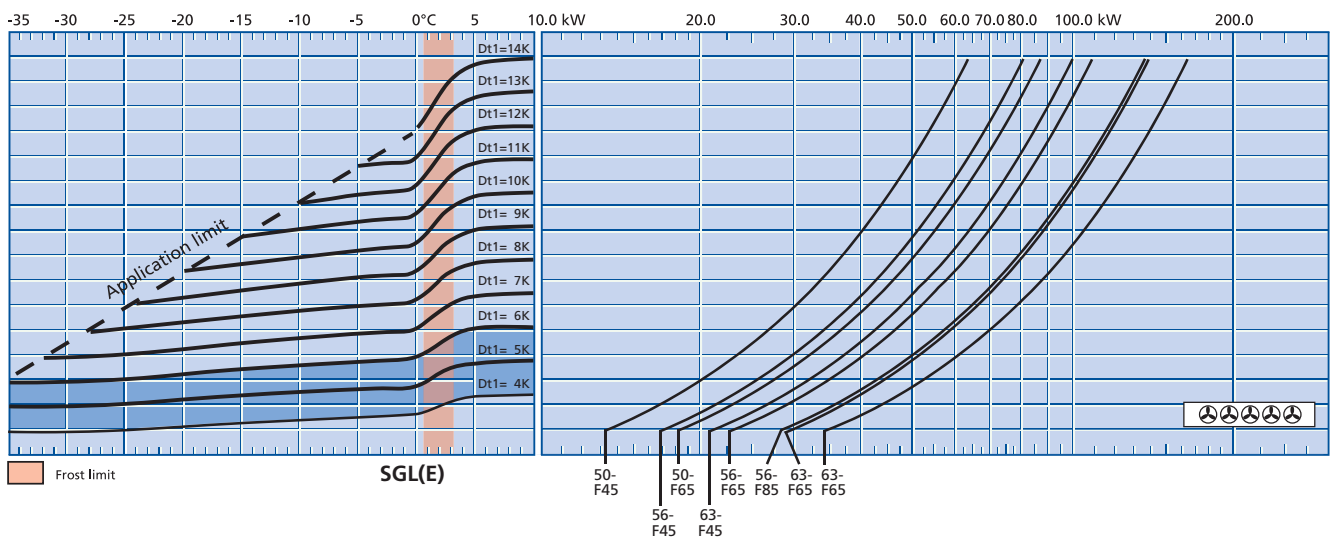
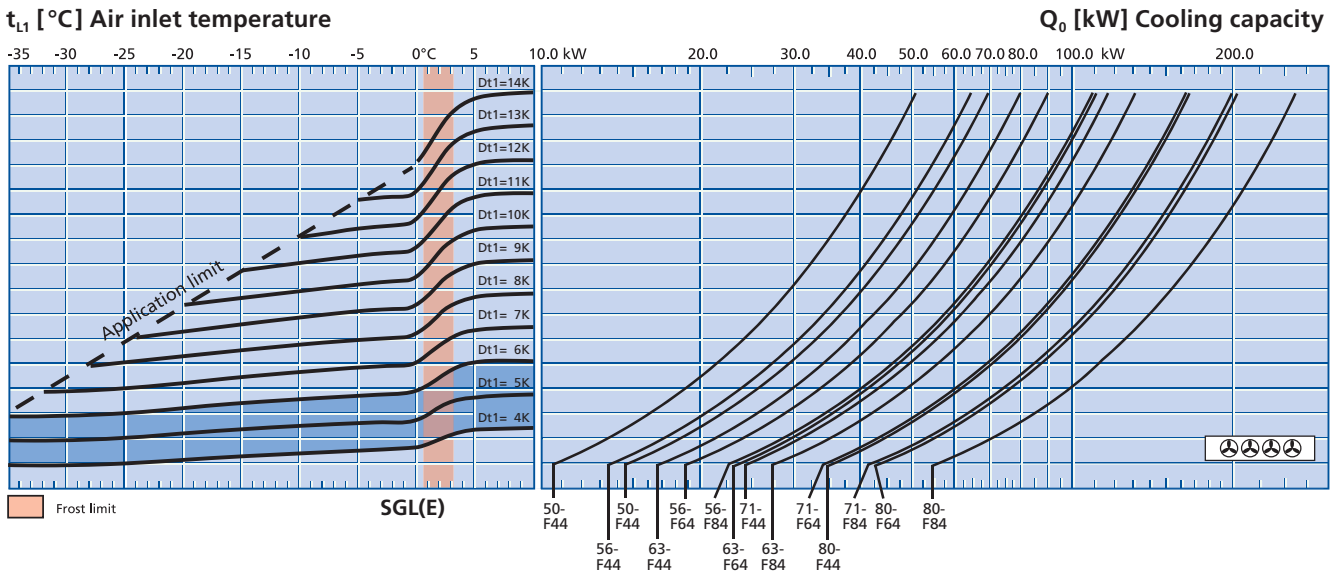
Q₀ [kW] Cooling capacity



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Q_v chart (EN328, R404A) SGL-F  **12 mm**



Q₀ = Cooling capacity
 t_{L1} = Air inlet temperature
 t₀ [°C] = Evaporating temperature (coil outlet)
 DT1 [K] = Temperature difference = t_{L1} - t₀ (°C)

