

GEA Küba Green Line

Just cool.





Welcome to the world of GEA Küba!

The range of applications for our Green World line will carry the motto „Just cool.“. When precision of temperature is important, the Küba Green Line is the right choice.

Yesterday, today and tomorrow we continue to **set quality standards worldwide** (p. 8 ➢ Quality). The legendary „GEA Küba evaporator 68“ is the reference Air Cooler with which Air Cooler test rigs have been set up and calibrated since 1968. It provides the basis for the European norm EN 328 and the EUROVENT testing specifications, to which GEA Küba engineers have made significant contributions.

For GEA Küba, quality means always providing the maximum benefit for our customers. We focus on the best technology for the application, not the technology itself. Continuously improving our products, internal processes, and production methods are at the heart of understanding who we are.

So that these benefits are also available to refrigeration system operators, we work closely with our partners in refrigeration wholesale and refrigeration system construction. In this way, that which belongs together can come together: Expertise in application, planning and system construction.

To provide orientation for our partners in their selection of the optimum Air Cooler, the product programme is presented by application. With two complete product lines, we offer you the right high performance Air Cooler for highly complex or very simple cooling tasks based on cooling technology for commercial or industrial use.

The Küba Blue Line is the best technical solution for complex refrigeration requirements. The Blue World stands for maximum goods protection, optimum ripening and improvement processes and universal operation, even in challenging conditions.

Editorial



The Küba Green Line is the right product line for simple cooling applications. By clearly focusing on standardised refrigeration functions, the Küba Green Line combines low investment and operating costs with proven GEA Küba quality.

The ***gastro*** FM is most at home in cooling counters or food storage units. With our smallest air cooler, every drink
becomes a refreshing pleasure.

For small cooling rooms, the ***junior*** DF is really big – for packaged goods and to cool open goods. From keeping things fresh to freeze storage, its complete hygiene coating means it can be used universally.

The ***compact*** DF lives up to its name and is a power package in small spaces. In the service station, in catering and retail, it is the space-saving helper for packaged goods in temperature ranges both below and above zero.

Do you have a large refrigerated warehouse or a cooling hall? The ***market plus*** SP offers outstanding performance and precision for standard refrigeration and deep freezing.

Our ***comfort*** DP is the the delicate touch in the Green World and makes conditions appreciably cool where people are working. Draft-free air circulation and extremely quiet operation make for a pleasant climate for people.

We would like to welcome you on an exciting journey through the „Green World“ of GEA Küba.

Welcome!

Christoph Korinth
Technical Manager

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GEA Küba



gastro FM



junior DF

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Küba Green Line Aircoolers

Just cool.

Küba Green Line
Aircoolers



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Information

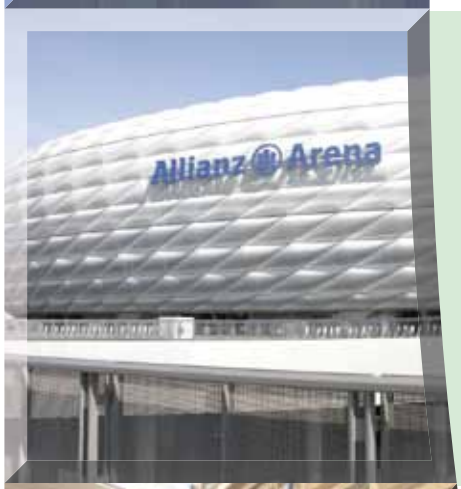
GEA Küba stands for



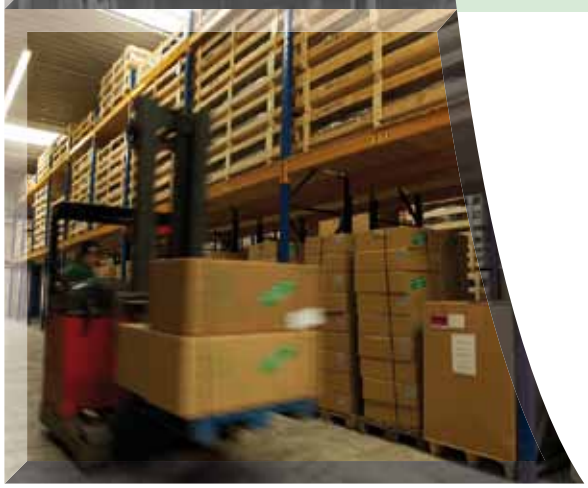
- Reliability



- Quality



- Optimum solutions



- Service and availability

GEA Küba stands for reliability:

GEA Küba represents tradition and progress – and **8 decades of dedication to refrigeration technology.** Since 1927, GEA Küba has developed and manufactured its products in Germany, **setting worldwide technological standards with quality „Made in Germany".**

Specialisation and continuous investment in research and development (R&D) and optimised production processes make this **consistent top performance** possible.

GEA Küba stands for quality:

Among Air Cooler manufacturers in Europe, GEA Küba has the largest R&D facility, which provides the driving force for technical advancement and innovation **in both individual components as well as entire systems.**

The acid test of the unrivalled functionality and quality of GEA Küba products, however, is their **daily use in thousands of practical applications.**

The result is **maximum safety** in terms of **installation, use and maintenance** as well as in the long-term **value of the investment.**

GEA Küba stands for optimum solutions:

A consistent focus on our customer's needs is the driving force for our **innovative product solutions.**

The measuring stick is always achieving the **maximum customer benefit,** not reaching the ultimate pinnacle of technology.

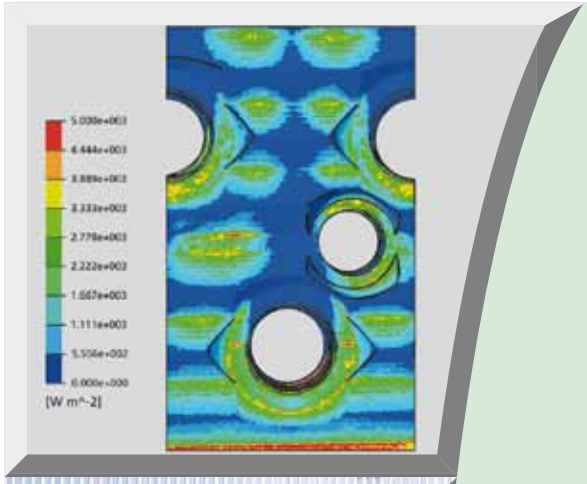
With the **Küba Blue Line** and the **Küba Green Line,** GEA Küba is the only manufacturer to offer **two complete, comprehensive Air Cooler product lines.**

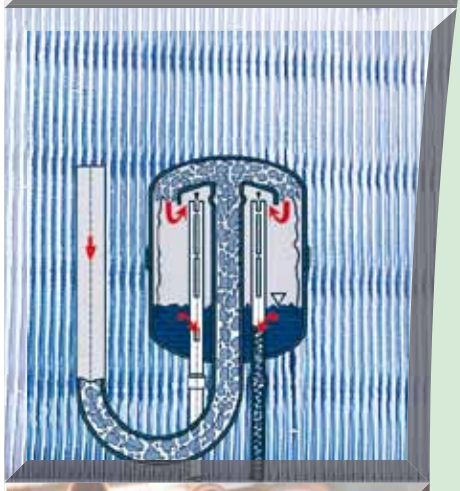
GEA Küba stands for service and availability:

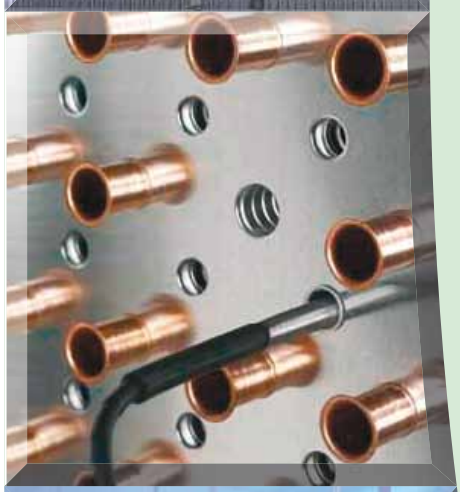
Of course, customer focus à la GEA Küba also means offering extensive technical and **sales-oriented service.** Above all, this includes **ease and accuracy in selecting** products, accessories and spare parts.

An extensively stocked warehouse at the Baierbrunn site near Munich guarantees **rapid availability** (24 hour delivery) and provides additional **reliability for operation, planning and scheduling.**

GEA Küba quality in detail









The Küba HFE® tube / fin system for maximum energy efficiency

Extensive, ground-breaking research and innovative testing methods have lead to the development of a tube / fin system that offers the optimum combination of maximum heat transfer with minimum loss of pressure.

- Optimised k-value allows for **high refrigeration capacity**
- Fan requires **low energy input** due to low air resistance
- **Minimal frost build-up** makes long operating periods possible
- **The units are compact,** with high capacity

The Küba CAL® distributor for superior refrigerant distribution

GEA Küba Air Coolers for direct expansion with multiple injection are equipped with the patented Küba CAL® distributor.

- **A consistent performer across the entire application spectrum, the Küba CAL® distributor always works at the highest capacity**
- **Complete, consistent refrigerating capacity** regardless of refrigerant and ambient temperature
- **Maximum energy efficiency even in partial-load operation,** thanks to even refrigerant distribution
- **Universal flexibility** from -55 °C to +40 °C

Exceptional defrosting for every application

According to the refrigeration plant concept, any of the established defrosting methods can be used. For brine and hot gas defrosting, the tube circuitry is adapted to fit the specific application. For electric defrosting, expanded heater tubes provide the best connection to the fin. In our defrosting processes there is:

- **Energy transfer with almost no loss**
- **Shorter defrosting periods** due to a lower final defrosting temperature in the heat exchanger
- **Minimal vapour build-up** because of the low surface temperature on the heater tube (< 95 °C)

Best material selection and processing

GEA Küba Air Coolers have lasting corrosion protection and are not overly sensitive to cleaning procedures, thanks to their scratch-resistant surface.

- We use the **best materials and high-quality components** for each application, because high quality products begin with the purchase of top quality materials.
- **Perfect surface finish**, with a food safe, non-polluting powder coating that is applied before assembly; corrosion protection even for inaccessible components

Highly cost-effective

Choosing GEA Küba Air Coolers is the right decision for ecologically and economically oriented investors.

- Because our components are fine-tuned to coordinate precisely with one another, GEA Küba Air Coolers are highly efficient. We take advantage of all energy saving potential for sustainable **reductions in operating costs**
- Selecting the best materials and high-quality processing are the basis for a **long service life** and provide the **best protection for your investment**



Maximum goods protection

All GEA Küba Air Coolers rely on GEA Küba quality to offer the maximum goods protection for the respective refrigeration application.

- Absolute security in maintaining the temperature of the goods and the room
- **Minimal dehumidification** of sensitive cooled goods so that "Freshness lasts longer"
- **Perfectly adjusted air distribution** – from a powerful air flow to gentle cooling



Hygienic and operational safety

When you're dealing with food, hygiene is essential, as well as required according to the HACCP guidelines.

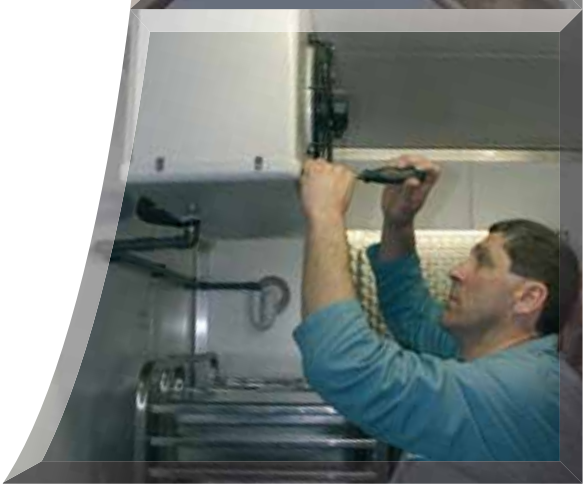
- Our material selection and surface finishes (i.e. our powder coating) **meet the requirements of food and consumer product legislation**
- **It's simple to clean GEA Küba products. Hinge-down drip trays are standard; hinged fans are available upon request**
- **Long-lasting corrosion protection** facilitates hygiene in the cold storage room



Optimum installation and maintenance

The design of GEA Küba Air Coolers places great emphasis on quick and easy assembly and maintenance.

- All significant component groups are **easily accessible**
- **Injuries are prevented** by our powder coating as well as our smooth edge design
- The smaller Air Coolers **can be installed right out of the package by just one technician**



Küba Green Line

gastro FM starts on page 12

***gastro* FM**
Q_0 up to 0,33 kW



junior DF starts on page 20

***junior* DF**
Q_0 up to 2,1 kW



compact DF starts on page 27

***compact* DF**
Q_0 up to 10 kW



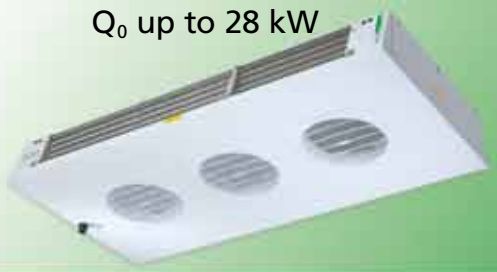
market plus SP starts on page 35

***market plus* SP**
Q_0 up to 50 kW



comfort DP starts on page 47

***comfort* DP**
Q_0 up to 28 kW



Küba Green Line
Aircoolers

Just cool.

The right product line for simple refrigeration applications.

With a clear focus on standardised refrigeration applications, the Küba Green Line offers affordable prices and low operation costs in combination with our proven GEA Küba quality.



Küba Blue Line

Küba Blue Line Aircoolers

Fresh solutions.

The best technical solution for complex refrigeration applications.

The Küba Blue Line stands for maximum goods protection, optimum maturing or finishing processes and universal use even in challenging environmental conditions.



DE *professional*
Q_0 up to 9,4 kW



SG *commercial*
Q_0 up to 32 kW



SG *industrial*
Q_0 up to 170 kW



SF *blastfreezer*
Q_0 up to 64 kW



DZ *production*
Q_0 up to 78 kW



Please also see our separate Blue Line catalogue.

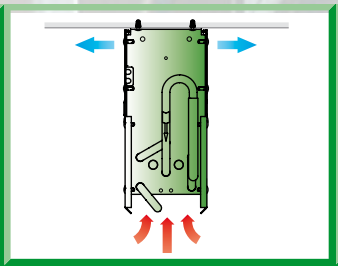


Küba *gastro* FM



Q_0

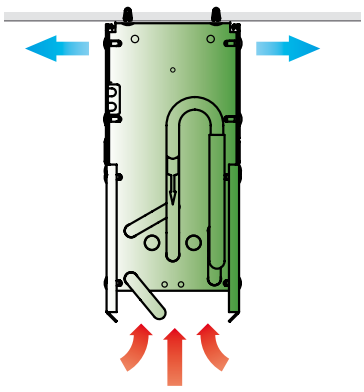
0,14 0,33 kW







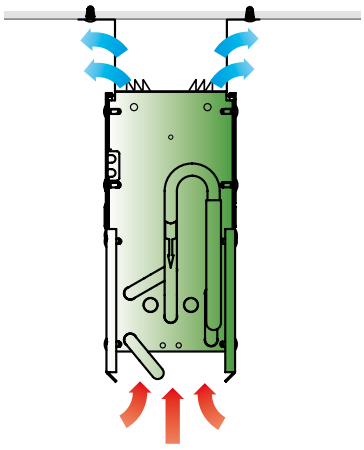
Application Benefits for Contractors and Operators



***gastro* FM: compatible with every counter and cabinet**

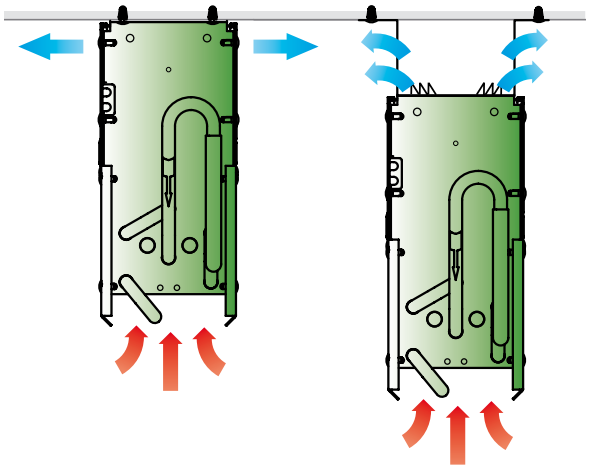
FMA lateral air outlet

- For easy cleaning, the side panels and the air outlet grids can be removed and replaced without tools



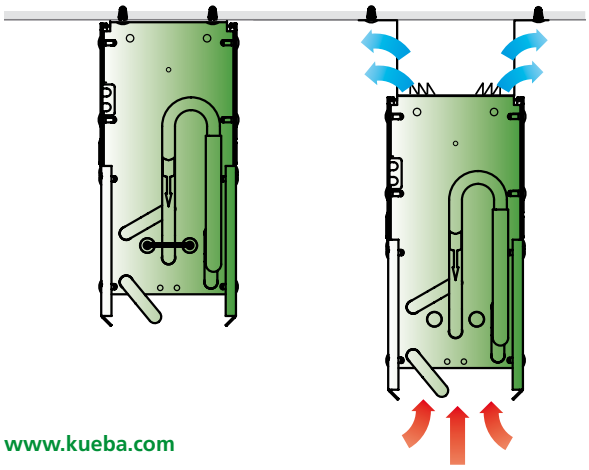
FMA air outlet top

- For easy cleaning, the side panels and the air outlet grids can be removed and replaced without tools



Best airflow

- Optimal airflow through Küba air guide, patented with the FMA + FMOA
  - wider distribution
  - enhanced air circulation
  - ➧ faster cooling of goods

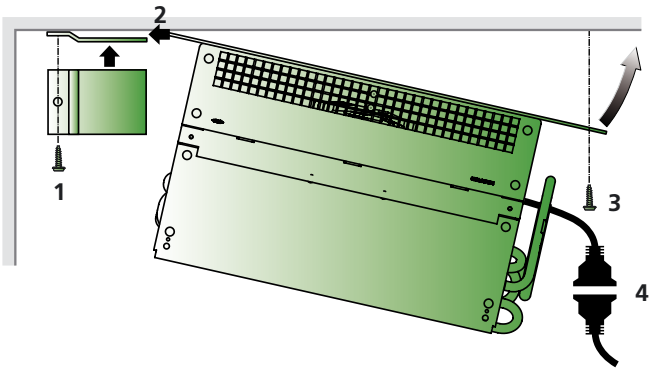


Extreme applications

- With the flexible Küba heater, the TAS can be retrofitted
- Tubular radiator can be fitted
- Fans IP 54



Application Benefits for Contractors and Operators, Nomenclature



Straightforward mounting

- **Mounting brackets are included** to allow for improved assembly for hard to access counter refrigerators.
- Plug connections IP54 fans are attached externally to the air cooler
  - No additional wiring required

Nomenclature

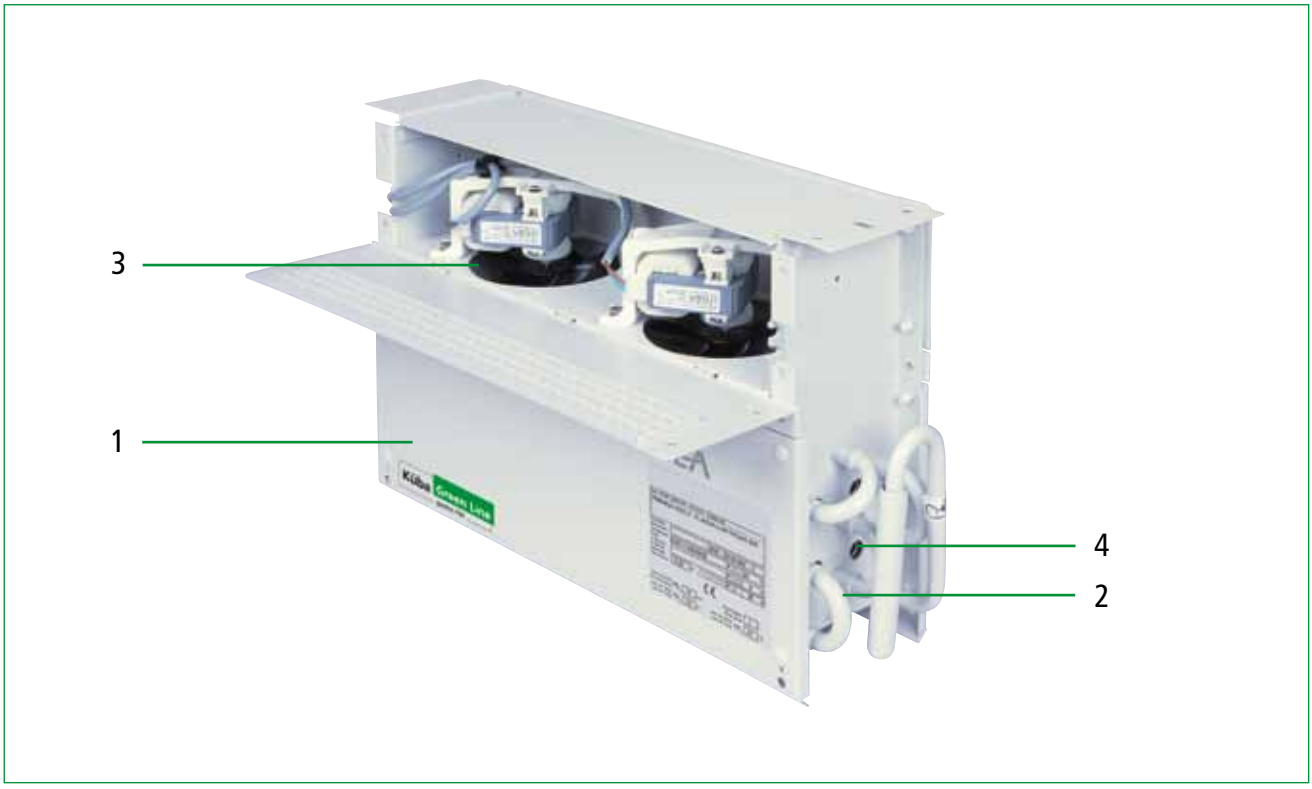
Standard

FM	O	A	02	2	D

- Line designation
- Air discharge upwards
- Fin spacing: A = 4,5 mm
- Generation code D
- Number of fans: 1-2
- Installation size: 01-04



Construction



1. Casing

- Aluminium, smooth
- High-quality powder coating, papyrus white RAL 9018
  - Food-safe
  - Easy to clean
  - Best corrosion protection
- Removeable side panels
- All components are dishwasher-safe
- FMA discharges air from either side through the air guiding grille
  - can be converted to discharge air through one side, using a supplied cover plate
- FMOA discharges air upwards through both sides
  - can be converted to discharge air through one side, using a pluggable gill-shaped air guidance system

2. Heat exchanger

- Fin spacing: 4,5 mm
- Tubing Cu-Special, Fins Al, End plates Al
- Fully powder coated (hygienic paint)

3. Fans CE

- High-efficiency motors with ball bearing (approx. 30% lower power consumption than with predecessor model FM, FMOA.C), and plugs IP 54
- In acc. with VDE/CE
- Application range: RT -20 °C to +45 °C
- 230V±10%, 50/60 Hz
- Index of protection IP54 (motor and plugs)
- Insulation class B
- 3 m cable with plug connections
- Operating values are the values of the built-in motor at +20 °C, with an unobstructed air flow and a dry surface, as required for refrigeration load calculation
- Motor label data = max. allowable value at t_{Umg} +40 °C, with an unobstructed air flow

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

		50 Hz			60 Hz		
	mm	min^{-1}	W	A	min^{-1}	W	A
FM.011-042D	90	2700	12	0,1	3000	10	0,08

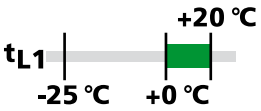
4. Electric defroster

- With the flexible Küba heater, the TAS can be retrofitted
- Tubular radiator can be fitted



Technical data — FM(O)A...D — 4,5 mm

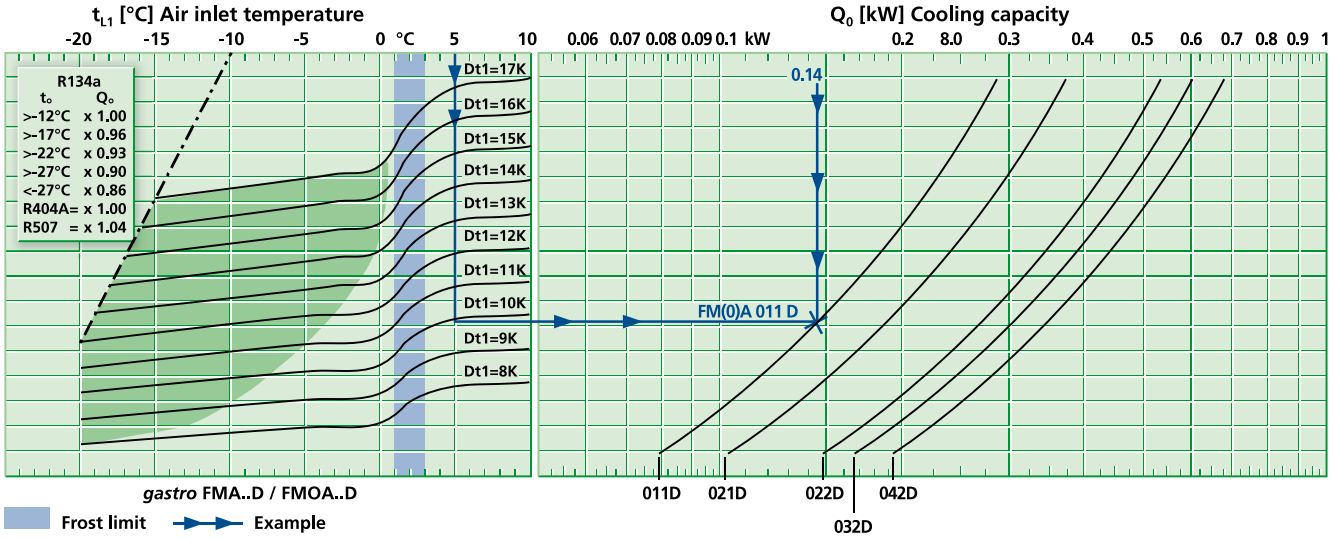






Model		Rating Q_0 bei t_{L1} ±5 °C DT1 = 10K	Surface	Air flow	Tube volume	Connections Inlet	Connections Outlet	Sound L_{WA}	Fans (Operating values at 50 Hz) Blade	Type of current		Per Fan	
		kW	m²	m³/h	dm³	Ø mm	Ø mm	dB(A)	St. x Ø mm	230±10% V-1 50/60Hz	min⁻¹	W	A
FM(O)A 011D	✇	0,14	1,2	80	0,3	10	10	61	1 x 90	230V-1	2740	9	0,09
FM(O)A 021D	✇	0,18	1,8	80	0,3	10	10	61	1 x 90	230V-1	2740	9	0,09
FM(O)A 022D	✇✇	0,26	1,8	140	0,3	10	10	64	2 x 90	230V-1	2740	9	0,09
FM(O)A 032D	✇✇	0,29	2,4	135	0,4	10	10	64	2 x 90	230V-1	2740	9	0,09
FM(O)A 042D	✇✇	0,33	3,6	125	0,6	10	10	64	2 x 90	230V-1	2740	9	0,09

Q_V - diagram (R22, R134a, R404A, R507)

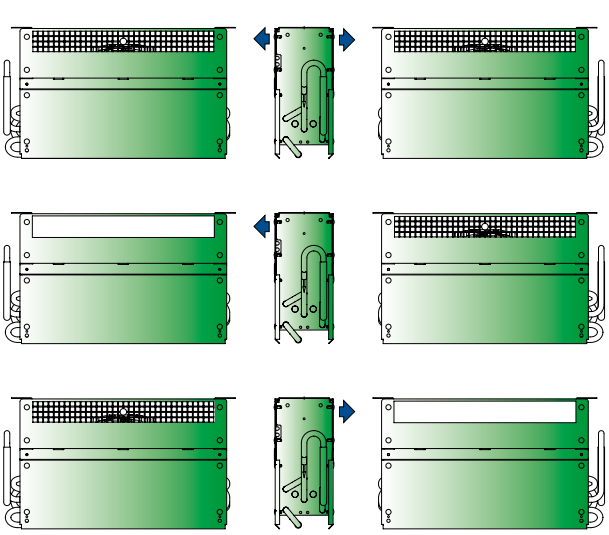


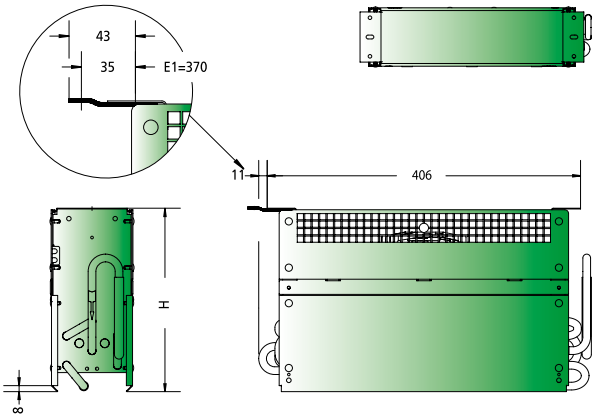
The technical data is also given in the product selection software.

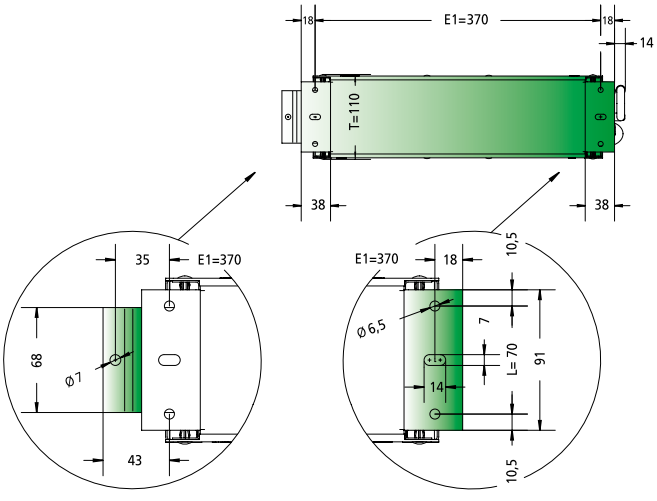


Dimensions

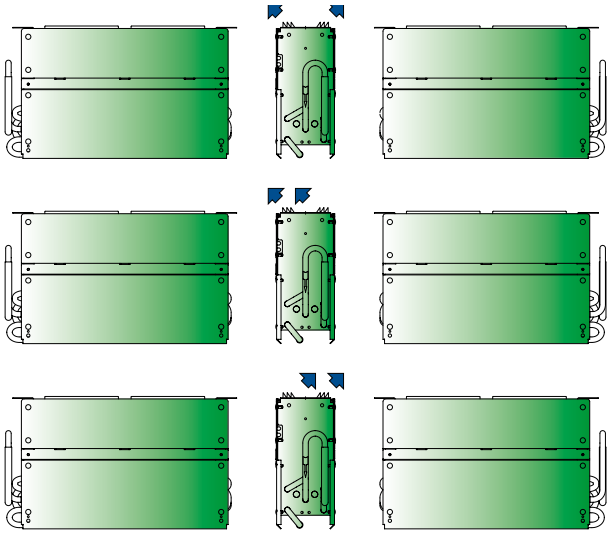
FM

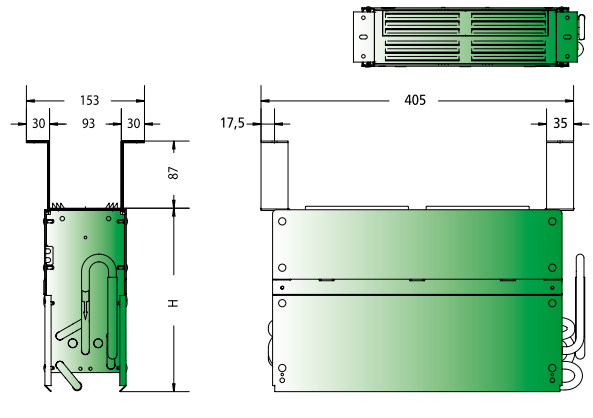


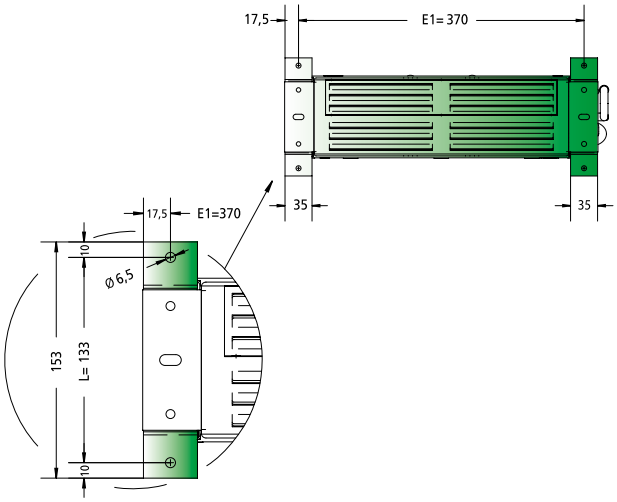




FMO







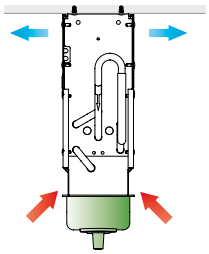
Model Dimensions (mm)

	H	Weight (net) kg	Weight (gross) kg
FM(O) 011D	238	2,3	2,8
FM(O) 021D	273	2,7	3,1
FM(O) 022D	273	3,3	3,8
FM(O) 032D	308	3,7	4,2
FM(O) 042D	378	4,3	4,8

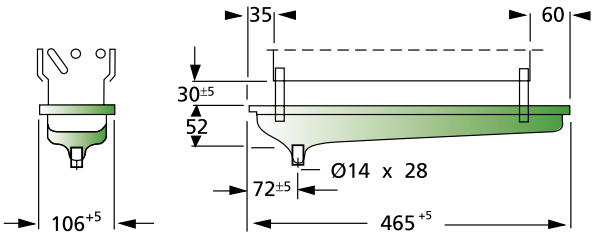


Accessories

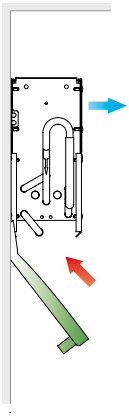
FMA, FMOA drip tray (plastic)



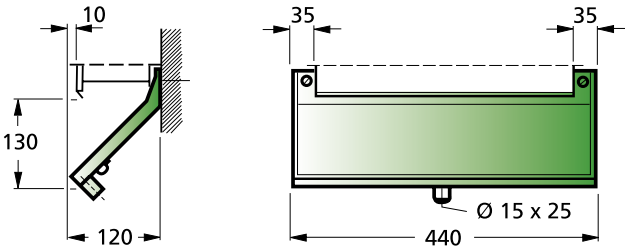
Polystyrene, not suited for el. heating
Stainless steel bracket



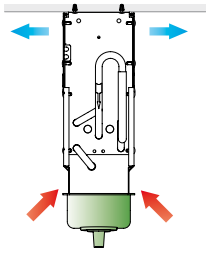
FMA, FMOA drip tray (aluminium)