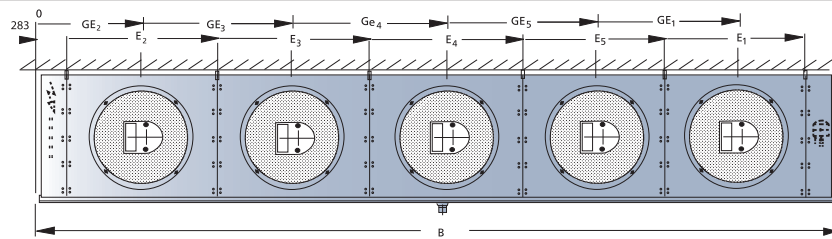
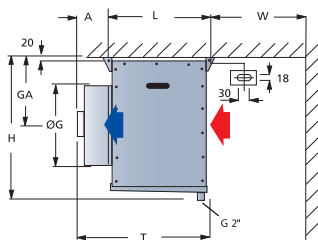
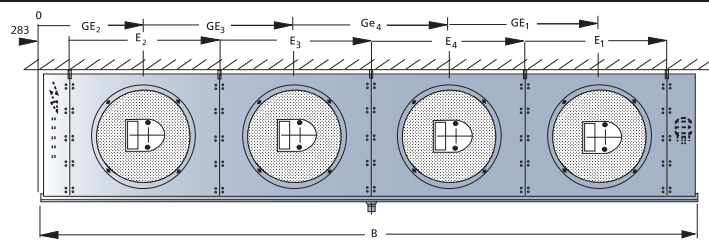
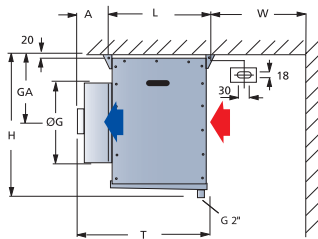
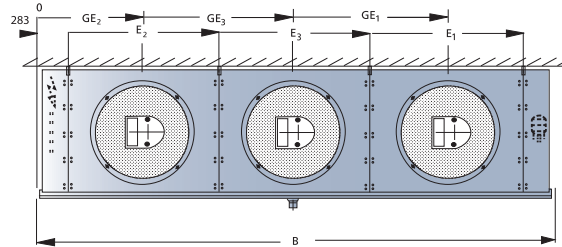
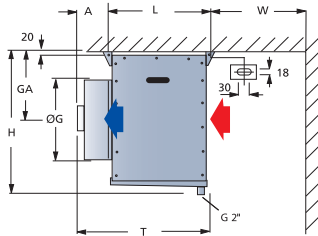
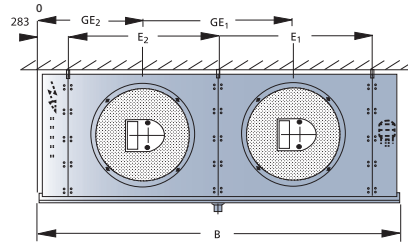
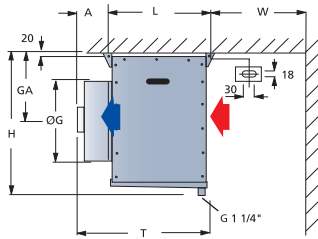
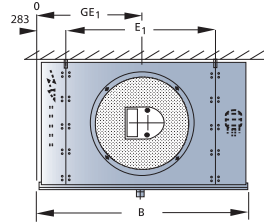
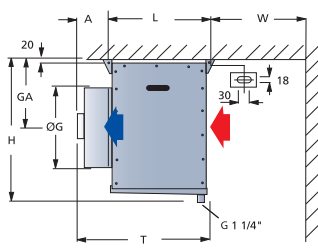
DT1 = 4 K bis 6 K
 with electronic expansion valve

Example selection:

For example and explanation, see the information section on p. 136.



Dimensional drawings



* Note the differences in dimension for accessories!

The dimensions are only valid for standard model design! When installing fans other than those listed in the „Technical data“, dimensions T and A are larger.

Sound power level L_{WA} [dB(A)]



Model	☪	☪ ☪	☪ ☪ ☪	☪ ☪ ☪ ☪	☪ ☪ ☪ ☪ ☪
SG 50	78	81	83	84	85
SG 56	85	88	90	91	92
SG 63	75	78	80	81	82
SG 70	87	90	92	93	—
SG 80	85	88	90	91	—



Versions

Motor versions

Normal refrigeration fan guard
 • V1.07

For certain applications, e.g. in small spaces and quick cooling rooms the fan guard version is the right solution.

In this version, the design of the fan unit includes a contact safety grille without Air Straightener and air duct.



For other alternative motor versions, see Küba Select or version overview, p. 126

Water/brine circulation

• V2...
 Tube circuitry and connections for water and brine are available.

Alternative casing versions

Double insulated, hinge-down drip tray 
 • V3.09

The double-shelled drip tray has 25 mm of insulation. The insulation prevents condensation water from building up on the bottom side of the tray and reduces the transfer of defrosting heat into the cold storage area.

This changes the following dimensions:

- Width B: +60 mm
- Height H: +30 mm
- Depth T: +30 mm

Hinged fans
 • V3.10



To make the coolers easy to clean, the fans are mounted with stainless steel hinges.

Defrost versions

All Küba Air Coolers are available with electric defrosting. See nomenclature, p. 72

Hot gas defrost in the drip tray

- Hot gas connection on both sides
- V4.01 Copper
- V4.02 Stainless steel



Hot gas in the heat exchanger

- V4.05 Hot gas connection on the heat exchanger



Hot gas in the heat exchanger and in the drip tray, copper design with/without check valve

- Hot gas connection on both sides
- V6.07 with check valve
- V6.08 without check valve



On request: additional defrosting circuit: for defrost with hot gas in separate circuit for the hot gas; the circuit is integrated into the heat exchanger.