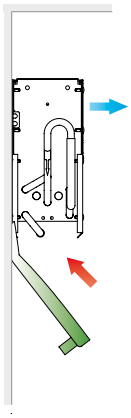


Aluminium, painted



FMA, FMOA electric defrost 230V-1



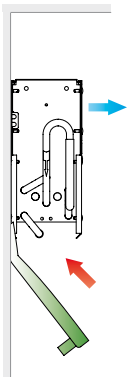


TAS
for Cooler

For Model	Model	Rating (W)	Length (m)
FM(O)A 011D	TAS 13	72	1,3
FM(O)A 021D	TAS 20	110	2,0
FM(O)A 022D	TAS 20	110	2,0
FM(O)A 032D	TAS 30	165	3,0
FM(O)A 042D	TAS 40	220	4,0

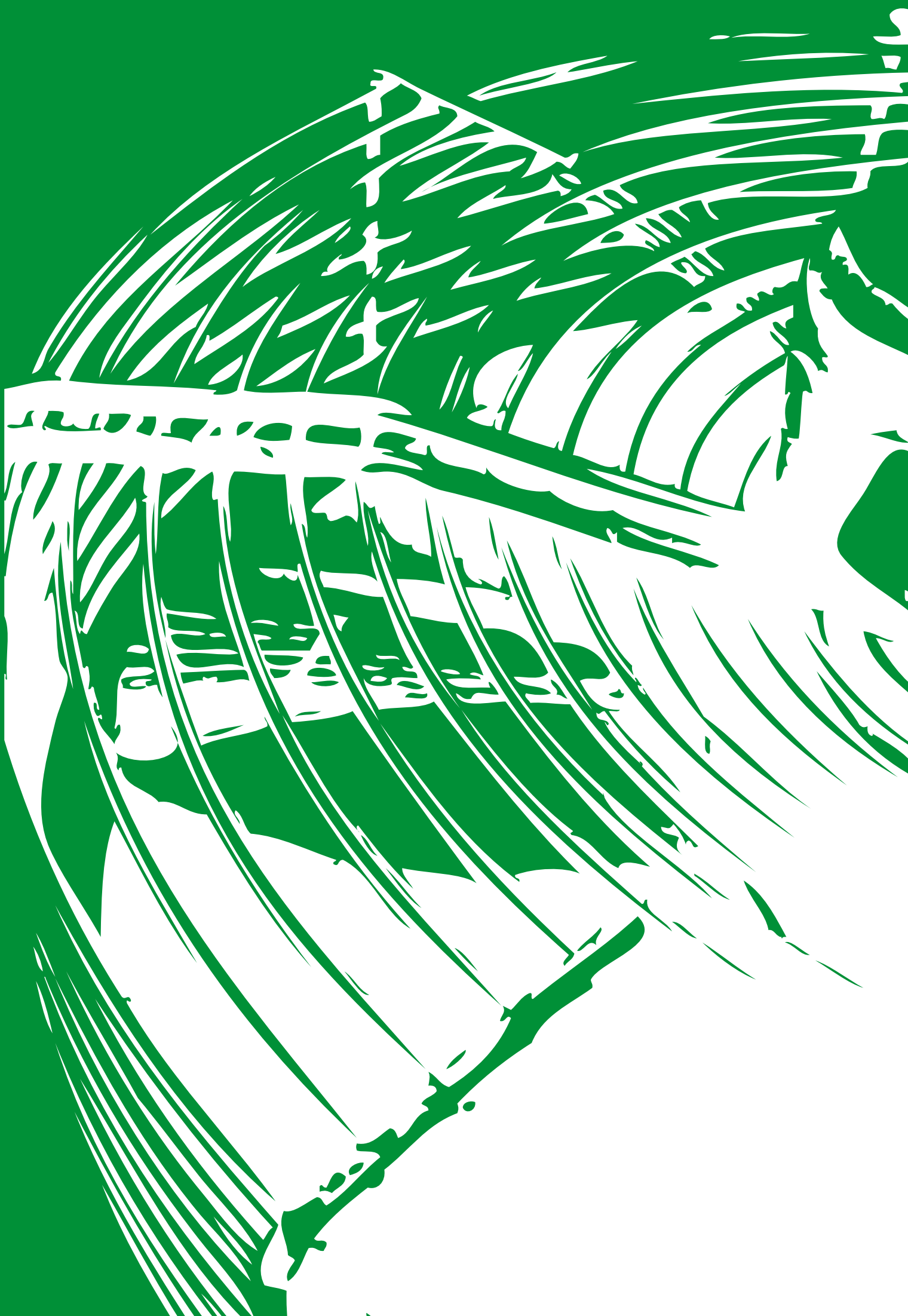
Tubular radiator
for Cooler

For Model	Length (m)	Rating (W)	Shape
FM(O)A 011D	900	305	U35
FM(O)A 021D	900	305	U35
FM(O)A 022D	900	305	U35
FM(O)A 032D	900	305	U35
FM(O)A 042D	900	305	U35



TAS
for Cooler
and drip dray
(aluminium)

For Model	Model	Rating (W)	Length (m)
FM(O)A 011D	TAS 20	110	2,0
FM(O)A 021D	TAS 30	165	3,0
FM(O)A 022D	TAS 30	165	3,0
FM(O)A 032D	TAS 40	220	4,0
FM(O)A 042D	TAS 50	275	5,0





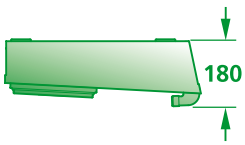
Küba *junior* DF

Ceiling Air Cooler
Hygienic version

Q_0

0,4 — 2,0 kW

H max.

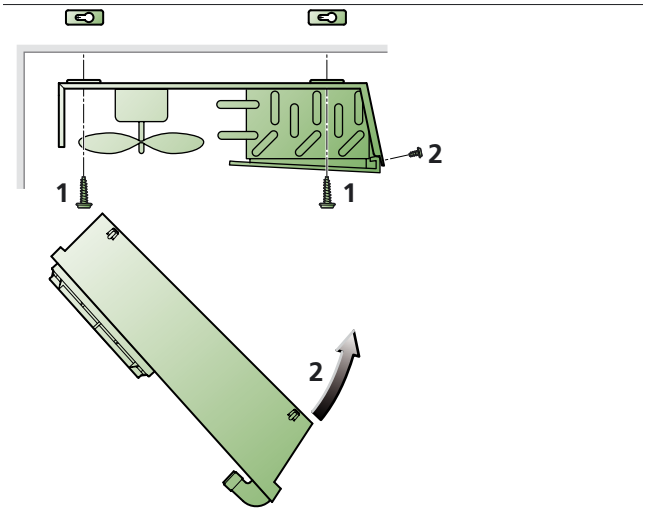




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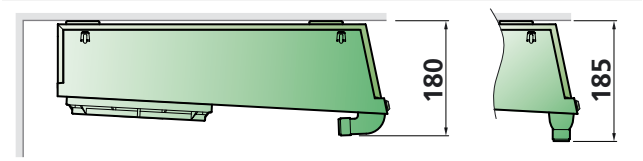


Application Benefits for Contractors and Operators



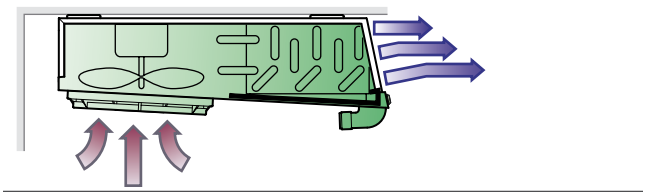
Straightforward mounting

- Removable fan plate
  ① Screw unit to ceiling
- Connect unit
  ② Re-install lower section



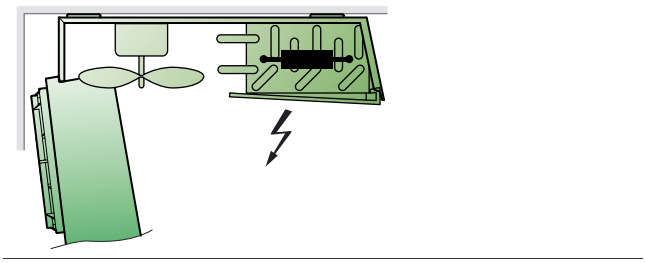
Space-saving

- Horizontal drain, horizontal and vertical enclosed
- As a result, the height, including the 90° elbow, is reduced to 180 mm



Best air guidance

- Integrated air baffle plate
- Directs the air along the ceiling of the room, projecting it far into the room



Extreme applications

- Additional heating installation is possible
- In extreme applications, i.e. in deep-freeze rooms with door openings, an additional electric heater can be retrofitted for trouble-free operation

Nomenclature

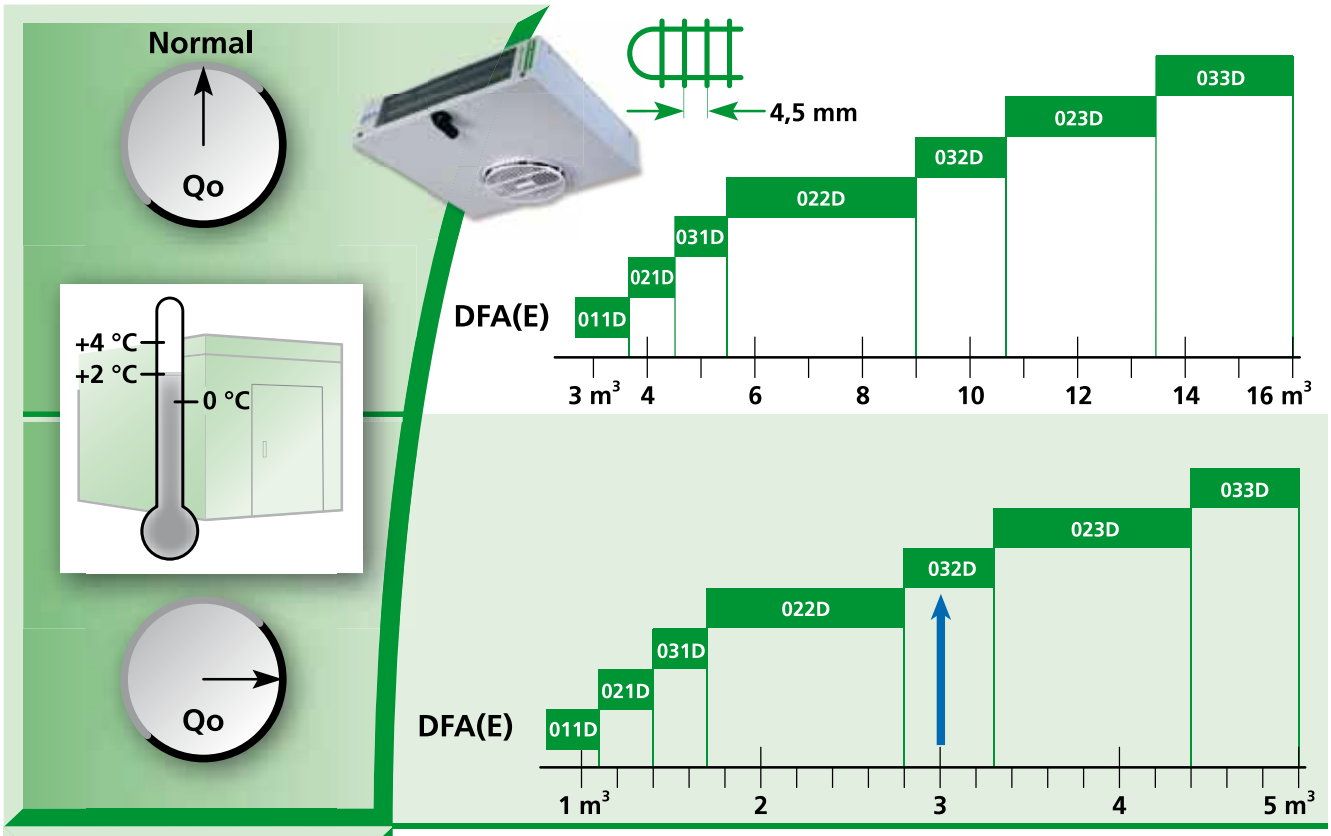
Standard

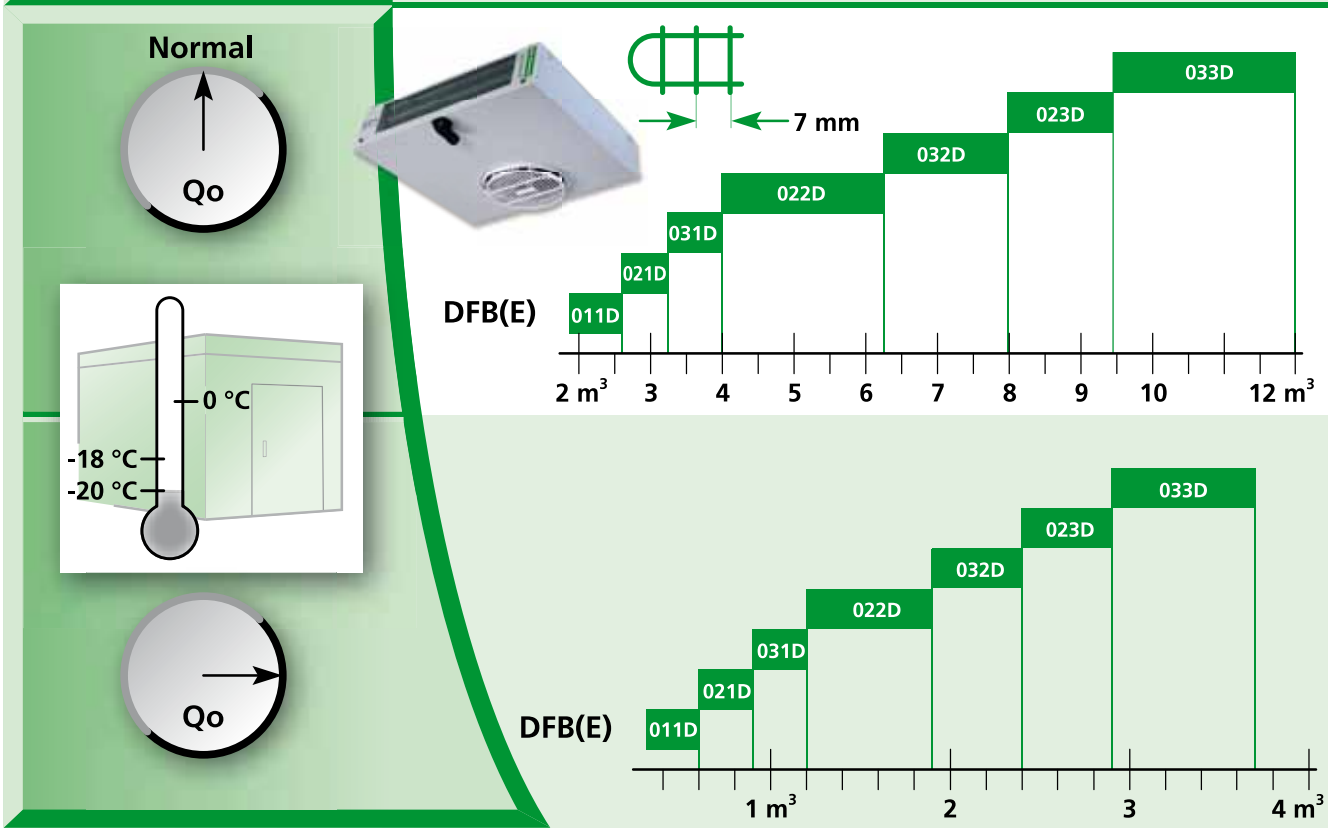
DF	B	E	02	3	D

- DF: Line designation
- B: Fin spacing: A = 4,5 mm, B = 7 mm
- E: E = with electric defrost
- 02: Size: 01 - 03
- 3: Number of fans: 1 - 3
- D: Generation code



Quick Selection





Example:

Information: • Volume of room: 3 m³ • Temperature: +2 °C • High loading

Selection: → Küba *junior* DFA(E) 032D

Construction



1. Casing

- Aluminium, Sendzimir zinc-plated steel, smooth
- High-quality powder coating, papyrus white RAL 9018
  - Food-safe
  - Easy to clean
  - Best corrosion protection
- Double drip tray
- Drip tray can be folded down and unclipped
- Height of ***junior*** DF. only 180 mm (incl. drain)

2. Heat exchanger

- Internal cleanliness acc. to DIN 8964
- Fin spacing: DFA.D: 4,5 mm, DFB.D: 7,0 mm
- Tubing Cu-Special, fins Al, end plates Al
- Completely powder-coated (hygienic paint)

3. Fans

- Fans are wired up to a terminal box
- With built-in protector according to VDE provisions
- Application range: DF.D: RT -30 °C to +40 °C
- 230 V ±10 % V-1
- Index of protection IP42
- Insulation class B
- Operating values are the values of the built-in motor at +20 °C, with an unobstructed air flow and a dry surface, as required for refrigeration load calculation
- Motor label data = max. allowable value at t_{Umg} +40 °C, with an unobstructed air flow

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

		50 Hz			60 Hz		
	mm	min^{-1}	W	A	min^{-1}	W	A
DF. 011-033D	200	1300	31	0,2	1550	30	0,2

4. Electric defroster

- Pre-wired, ready to connect in the terminal box
- The heater rods are located between the coil and the tray for rapid and even defrosting
- 230 V-1



Technical data — DFA(E)...D — 4,5 mm



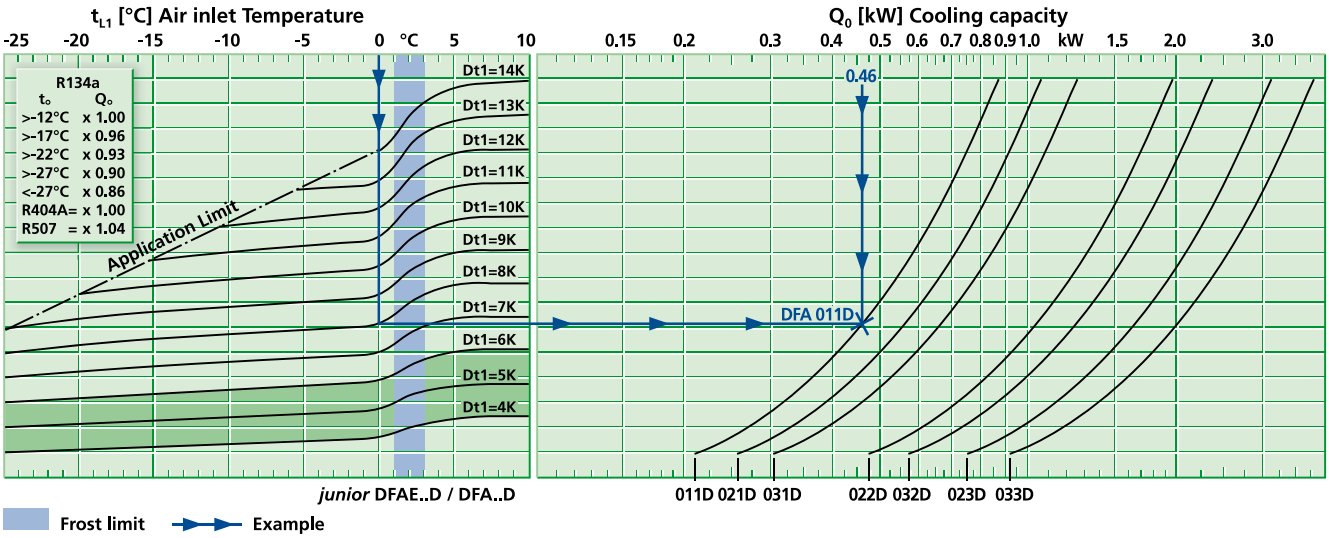




Model		Rating Q_0 at 50 Hz DT1, R404A t_{L1} ±0 °C DT1 = 8K	t_{L1} -18 °C DT1 = 7 K	Surface	Air flow	Air throw	Tube volume	Connections Inlet	Outlet	Sound L_{WA}*	Fans (Operating values at 50 Hz) Blade	Type of current		Per Fan		Electr. defrost
		kW	kW	m²	m³/h	m	dm³	Ø mm	Ø mm	dB(A)	St. x Ø mm	230±10% V-1 50/60Hz	min⁻¹	W	A	kW
DFA 011D	✇	0,46	0,37	2,1	250	5	0,3	10	10	62	1 x 200	230V-1	1310	29	0,21	0,35
DFA 021D	✇	0,56	0,45	2,8	290	5	0,4	10	10	62	1 x 200	230V-1	1310	29	0,21	0,42
DFA 031D	✇	0,67	0,54	4,1	260	5	0,6	10	10	62	1 x 200	230V-1	1310	29	0,21	0,42
DFA 022D	✇✇	1,12	0,89	5,6	580	6	0,8	10	10	65	2 x 200	230V-1	1310	29	0,21	0,73
DFA 032D	✇✇	1,34	1,07	8,2	520	6	1,2	10	10	65	2 x 200	230V-1	1310	29	0,21	0,73
DFA 023D	✇✇✇	1,68	1,34	8,4	870	9	1,2	10	10	67	3 x 200	230V-1	1310	29	0,21	1,04
DFA 033D	✇✇✇	2,01	1,61	12,3	780	9	1,8	10	10	67	3 x 200	230V-1	1310	29	0,21	1,04

* For modifications of sound power levels, see page 59

Q_V - diagram (R134a, R404A, R507)



The technical data is also given in the product selection software.



Technical data — DFB(E)...D — 7 mm



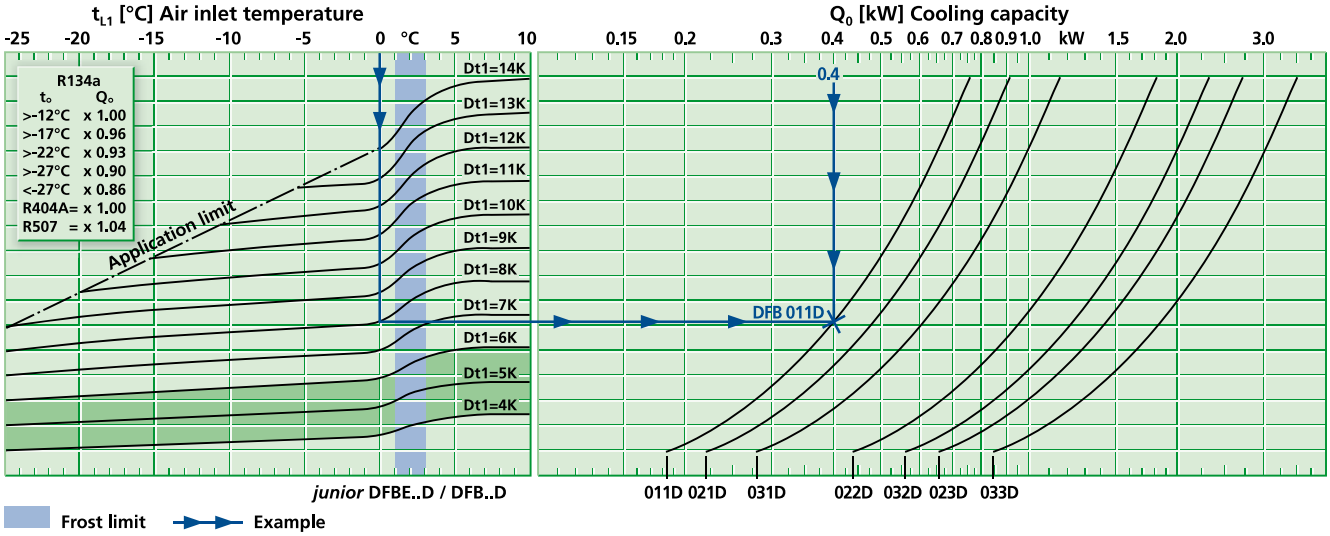




Model		Rating Q_0 at 50 Hz DT1, R404A t_{L1} ±0 °C DT1 = 8K	t_{L1} -18 °C DT1 = 7 K	Surface	Air flow	Air throw	Tube volume	Connections Inlet	Outlet	Sound L_{WA}*	Fans (Operating values at 50 Hz) Blade	Type of current		Per Fan		Electr. defrost
		kW	kW	m²	m³/h	m	dm³	Ø mm	Ø mm	dB(A)	St. x Ø mm	230±10% V-1 50/60Hz	min⁻¹	W	A	kW
DFB 011D	✇	0,40	0,32	1,4	280	5	0,3	10	10	62	1 x 200	230V-1	1310	29	0,21	0,35
DFB 021D	✇	0,48	0,38	1,8	320	5	0,4	10	10	62	1 x 200	230V-1	1310	29	0,21	0,42
DFB 031D	✇	0,61	0,49	2,7	290	5	0,6	10	10	62	1 x 200	230V-1	1310	29	0,21	0,42
DFB 022D	✇✇	0,96	0,77	3,6	640	6	0,8	10	10	65	2 x 200	230V-1	1310	29	0,21	0,73
DFB 032D	✇✇	1,22	0,97	5,4	580	6	1,2	10	10	65	2 x 200	230V-1	1310	29	0,21	0,73
DFB 023D	✇✇✇	1,44	1,15	5,4	960	9	1,2	10	10	67	3 x 200	230V-1	1310	29	0,21	1,04
DFB 033D	✇✇✇	1,83	1,46	8,1	870	9	1,8	10	10	67	3 x 200	230V-1	1310	29	0,21	1,04

* For modifications of sound power levels, see page 59

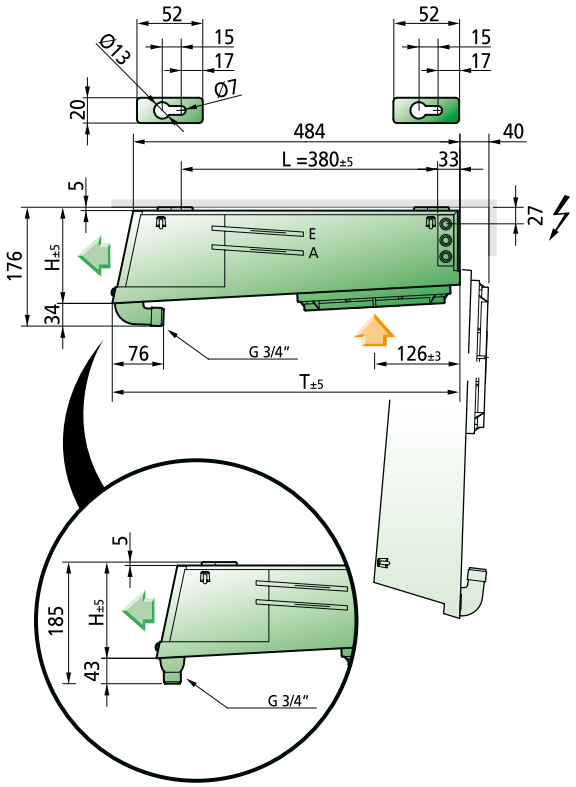
Q_V - diagram (R22, R134a, R404A, R507)



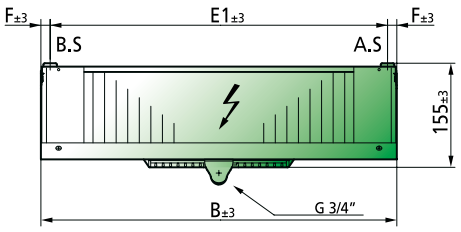
The technical data is also given in the product selection software.



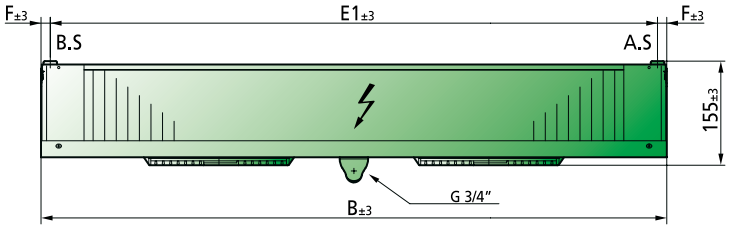
Dimensions and weights



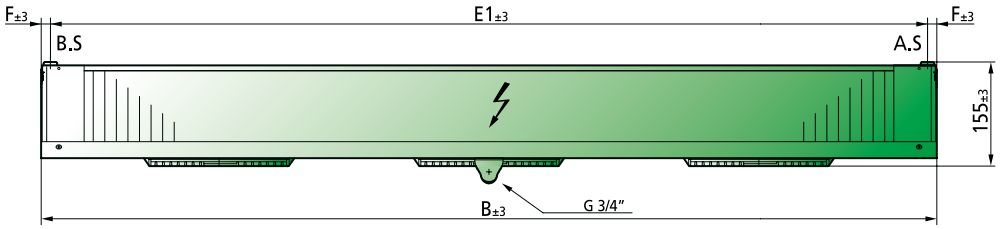
DF. (E) 011, 021, 031D



DF. (E) 022, 032D



DF. (E) 023, 033D



Model	Dimensions (mm)						Weight (net)		Weight (gross)	
							DFA.D	DFB.D	DFA.D	DFB.D
	H	B	T	L	E_1	F	kg	kg	kg	kg
DF. 011D	143	428	515	380	400	14	8	8	9	9
DF. 021D	143	528	515	380	500	14	9	9	10	10
DF. 031D	143	528	515	380	500	14	9	9	10	10
DF. 022D	143	928	515	380	900	14	14	14	16	16
DF. 032D	143	928	515	380	900	14	16	16	18	18
DF. 023D	143	1328	515	380	1300	14	21	21	23	23
DF. 033D	143	1328	515	380	1300	14	23	23	25	25



Küba *compact* DF

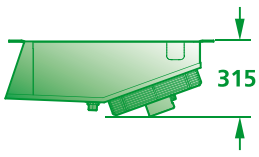


Ceiling Air Cooler

Q_0

1,5 — 10 kW

H max.

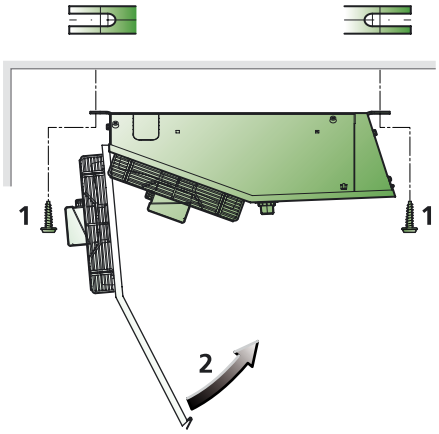




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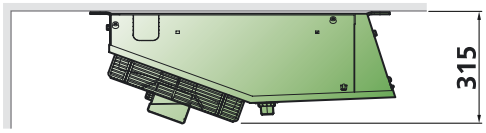


Application Benefits for Contractors and Operators



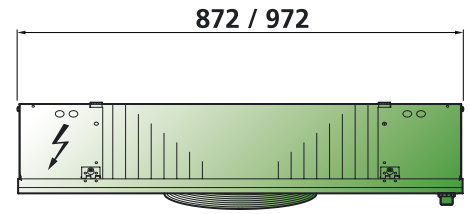
Straightforward mounting

- Hinged fan plate
- Removable side piece
  ① Remove side piece
- Mount and install unit
- Adjust valve
  ② Re-install side piece
- Close fan plate



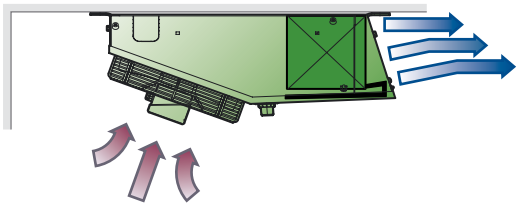
Conserves space vertically

- Vertical drain
- Height, including the drain, is 315 mm



Conserves space horizontally

- Compact design
- 872 mm / 972 mm wide



Best air guidance

- Integrated air baffle plate
- Directs the air along the ceiling of the room, projecting it far into the room

Nomenclature

Standard

DF	B	E	07	1	D

- Line designation
- Fin spacing: A = 4,5 mm, B = 7 mm
- E = with electric defrost
- Size: 05 - 07
- Number of fans: 1 - 4
- Generation code

Construction



1. Casing

- Aluminium, Sendzimir zinc-plated steel, smooth
- High-quality powder coating,
  papyrus white RAL 9018
  - Food-safe
  - Easy to clean
  - Best corrosion protection
- Drip tray and side pieces are removable
- Low height
- Quick and easy installation

2. Heat exchanger

- Internal cleanliness acc. to DIN 8964
- Fin spacing: DFA.D: 4,5 mm, DFB.D: 7,0 mm
- Tubing Cu-Special, Fins Al, End plates Al
- DFA.D: Flow distributor, with multiple injection
  DFB.D: Küba-CAL® refrigerant distributor with multiple injection

3. Fans CE

- Fans are pre-wired to an internal terminal box
- Ø 300 mm
- With built-in protector, according to VDE provisions
- Application range: RT: -30 °C to +70 °C
- Voltage 230 V ±10 %, V-1, 50/60 Hz:
  Ø 250 mm, non-adjustable
  Ø 300 mm, adjustable
- Index of protection IP44
  - DF.051 - 074D = IP44
- Insulation class F
- Operating values are the values of the built-in motor at +20 °C, with an unobstructed air flow and a dry surface, as required for refrigeration load calculation

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

		50 Hz			60 Hz		
	Ø mm	min^{-1}	W	A	min^{-1}	W	A
DF. 051-074D	300	1400	65	0,30	1500	90	0,40

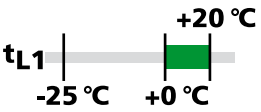
4. Electric defroster

- Wired-up, ready to connect in terminal box
- To prevent steam build-up and to accomplish heat exchange with almost no loss, the heaters are located in special expanded tube sleeves
- 230 V-1 / 400 V-3-Y



Technical data — DFA(E)...D — 4,5 mm





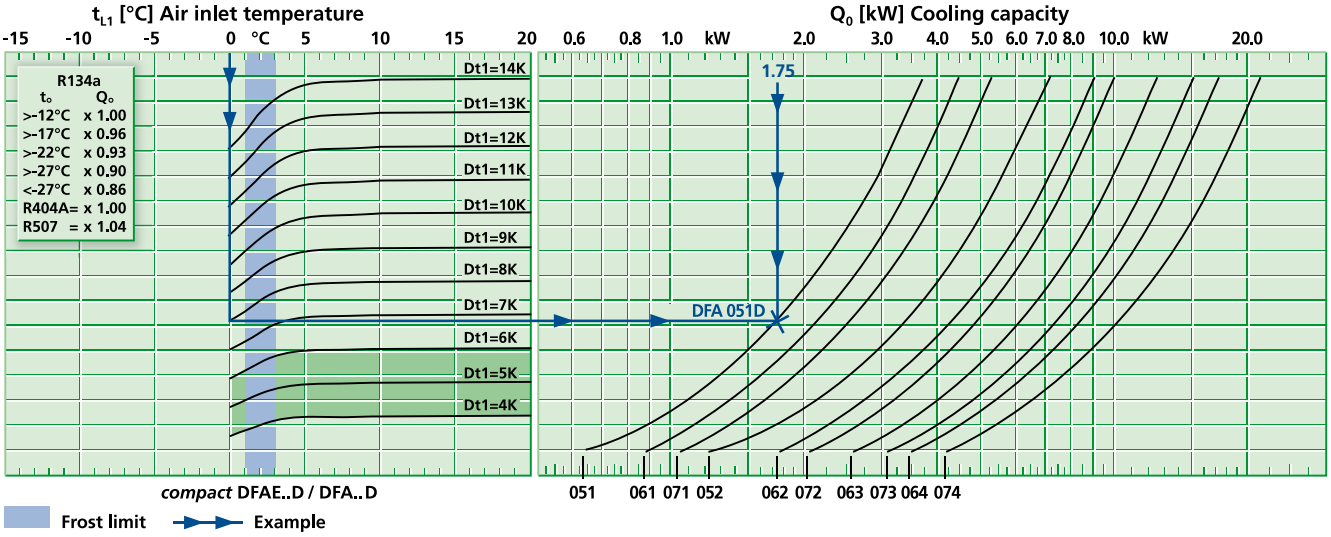


Model		Rating Q_0 at 50 Hz DT1, R404A		Surface	Air flow	Air throw	Tube volume	Connections		Sound	Fans (Operating values at 50 Hz)					
		t_{L1} ±0 °C DT1 = 8K	t_{L1} +10 °C DT1 = 10 K					Inlet	Outlet	L_{WA}**	Blade	Type of current		Per Fan		Electr. defrost
		kW	kW	m²	m³/h	m	dm³	Ø mm	Ø mm	dB(A)	St. x Ø mm	230±10% V-1 50/60Hz	min⁻¹	W	A	kW
DFA 051D	✇	1,75	2,61	6,9	950	9	1,4	10	12	68	1 x 300	230V-1	1350	75	0,35	1,07
DFA 061D	✇	2,14	3,14	8,2	1100	11	1,7	10	12	68	1 x 300	230V-1	1350	75	0,35	1,15
DFA 071D	✇	2,53	3,71	12,2	1035	11	2,5	10	18	68	1 x 300	230V-1	1350	75	0,35	1,15
DFA 052D	✇✇	3,44	5,14	13,8	1900	11	2,7	10	18	71	2 x 300	230V-1	1350	75	0,35	1,76
DFA 062D	✇✇	4,28	6,28	16,4	2200	13	3,2	12*	22	71	2 x 300	230V-1	1350	75	0,35	2,07
DFA 072D	✇✇	5,06	7,43	24,4	2070	13	4,8	12*	22	71	2 x 300	230V-1	1350	75	0,35	2,07
DFA 063D	✇✇✇	6,42	9,42	24,6	3300	15	4,8	12*	22	73	3 x 300	230V-1	1350	75	0,35	2,98
DFA 073D	✇✇✇	7,59	11,14	36,6	3105	15	7,1	12*	28	73	3 x 300	230V-1	1350	75	0,35	2,98
DFA 064D	✇✇✇✇	8,56	12,56	32,8	4400	18	6,3	12*	28	74	4 x 300	230V-1	1350	75	0,35	3,92
DFA 074D	✇✇✇✇	10,12	14,85	48,8	4140	18	9,4	15*	28	74	4 x 300	230V-1	1350	75	0,35	3,92

Multiple injections via * Küba-CAL® distributor

** For modifications of sound power levels, see page 59

Q_V - diagram (R22, R134A, R404A, R507)



The technical data is also given in the product selection software.





Technical data — DFB(E)...D — 7 mm

1,5 kW — 8,8 kW

t_{L1} +10 °C / -25 °C

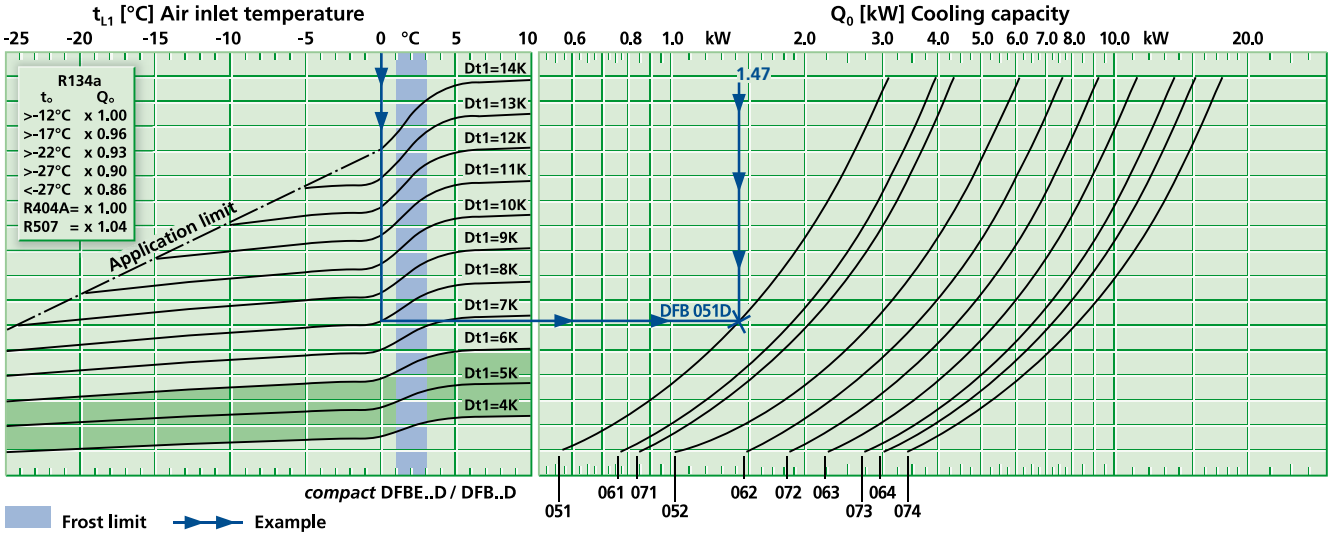


Model		Rating Q_0 at 50 Hz DT1, R404A		Surface	Air flow	Air throw	Tube volume	Connections		Sound	Fans (Operating values at 50 Hz)					
		t_{L1} ±0 °C DT1 = 8K	t_{L1} -18 °C DT1 = 7 K					Inlet	Outlet	L_{WA}**	Blade	Type of current		Per Fan		Electr. defrost
		kW	kW	m²	m³/h	m	dm³	Ø mm	Ø mm	dB(A)	St. x Ø mm	230±10% V-1 50/60Hz	min⁻¹	W	A	kW
DFB 051D	✇	1,47	1,13	4,6	1070	9	1,4	10	12	68	1 x 300	230V-1	1350	75	0,35	1,07
DFB 061D	✇	1,81	1,45	5,5	1300	11	1,7	10	12	68	1 x 300	230V-1	1350	75	0,35	1,15
DFB 071D	✇	2,19	1,75	8,2	1130	11	2,5	10	18	68	1 x 300	230V-1	1350	75	0,35	1,15
DFB 052D	✇✇	2,90	2,22	9,2	2140	11	2,7	10	18	71	2 x 300	230V-1	1350	75	0,35	1,76
DFB 062D	✇✇	3,62	2,89	11,0	2600	13	3,2	10*	22	71	2 x 300	230V-1	1350	75	0,35	2,07
DFB 072D	✇✇	4,38	3,50	16,4	2260	13	4,8	10*	22	71	2 x 300	230V-1	1350	75	0,35	2,07
DFB 063D	✇✇✇	5,43	4,34	16,5	3900	15	4,8	10*	22	73	3 x 300	230V-1	1350	75	0,35	2,98
DFB 073D	✇✇✇	6,57	5,25	24,6	3390	15	7,1	10*	28	73	3 x 300	230V-1	1350	75	0,35	2,98
DFB 064D	✇✇✇✇	7,24	5,78	22,0	5200	18	6,3	10*	28	74	4 x 300	230V-1	1350	75	0,35	3,92
DFB 074D	✇✇✇✇	8,76	7,00	32,8	4520	18	9,4	15*	28	74	4 x 300	230V-1	1350	75	0,35	3,92

Multiple injections via * Küba-CAL® distributor

** For modifications of sound power levels, see page 59

Q_V - diagram (R22, R134A, R404A, R507)

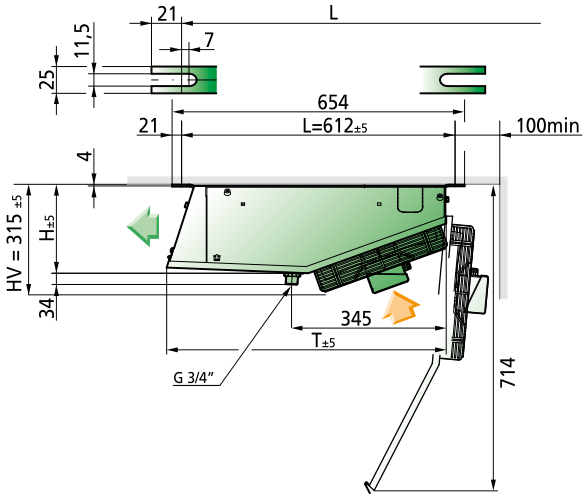


The technical data is also given in the product selection software.

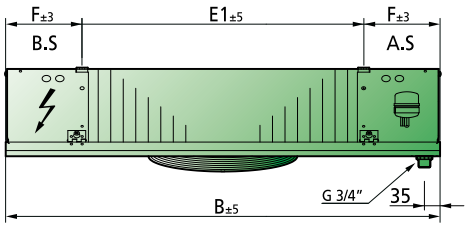
Available for CO_2-DX up to 54 bar



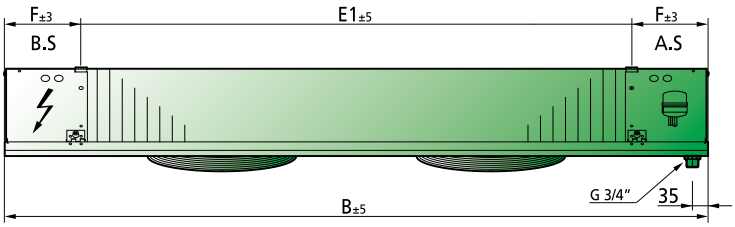
Dimensions and weights



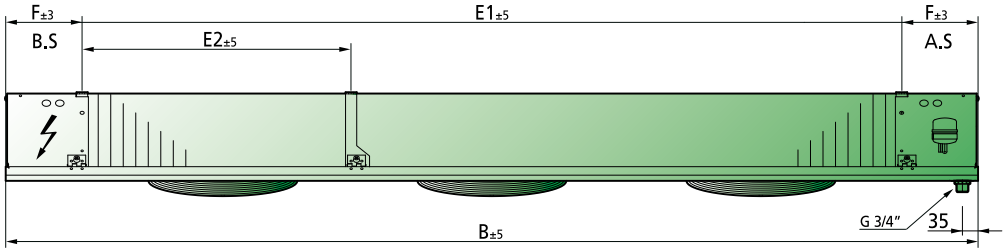
DF.(E) 051,061,071 D



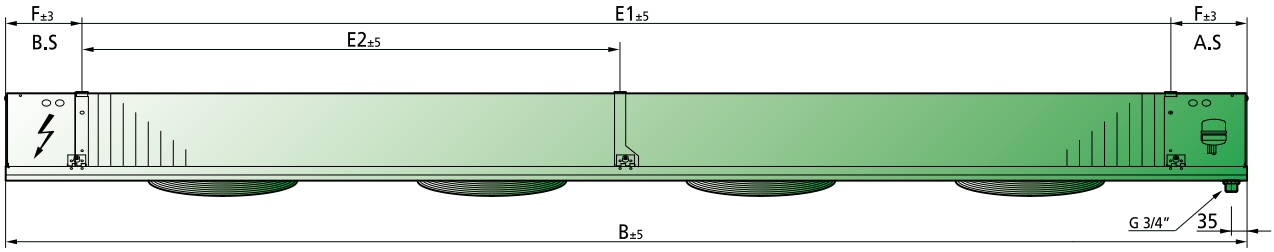
DF.(E) 052,062,072 D



DF.(E) 063,073 D



DF.(E) 064,074 D



Model	Dimensions (mm)							Weight (net)		Weight (gross)	
								DFA	DFB	DFA	DFB
	H	B	T	L	E_1	E_2	F	kg	kg	kg	kg
DF. 051D	268	872	626	612	530	-	171	20	19,5	22,5	22
DF. 061D	268	972	626	612	630	-	171	22,5	22	25,5	25
DF. 071D	268	972	626	612	630	-	171	24,5	24	27,5	27
DF. 052D	268	1372	626	612	1030	-	171	32	31	54	53
DF. 062D	268	1572	626	612	1230	-	171	37	36	60	59
DF. 072D	268	1572	626	612	1230	-	171	40	39	63	62
DF. 063D	268	2172	626	612	1830	629	171	51,5	50	87,5	86
DF. 073D	268	2172	626	612	1830	629	171	55,5	54	91,5	90
DF. 064D	268	2772	626	612	2430	1229	171	67,5	65,5	108	106
DF. 074D	268	2772	626	612	2430	1229	171	74,5	72,5	115	113



Versions and Electrical Radiators

Motor version

- **Version V1.33 – quiet design**
  Especially suited for sales areas, etc.
  - Reduced air volume flow, VL
  - Lower sound power level, Lw (A)
  - Fans 230 ± 10% V-1~

Water / brine circulation

- **Version .V2.05**
  With a large number of distributors
  (small pressure drop)
- **Version .V2.06**
  With a small number of distributors
  (large pressure drop)

Connections for brine / water operation

Please use our Küba selection software for configuring the brine Air Coolers. Do not hesitate to contact us if you have any further questions.

For Cooler	Inlet and Outlet	
	.V2.05	.V2.06
DF. 051D	Ø 15	-
DF. 061D	Ø 22	Ø 15
DF. 071D	Ø 22	Ø 15
DF. 052D	Ø 22	Ø 15
DF. 062D	Ø 22	Ø 22
DF. 072D	Ø 22	Ø 22
DF. 063D	Ø 22	Ø 22
DF. 073D	Ø 22	Ø 22
DF. 064D	Ø 22	Ø 22
DF. 074D	Ø 28	Ø 22

Configuration
- Soldered connection

Electrical radiator

Configuration
- Electrical tubular radiator with CrNi jacket
  Ø 8,5 mm
- Connection impervious to water vapour,
  1,0 mm² x 1000 mm acc. to VDE 0700 / part 1
- Aluminium fin
- Sendzimir zinc-plated end, middle and top plates
- Copper tube bush
- Completely powder-coated

For Air Cooler	Model	Nominal power at 230 V		Dimensions		Weight
DF		kW	A	H	L	kg
051D	DFHR500	0,84	3,7	210	500	1,4
061D, 071D	DFHR600	0,96	4,2	210	600	1,7
052D	DFHR1000	1,72	7,5	210	1000	2,4
062D, 072D	DFHR1200	1,91	8,3	210	1200	2,9
063D, 073D	DFHR1800	2,87	12,5	210	1800	4,2
064D, 074D	DFHR2400	3,75	16,3	210	2400	5,6

Corrosion protection

- **Version V6.01**

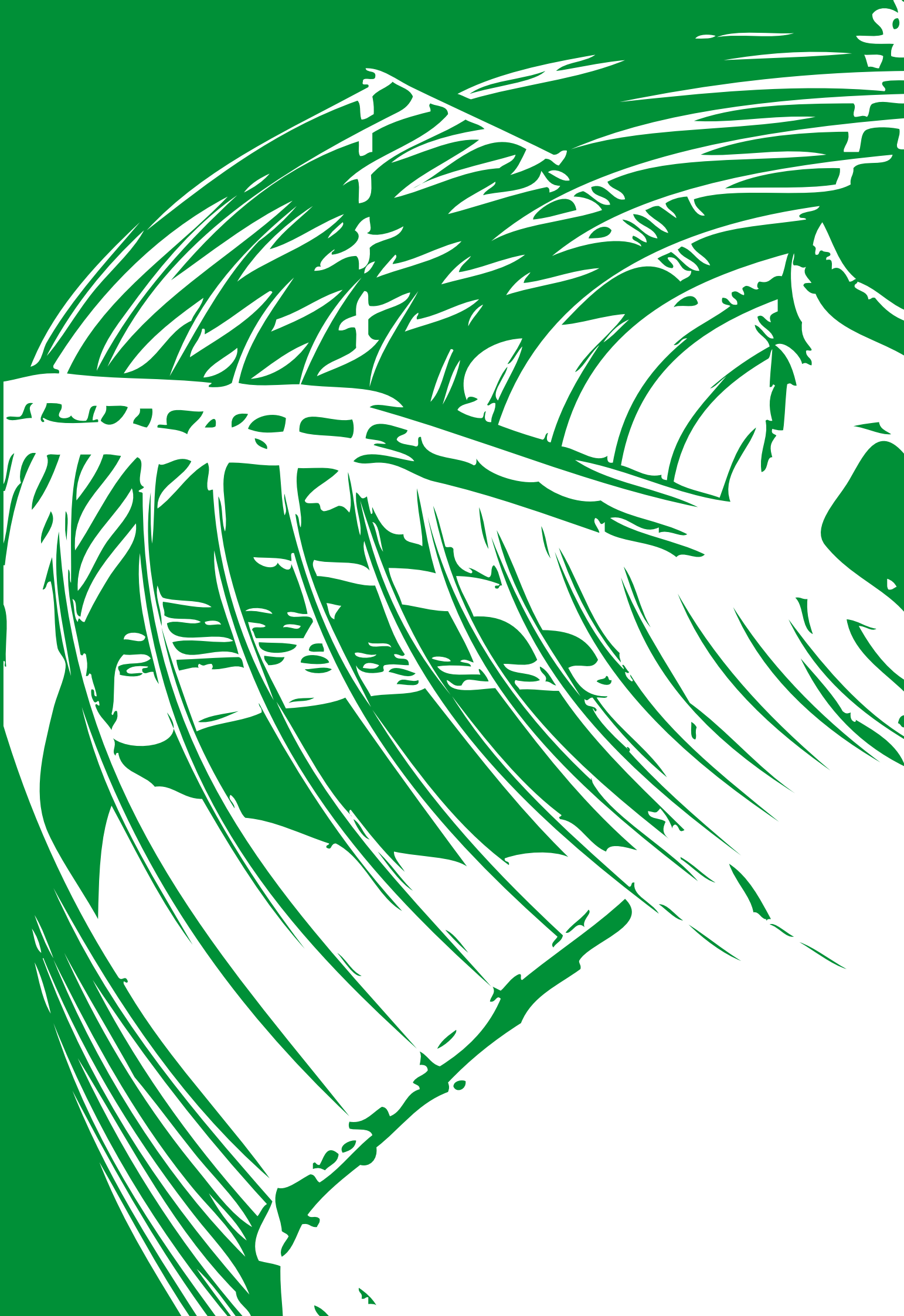
  Cooler:
  Tubing: Cu
  Fins: Al „goldlack“ coating
  End plates: Al, anti-corrosion paint coating on both sides

  Casing:
  Top Panel: Al or Sendzimir zinc-plated steel, anti-corrosion paint coating on both sides

- **Version V6.04**

  Cooler:
  Tubing: Cu
  Fins: Al „goldlack“ coating
  End plates: Al

  Casing:
  Top Panel: Al, anti-corrosion paint coating





Küba *market plus* SP



High Performance Unit Cooler

Q_0

1,2 — 52 kW

+10 °C
±0 °C — SPA.D
-25 °C — SPB.D
t_{L1}



EUROVENT CERTIFIED PERFORMANCE
www.eurovent-certification.com

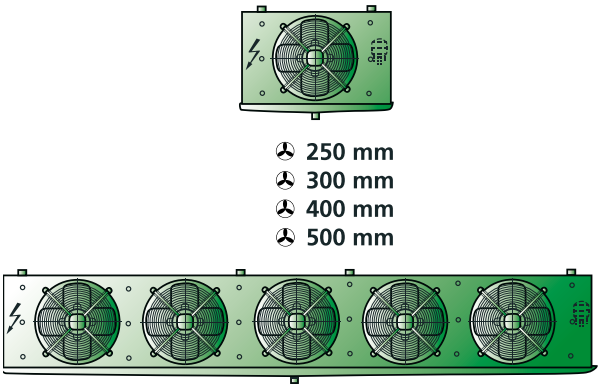


Application Benefits for Contractors and Operators



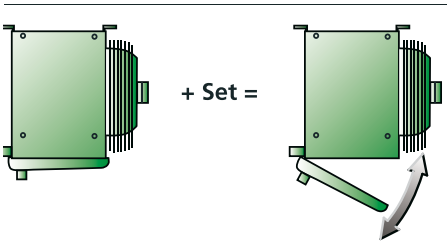
Expanded capacity range

- Up to 52 kW



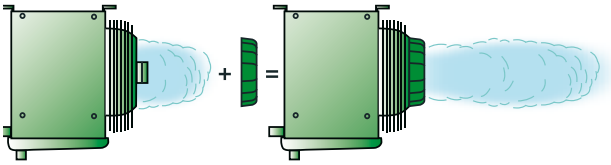
Closely spaced capacity settings

- Due to five different fan sizes



Quick cleaning

- Hinge-down drain tray available as an accessory (can be retrofitted)



Increased air throw

- Küba Air Jet available as an accessory

Nomenclature

Standard

SP	B	E	01	1	D

- Line designation
- Fin spacing: A = 4,5 mm, B = 7 mm
- E = with electric defrost
- Generation code
- Number of fans: 1 - 5
- Size: 01 - 08

Construction



1. Casing

- Aluminium, smooth
- High-quality powder coating, papyrus white RAL 9018
  - Food-safe
  - Easy to clean
  - Best corrosion protection
- Removable side pieces

2. Heat exchanger

- Internal cleanliness acc. to DIN 8964
- Fin spacing: SPA.D: 4,5 mm, SPB.D: 7,0 mm
- Refrigerant distributor: SPA.D: Flow distributor / SPB.D: Küba-CAL®
- Tubing Cu-Special, Fins Al, End plates Al

3. Fans CE

- Fans are wired to an internal terminal box: Ø 250 mm / Ø 300 mm / Ø 400 mm
- With built-in protector according to VDE provisions (Ø 500 mm: Led-out protector)
- Application range: RT: -30 °C to +50 °C
- Voltage:
  - SP. 011 – 065D = 230 V ±10 %, V-1 50/60 Hz: Ø 250 mm, non-adjustable; Ø 300 mm, adjustable; Ø 400 mm, adjustable
  - SP. 071 – 084D = 400 V ±10 %, V-3 50/60 Hz: Ø 500 mm, adjustable
- Index of protection
  - SP. 011 – 024D = IP42
  - SP. 031 – 065D = IP44
  - SP. 071 – 084D = IP54
- Insulation class
  - SP. 011 – 065D = Insulation class B
  - SP. 071 – 084D = Insulation class F
- Operating values are the values of the built-in motor at +20 °C, with an unobstructed air flow and a dry surface, as required for the refrigeration load calculation

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

		50 Hz			60 Hz		
	Ø mm	min^{-1}	W	A	min^{-1}	W	A
SP.01.-02.D	250	1300	90	0,62	1550	80	0,55
SP.03.-04.D	300	1400	65	0,30	1500	90	0,40
SP.05.-06.D	400	1365	214	0,96	1630	270	1,20
SP.07.-08.D	500	1350	565	1,13	1450	830	1,50

4. Electric defroster

- Wired-up, ready to connect in terminal box
- To prevent steam build-up and to accomplish heat exchange with almost no loss, the heaters are located in special expanded tube sleeves
- 230 V-1 / 400 V-3-Y
- With splash pan



Technical data — SPA(E)...D — 4,5 mm

1,6 kW — 52 kW

t_{L1}: -25 °C — +0 °C — +20 °C



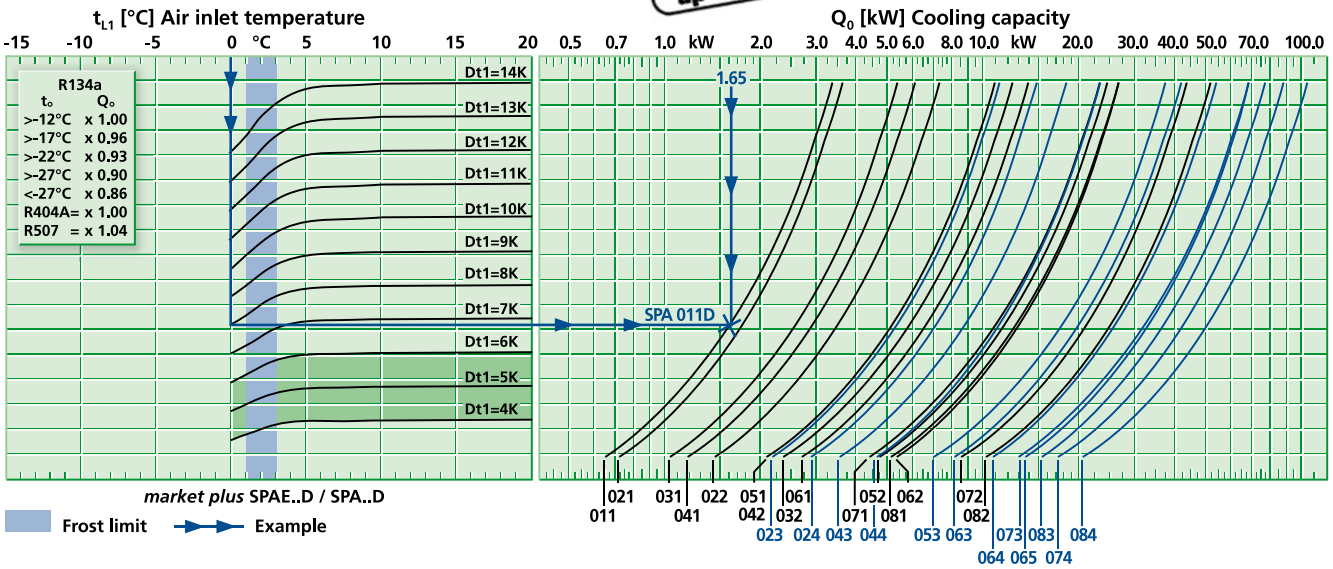
Model		Rating Q_0 at 50 Hz DT1, R404A t_{L1} ±0 °C DT1 = 8K	t_{L1} +10 °C DT1 = 10 K	Surface	Air flow	Air throw	Tube volume	Connections Inlet	Outlet	Sound L_{WA**}	Fans (Operating values at 50 Hz) Blade	Type of current	Per Fan		
		kW	kW	m²	m³/h	m	dm³	Ø mm	Ø mm	dB(A)	St. x Ø mm	230±10% V-1 50/60Hz	min⁻¹	W	A
SPA 011D	✇	1,65	2,44	6,9	820	4	1,4	10	12	63	1 x 250	230V -1	1347	85	0,59
SPA 021D	✇	1,80	2,65	9,1	760	4	1,9	10	12	63	1 x 250	230V -1	1347	85	0,59
SPA 031D	✇	2,65	3,93	10,3	1380	6	2,1	10	18	70	1 x 300	230V -1	1340	80	0,36
SPA 041D	✇	3,00	4,44	13,6	1300	5	2,8	12*	22	70	1 x 300	230V -1	1340	80	0,36
SPA 051D	✇	6,05	8,98	20,5	3020	8	4,2	12*	28	77	1 x 400	230V -1	1365	214	0,96
SPA 061D	✇	6,83	10,1	30,6	2720	7	6,3	12*	28	77	1 x 400	230V -1	1365	214	0,96
SPA 071D	✇	11,3	16,8	36,3	5800	17	7,6	15*	35	83	1 x 500	400V -3	1362	560	1,01
SPA 081D	✇	13,1	19,3	54,2	5270	16	11,1	15*	35	83	1 x 500	400V -3	1362	560	1,01
SPA 022D	✇✇	3,62	5,34	18,2	1520	6	3,6	12*	22	66	2 x 250	230V -1	1347	85	0,59
SPA 032D	✇✇	5,33	7,90	20,6	2760	8	4,1	12*	28	73	2 x 300	230V -1	1340	80	0,36
SPA 042D	✇✇	6,02	8,92	27,3	2600	7	5,5	12*	28	73	2 x 300	230V -1	1340	80	0,36
SPA 052D	✇✇	11,9	17,7	40,9	6040	12	8,2	15*	35	80	2 x 400	230V -1	1420	188	0,83
SPA 062D	✇✇	13,4	19,7	60,9	5440	11	12,1	15*	35	80	2 x 400	230V -1	1420	188	0,83
SPA 072D	✇✇	21,7	31,9	72,7	11600	22	14,3	15*	42	86	2 x 500	400V -3	1362	560	1,01
SPA 082D	✇✇	25,7	37,9	108,3	10540	21	21,5	22*	42	86	2 x 500	400V -3	1362	560	1,01
SPA 023D	✇✇✇	5,51	8,16	27,3	2280	8	5,3	12*	28	68	3 x 250	230V -1	1347	85	0,59
SPA 043D	✇✇✇	8,96	13,3	40,9	3900	10	8,0	15*	35	75	3 x 300	230V -1	1340	80	0,36
SPA 053D	✇✇✇	18,2	27,0	61,4	9060	15	12,0	22*	42	82	3 x 400	230V -1	1420	188	0,83
SPA 063D	✇✇✇	20,6	30,4	91,5	8160	13	18,0	22*	42	82	3 x 400	230V -1	1420	188	0,83
SPA 073D	✇✇✇	33,4	49,5	109,2	17400	26	21,3	22*	54	88	3 x 500	400V -3	1362	560	1,01
SPA 083D	✇✇✇	38,3	56,3	162,7	15810	24	32,2	22*	54	88	3 x 500	400V -3	1362	560	1,01
SPA 024D	✇✇✇✇	7,26	10,7	36,3	3040	9	7,1	12*	28	69	4 x 250	230V -1	1347	85	0,59
SPA 044D	✇✇✇✇	11,7	17,2	54,5	5200	12	10,6	15*	35	76	4 x 300	230V -1	1340	80	0,36
SPA 064D	✇✇✇✇	26,9	39,6	122,0	10880	16	23,7	22*	42	83	4 x 400	230V -1	1420	188	0,83
SPA 074D	✇✇✇✇	43,5	64,1	145,5	23200	28	28,6	22*	54	89	4 x 500	400V -3	1362	560	1,01
SPA 084D	✇✇✇✇	51,6	76,1	216,9	21080	26	41,0	28**	54	89	4 x 500	400V -3	1362	560	1,01
SPA 065D	✇✇✇✇✇	34,1	50,4	152,4	13600	18	28,9	22*	54	84	5 x 400	230V -1	1420	188	0,83

Multiple injections via * a flow distributor, ** KÜBA-CAL® distributor *** For modifications of sound power levels, see page 59

The technical data is also given in the product selection software.

Available for CO_2-DX up to 54 bar

Q_V - diagram (R22, R134A, R404A, R507)





Technical data — SPB(E)...D — 7 mm

1,3 kW — 44 kW

t_{L1} +10 °C / -25 °C



Model		Rating Q_0 at 50 Hz DT1, R404A t_{L1} ±0 °C DT1 = 8K	Rating Q_0 at 50 Hz DT1, R404A t_{L1} -18 °C DT1 = 7 K	Surface	Air flow	Air throw	Tube volume	Connections Inlet	Connections Outlet	Sound L_{WA}**	Fans ✇ (Operating values at 50 Hz) Blade	Type of current	Per Fan		
		kW	kW	m²	m³/h	m	dm³	Ø mm	Ø mm	dB(A)	St. x Ø mm	230±10% V-1 50/60Hz	min⁻¹	W	A
SPB 011D	✇	1,28	1,01	4,6	880	4	1,4	10	12	63	1 x 250	230V -1	1347	85	0,59
SPB 021D	✇	1,51	1,20	6,0	850	4	1,9	10	12	63	1 x 250	230V -1	1347	85	0,59
SPB 031D	✇	2,03	1,61	6,9	1450	7	2,1	10	18	70	1 x 300	230V -1	1340	80	0,36
SPB 041D	✇	2,45	1,94	9,1	1420	6	2,8	12*	22	70	1 x 300	230V -1	1340	80	0,36
SPB 051D	✇	4,78	3,78	13,7	3320	9	4,2	12*	28	77	1 x 400	230V -1	1365	214	0,96
SPB 061D	✇	5,93	4,70	20,4	3080	8	6,3	12*	28	77	1 x 400	230V -1	1365	214	0,96
SPB 071D	✇	8,75	6,92	24,3	6250	18	7,6	15*	35	83	1 x 500	400V -3	1362	560	1,01
SPB 081D	✇	11,1	8,76	36,3	5880	17	11,1	15*	35	83	1 x 500	400V -3	1362	560	1,01
SPB 022D	✇✇	3,03	2,41	12,2	1700	6	3,6	12*	22	66	2 x 250	230V -1	1347	85	0,59
SPB 032D	✇✇	4,05	3,21	13,7	2900	9	4,1	12*	28	73	2 x 300	230V -1	1340	80	0,36
SPB 042D	✇✇	4,89	3,88	18,2	2840	8	5,5	12*	28	73	2 x 300	230V -1	1340	80	0,36
SPB 052D	✇✇	9,49	7,52	27,3	6640	13	8,2	15*	35	80	2 x 400	230V -1	1420	188	0,83
SPB 062D	✇✇	11,7	9,31	40,7	6160	12	12,1	15*	35	80	2 x 400	230V -1	1420	188	0,83
SPB 072D	✇✇	17,1	13,5	48,6	12500	23	14,3	15*	42	86	2 x 500	400V -3	1362	560	1,01
SPB 082D	✇✇	21,9	17,4	72,5	11760	22	21,5	22*	42	86	2 x 500	400V -3	1362	560	1,01
SPB 023D	✇✇✇	4,59	3,63	18,2	2550	8	5,3	12*	28	68	3 x 250	230V -1	1347	85	0,59
SPB 043D	✇✇✇	7,31	5,80	27,3	4260	11	8,0	15*	35	75	3 x 300	230V -1	1340	80	0,36
SPB 053D	✇✇✇	14,4	11,4	41,0	9960	16	12,0	22*	42	82	3 x 400	230V -1	1420	188	0,83
SPB 063D	✇✇✇	17,8	14,1	61,1	9240	14	18,0	22*	42	82	3 x 400	230V -1	1420	188	0,83
SPB 073D	✇✇✇	26,0	20,6	73,0	18750	27	21,3	22*	54	88	3 x 500	400V -3	1362	560	1,01
SPB 083D	✇✇✇	32,6	25,9	108,8	17640	25	32,2	22*	54	88	3 x 500	400V -3	1362	560	1,01
SPB 024D	✇✇✇✇	6,08	4,82	24,3	3400	9	7,1	12*	28	69	4 x 250	230V -1	1347	85	0,59
SPB 044D	✇✇✇✇	9,63	7,65	36,5	5680	13	10,6	15*	35	76	4 x 300	230V -1	1340	80	0,36
SPB 064D	✇✇✇✇	23,5	18,7	81,6	12320	17	23,7	22*	42	83	4 x 400	230V -1	1420	188	0,83
SPB 074D	✇✇✇✇	34,2	27,1	97,1	25000	30	28,6	22*	54	89	4 x 500	400V -3	1362	560	1,01
SPB 084D	✇✇✇✇	43,8	34,7	144,8	23520	28	41,0	28*	54	89	4 x 500	400V -3	1362	560	1,01
SPB 065D	✇✇✇✇✇	29,7	23,5	101,9	15400	19	28,9	22*	54	84	5 x 400	230V -1	1420	188	0,83

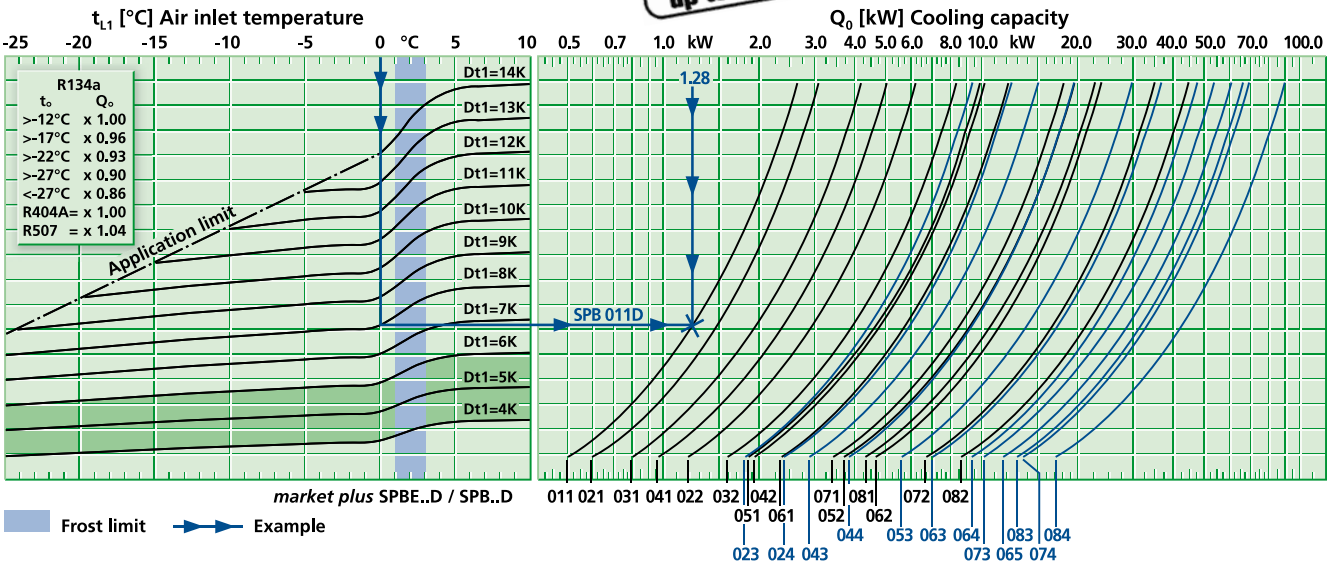
Multiple injections via * KÜBA-CAL® distributor

** For modifications of sound power levels, see page 59

The technical data is also given in the product selection software.

Available for CO_2-DX up to 54 bar

Q_V - diagram (R22, R134A, R404A, R507)

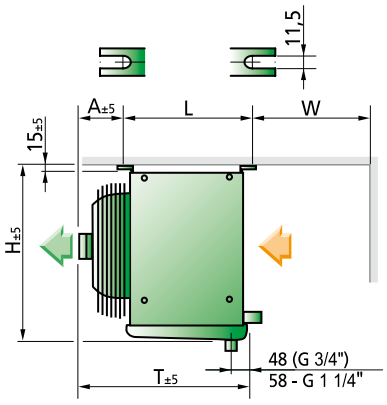




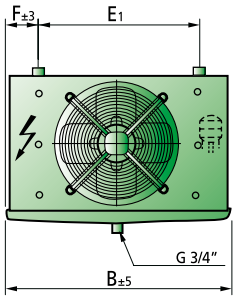
Dimensions, electric defrost, weights

	Dimensions [mm]										Electric defrost 230 V-1 / 400 V-3-Y			Weight (net)		Weight (gross)	
Model	H	B	T	L	E_1	E_2	E_3	F	A	W	Coil	Tray	Total	SPA	SPB	SPA	SPB
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kW	kW	kW	kg	kg	kg	kg
SP. 011D	354	810	424	350	530	-	-	140	92	200	1,07	0,58	1,65	14	13,5	17	16,5
SP. 021D	354	810	424	350	530	-	-	140	92	200	1,07	0,58	1,65	15	14,5	18	17,5
SP. 031D	430	970	421	350	630	-	-	170	90	200	1,23	0,69	1,92	18,5	18	22,5	22
SP. 041D	430	970	421	350	630	-	-	170	90	200	1,23	0,69	1,92	21	20,5	25	24,5
SP. 051D	509	1180	501	420	780	-	-	200	100	300	2,07	0,88	2,95	31,5	30,5	37	36
SP. 061D	509	1180	501	420	780	-	-	200	100	300	2,90	0,88	3,78	36,5	35,5	42	41
SP. 071D	661	1430	592	500	1030	-	-	200	110	400	3,52	0,50	4,02	55	53	75	73
SP. 081D	661	1430	592	500	1030	-	-	200	110	400	5,52	0,50	6,02	65	63	85	83
SP. 022D	354	1310	424	350	1030	-	-	140	92	200	1,84	0,96	2,80	26,5	25,5	30,5	29,5
SP. 032D	430	1570	421	350	1230	-	-	170	90	200	2,14	1,15	3,29	33,5	32,5	51	50
SP. 042D	430	1570	421	350	1230	-	-	170	90	200	2,14	1,15	3,29	36,5	35,5	54	53
SP. 052D	509	1930	501	420	1530	-	-	200	100	300	3,90	1,44	5,34	56	54	76	74
SP. 062D	509	1930	501	420	1530	-	-	200	100	300	5,20	1,44	6,64	65	63	85	83
SP. 072D	661	2430	592	500	2030	-	-	200	110	400	6,74	0,86	7,60	96,5	93,5	180,5	177,5
SP. 082D	661	2430	592	500	2030	-	-	200	110	400	10,11	0,86	10,97	117	114	201	198
SP. 023D	354	1810	424	350	1530	-	-	140	92	200	2,60	1,30	3,90	37,5	36	56,5	55
SP. 043D	430	2170	421	350	1830	-	-	170	90	200	3,18	1,59	4,77	51,5	50	72	70,5
SP. 053D	509	2680	501	420	2280	750	-	200	100	300	5,63	1,95	7,58	78,5	77	137,5	136
SP. 063D	509	2680	501	420	2280	750	-	200	100	300	7,50	1,95	9,45	96	93	155	152
SP. 073D	661	3430	592	500	3030	1000	-	200	110	400	9,20	1,82	11,02	139,5	135,5	244,5	240,5
SP. 083D	661	3430	592	500	3030	1000	-	200	110	400	13,80	1,82	15,62	168,5	164,5	273,5	269,5
SP. 024D	354	2310	424	350	2030	1000	-	140	92	200	3,37	1,72	5,09	48,5	46,5	73	71
SP. 044D	430	2770	421	350	2430	1200	-	170	90	200	4,00	2,00	6,00	67	65	127	125
SP. 064D	509	3430	501	420	3030	1500	-	200	100	300	9,20	1,82	11,02	125	121	229	225
SP. 074D	661	4430	592	500	4030	2000	-	200	110	400	12,72	2,39	15,11	183	178	293	288
SP. 084D	661	4430	592	500	4030	2000	-	200	110	400	19,08	2,39	21,47	221	216	331	326
SP. 065D	509	4180	501	420	3780	1500	2250	200	100	300	11,92	2,24	14,16	156,5	150,5	252,5	246,5

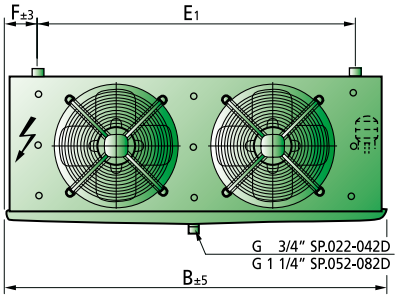
Dimensional drawings



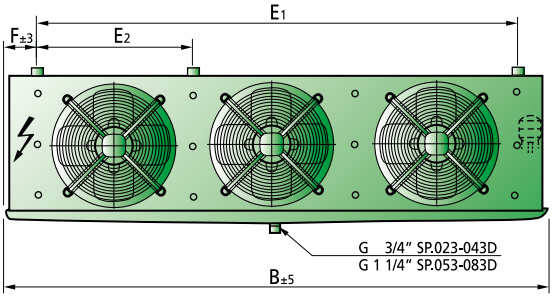
SP.(E) 011, 021, 031, 041, 051, 061, 071, 081 D



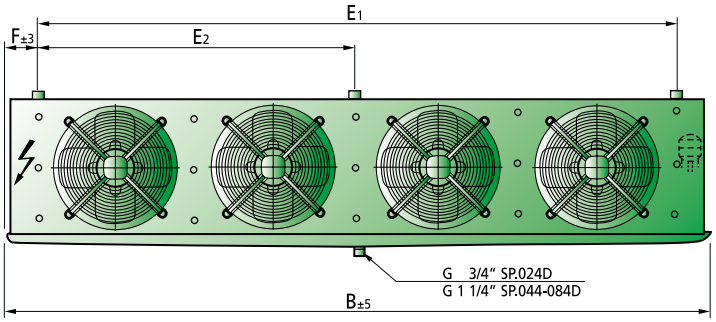
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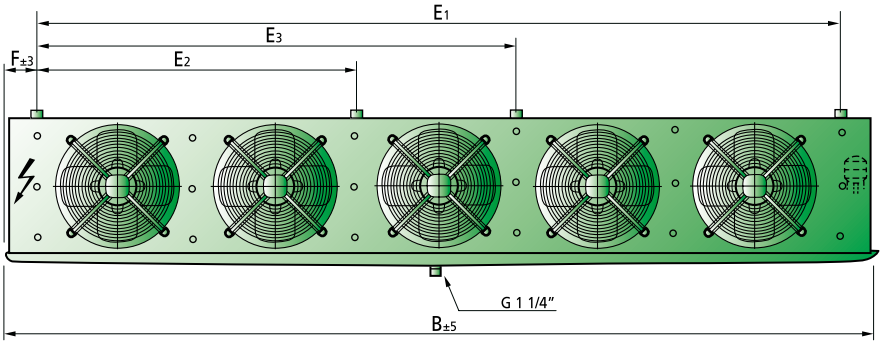
SP.(E) 023, 043, 053, 063, 073, 083 D



SP.(E) 024, 044, 064, 074, 084 D



SP.(E) 065 D





Constructions, Variants and Accessories

Water / brine operation

Please use our Küba selection software for configuring the brine Air Coolers. Do not hesitate to contact us if you have any further questions.

Configuration
- Soldered connections
- Ventilation and drainage

Küba Air Jet

Advantages
- Longer air throw
- Even temperature distribution in the cold room



Loose as accessory



After assembly

Information:
Unassembled upon delivery
(Cannot be used in conjunction with electrical radiator SPHR)

For Model	Air Jet
	Ø mm
SP. 031D-044D	300
SP. 051D-065D	400
SP. 071D-084D	500

Corrosion protection

- **Version V6.01**

Cooler:
Tubing: Cu
Fins: Al „goldlack“ coating
End plates: Al, anti-corrosion paint coating on both sides

Casing:
Top Panel: Al or Sendzimir zinc-plated steel, anti-corrosion paint coating on both sides

- **Version V6.04**

Cooler:
Tubing: Cu
Fins: Al „goldlack“ coating
End plates: Al

Casing:
Top Panel: Al, anti-corrosion paint coating

Accessories

Adapter for textile hose connection

Advantages of the textile hose operation
- Even cooling without draughts
- Even temperature distribution
- Best possible comfort in workrooms of all kinds

Information:
Unassembled upon delivery
(Cannot be used in conjunction
with electrical radiator SPHR)

For Model	Adapter
	Ø mm
SP. 031D-044D	320
SP. 051D-065D	420
SP. 071D-084D	520



Important note:
Using a textile hose reduces the air volume and performance.

Shut-Up® with Küba Air Jet

Advantages
- Reduces defrosting time by more than 40 %
- With Shut-Up®, the defrosting heat is kept where it should be – in the Air Cooler
- For electrical defrosting and hot gas defrosting



During the cooling phase, fans are switched on:
Shut-Up® is inflated



During the defrosting, fans are switched off:
Shut-Up® locks the Air Cooler

For Model	Shut-Up®
	Ø mm
SP. 031D-044D	320
SP. 051D-065D	420
SP. 071D-084D	520

Information:
Unassembled upon delivery
(Cannot be used in conjunction
with electrical radiator SPHR)

Important note:
1. Using a textile hose as well as a Shup-Up® reduces the air volume and performance.
2. Using a textile hose as well as a Shup-Up® requires the use of the Küba AIR JET and an adapter (see above).



Accessories

Finned tube heater SPHR

- For Air Coolers with draw-through fans – self installation required

Note:
Do not operate unless Air Cooler fans are running, to prevent the fans and cold room ceiling from overheating! Only use in conjunction with a standard fan guard!

Included in delivery:
- Electrical finned tube radiator CrNi steel Ø 28 mm
- Connection ends 1000 mm long
- Al and Nirosta for fastening
- Branching box acc. to VDE, ÖVE, SEV

Model	For Blade	Nominal power at 230 V	Weight	Dimensions
	Ø mm	kW	kg	mm
SPHR25	250	1,36	0,65	245
SPHR30	300	1,75	0,75	300
SPHR40	400	2,47	0,94	400
SPHR50	500	3,19	1,13	500

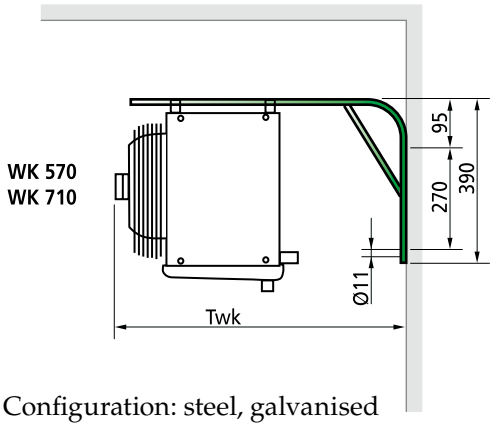


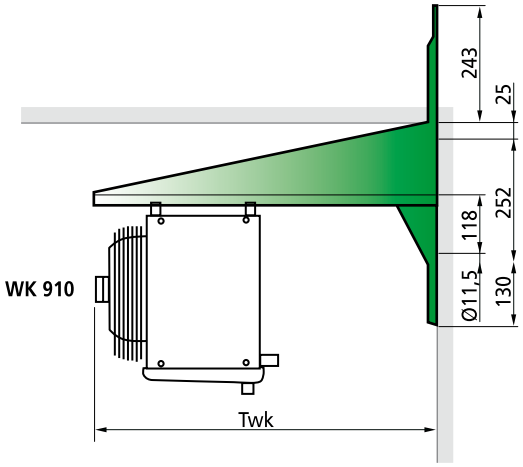
Model	Order quantity	Rated power per unit at 230 V
		kW
SP. 011D	1x SPHR25	1,36
SP. 021D	1x SPHR25	1,36
SP. 031D	1x SPHR30	1,75
SP. 041D	1x SPHR30	1,75
SP. 051D	1x SPHR40	2,47
SP. 061D	1x SPHR40	2,47
SP. 071D	1x SPHR50	3,19
SP. 081D	1x SPHR50	3,19
SP. 022D	2x SPHR25	2,72
SP. 032D	2x SPHR30	3,50
SP. 042D	2x SPHR30	3,50
SP. 052D	2x SPHR40	4,94
SP. 062D	2x SPHR40	4,94
SP. 072D	2x SPHR50	6,38
SP. 082D	2x SPHR50	6,38
SP. 023D	3x SPHR25	4,08
SP. 043D	3x SPHR30	5,25
SP. 053D	3x SPHR40	7,41
SP. 063D	3x SPHR40	7,41
SP. 073D	3x SPHR50	9,57
SP. 083D	3x SPHR50	9,57
SP. 024D	4x SPHR25	5,44
SP. 044D	4x SPHR30	7,00
SP. 064D	4x SPHR40	9,88
SP. 074D	4x SPHR50	12,76
SP. 084D	4x SPHR50	12,76
SP. 065D	5x SPHR40	12,35



Accessories

Wall Bracket





Configuration: steel, galvanised

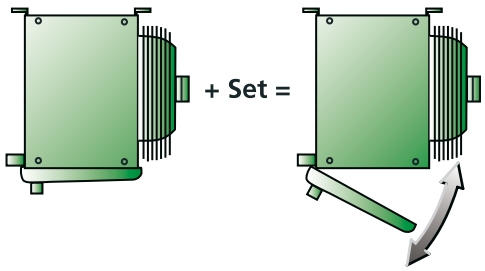
For Air Cooler	Model	Dimension Twk	Weight/piece
		mm	kg
SP. 011-044D	WK 570	570	1,80
SP. 051-065D	WK 710	700	2,10
SP. 071-084D	WK 910	910	4,60

Model	Order quantity
SP. 011D-041D	2x WK 570
SP. 051D-061D	2x WK 710
SP. 071D-081D	2x WK 910
SP. 022D-042D	2x WK 570
SP. 052D-062D	2x WK 710
SP. 072D-082D	2x WK 910
SP. 023D-043D	2x WK 570
SP. 053D-063D	3x WK 710
SP. 073D-083D	3x WK 910
SP. 024D-044D	3x WK 570
SP. 064D	3x WK 710
SP. 074D-084D	3x WK 910
SP. 065D	4x WK 710

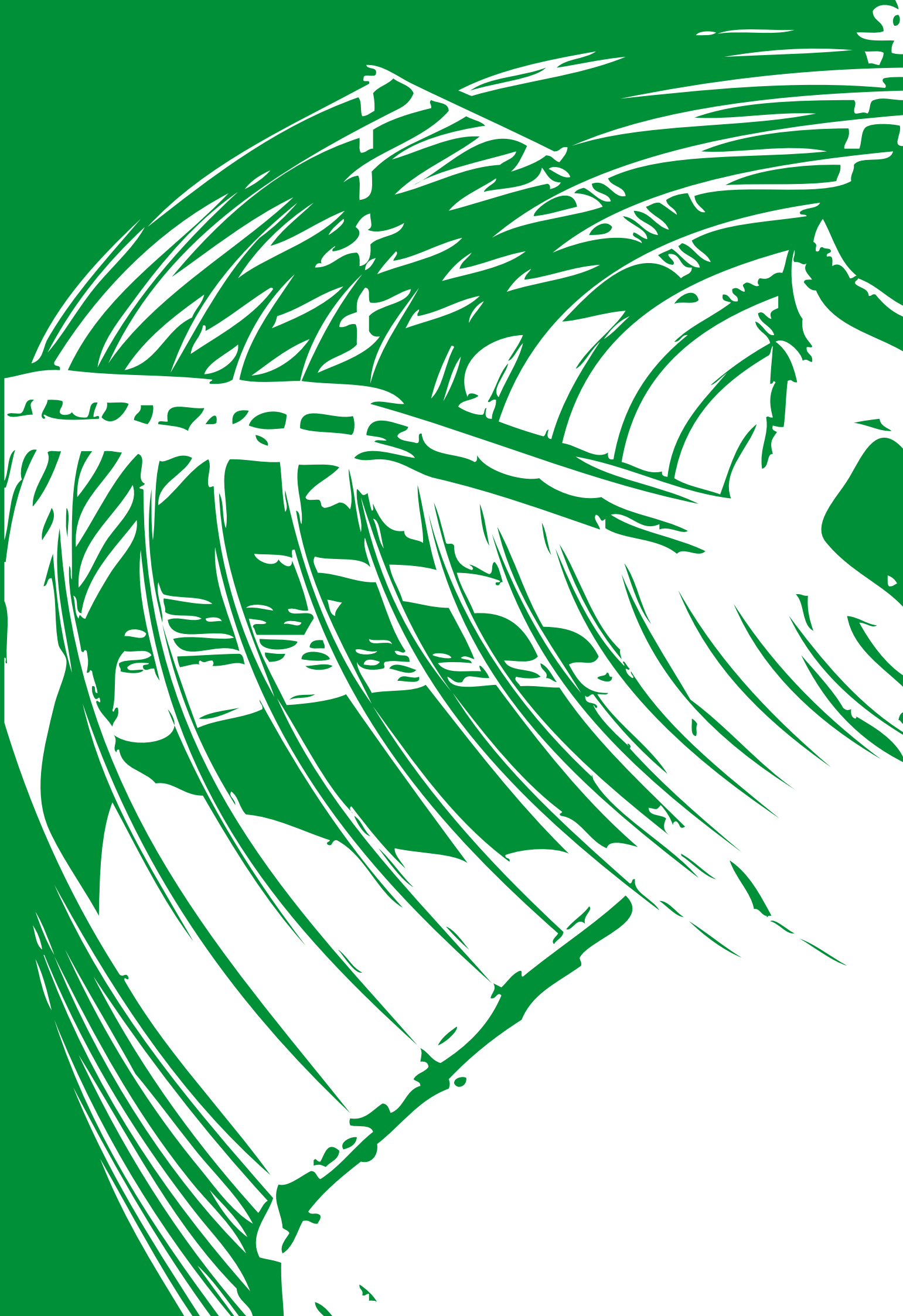
Mounting set for the hinge down drip tray

For Air Cooler	Order quantity
SP. 011-081D	2x Set
SP. 022-082D	3x Set
SP. 023-083D	4x Set
SP. 024-084D	5x Set
SP. 065D	6x Set





The standard drip tray can be easily converted to a fold-down version using the mounting set.





Küba *comfort* DP

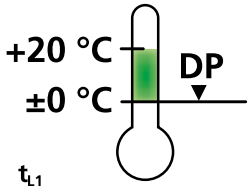




Ceiling Air Cooler

Q_0

2,2 — 28 kW





EUROVENT CERTIFIED PERFORMANCE
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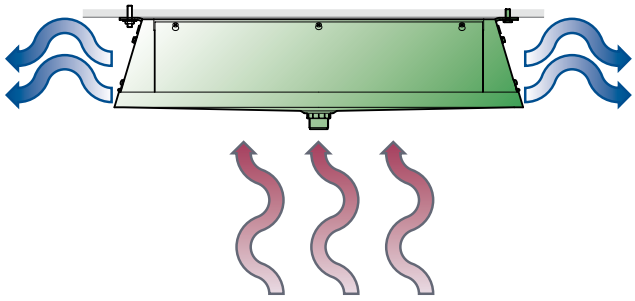


Application Benefits for Contractors and Operators



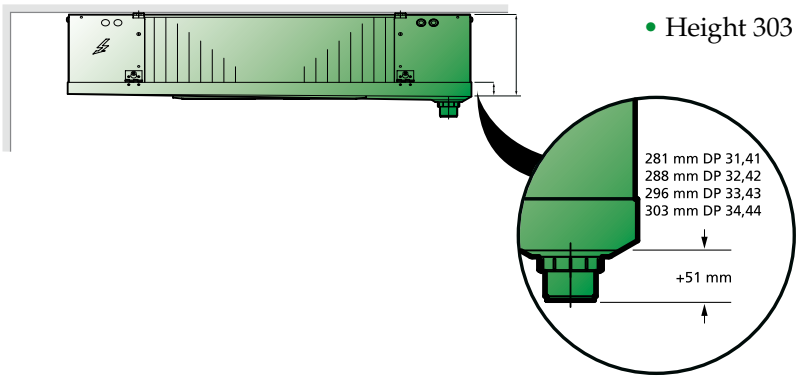
Expanded capacity range

- Up to 28 kW



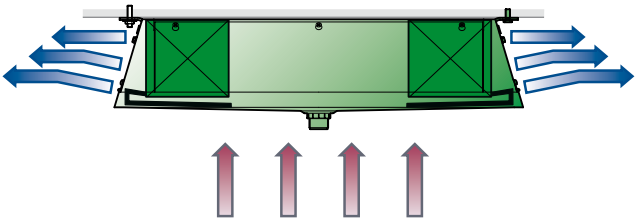
Low draught levels

- Integrated air baffle plate for low air speed in the cooling room
- A low-noise version has been integrated, with standard fans (normal speed „S“, quiet speed „L“)
- Quiet setting in the speed „S“ with accessory (capacitor)



Space-saving

- Height 303 mm



Best air guidance

- Integrated air baffle plate
- Low fan speed (up to 0.8 m/s)
- Directs the air along the ceiling of the room, projecting it far into the room

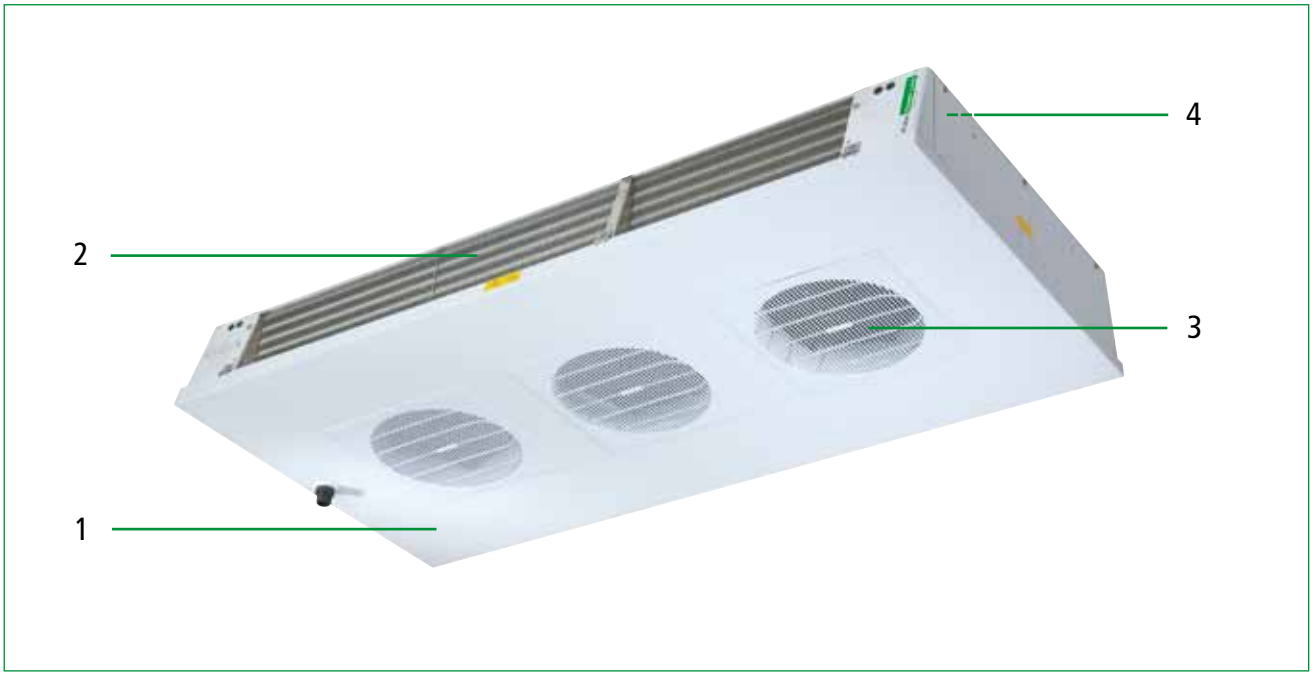
Nomenclature

Standard

DP	B	E	04	4	C

- Line designation
- Fin spacing: A = 4,5 mm, B = 7 mm
- E = with electric defrost
- Generation code
- Number of fans: 1-4
- Size: 03-04

Construction



1. Casing

- Sendzimir zinc-plated steel, smooth
- High-quality powder coating, papyrus white RAL 9018
  - Food-safe
  - Easy to clean
  - Best corrosion protection
- Drip tray and side pieces are removable
- Drip tray folds on both sides

2. Heat exchanger

- Internal cleanliness acc. to DIN 8964
- Fin spacing: DP.A: 4,5 mm, DP.B: 7,0 mm
- Tubing Cu-Special, Fins Al, End plates Al
- Küba-CAL® refrigerant distributor, with multiple injections

3. Fans CE

- Multi-stage fans are wired to an internal terminal box
- Include a built-in protector, without external contacts
- Ø 350 mm
- Plug connection on motor
- Application range: RT: -30 °C to +60 °C
- 230 V 50/60 Hz IP 44 only adjustable via transformer at 50Hz
- Minimum Voltage = 100 V
- Index of protection IP44 acc. to DIN 40050
- Insulation class F
- Operating values are the values of the built-in motor at +20 °C with a dry surface
- Model plate information differs from the specified operating values (see installation instructions)

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

		50 Hz			60 Hz		
	Ø mm	min^{-1}	W	A	min^{-1}	W	A
DP. 031-044C	350	1390	140	0,62	1550	195	0,86

4. Electric defroster

- Pre-wired, ready to connect in the terminal box
- To prevent steam build-up and to accomplish heat exchange with almost no loss, the heaters are mounted in special expanded tube sleeves
- 230 V-1 / 400 V-3
- With defrost water draining plates



Technical data DPA(E)...C Normal Speed N 4,5 mm

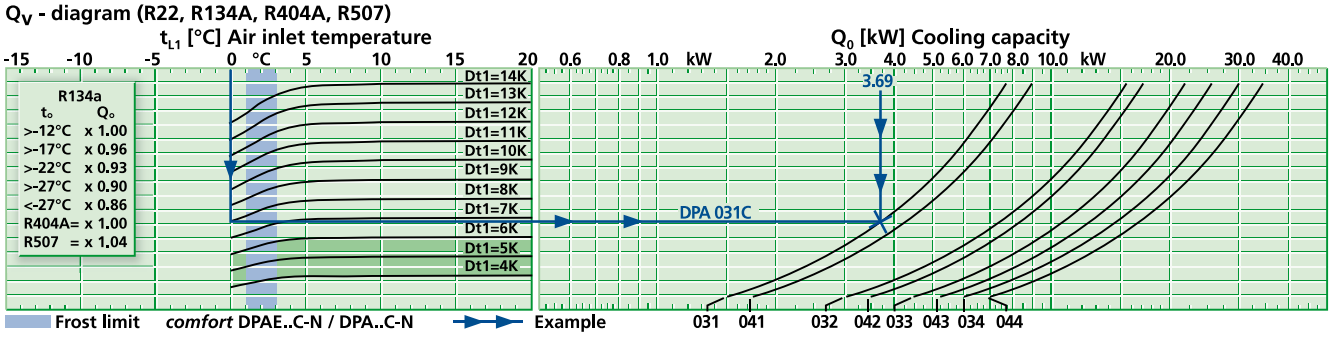
3,6 kW 16 kW

t_{L1} +20 °C -25 °C +0 °C



Model		Rating Q_0 at 50 Hz DT1, R404A t_{L1} ±0 °C DT1 = 8K	t_{L1} +10 °C DT1 = 10 K	Surface	Air flow	Air throw	Tube volume	Connections Inlet	Outlet	Sound L_{WA**}	Fans (Operating values at 50 Hz) Blade	Type of current	Per Fan			Electr. defrost
		kW	kW	m²	m³/h	m	dm³	Ø mm	Ø mm	dB(A)	St. x Ø mm	230±10% V-1 50/60Hz	min⁻¹	W	A	kW
DPA 031C	✇	3,69	5,41	16,3	1720	2x11	3,4	10*	22	74	1 x 350	230V-1	1320	185	0,72	2,30
DPA 041C	✇	4,26	6,25	24,3	1620	2x9	5,1	10*	22	74	1 x 350	230V-1	1320	185	0,72	2,30
DPA 032C	✇✇	7,38	10,8	32,6	3440	2x12	6,8	10*	28	77	2 x 350	230V-1	1320	185	0,72	4,14
DPA 042C	✇✇	8,52	12,5	48,6	3240	2x10	10,2	10*	28	77	2 x 350	230V-1	1320	185	0,72	4,14
DPA 033C	✇✇✇	11,1	16,3	48,9	5160	2x13	10,2	10*	28	79	3 x 350	230V-1	1320	185	0,72	5,96
DPA 043C	✇✇✇	12,8	18,8	72,9	4860	2x11	15,3	15*	35	79	3 x 350	230V-1	1320	185	0,72	5,96
DPA 034C	✇✇✇✇	14,8	21,7	65,2	6880	2x14	13,6	15*	35	80	4 x 350	230V-1	1320	185	0,72	7,84
DPA 044C	✇✇✇✇	17,0	25,0	97,2	6480	2x12	20,4	22*	35	80	4 x 350	230V-1	1320	185	0,72	7,84

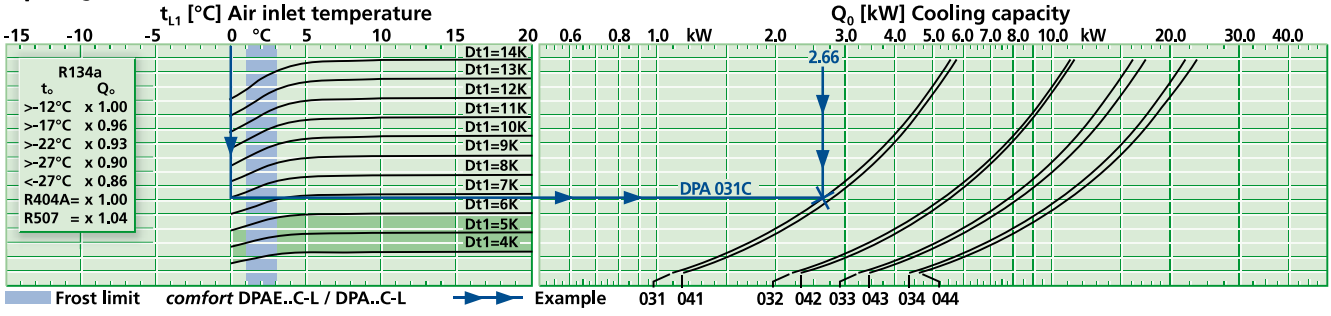
Q_V - diagram (R22, R134A, R404A, R507)



Technical data DPA(E)...C Quiet Speed L 4,5 mm

Model		Rating Q_0 at 50 Hz DT1, R404A t_{L1} ±0 °C DT1 = 8K	t_{L1} +10 °C DT1 = 10 K	Surface	Air flow	Air throw	Tube volume	Connections Inlet	Outlet	Sound L_{WA**}	Fans (Operating values at 50 Hz) Blade	Type of current	Per Fan			Electr. defrost
		kW	kW	m²	m³/h	m	dm³	Ø mm	Ø mm	dB(A)	St. x Ø mm	230±10% V-1 50/60Hz	min⁻¹	W	A	kW
DPA 031C	✇	2,66	3,71	16,3	1064	2x8	3,4	10*	22	64	1 x 350	230V-1	930	195	0,79	2,30
DPA 041C	✇	2,78	3,96	24,3	950	2x5	5,1	10*	22	64	1 x 350	230V-1	930	195	0,79	2,30
DPA 032C	✇✇	5,32	7,43	32,6	2128	2x9	6,8	10*	28	67	2 x 350	230V-1	930	195	0,79	4,14
DPA 042C	✇✇	5,56	7,92	48,6	1900	2x6	10,2	10*	28	67	2 x 350	230V-1	930	195	0,79	4,14
DPA 033C	✇✇✇	7,98	11,1	48,9	3192	2x10	10,2	10*	28	69	3 x 350	230V-1	930	195	0,79	5,96
DPA 043C	✇✇✇	8,34	11,9	72,9	2850	2x7	15,3	15*	35	69	3 x 350	230V-1	930	195	0,79	5,96
DPA 034C	✇✇✇✇	10,6	14,9	65,2	4256	2x11	13,6	15*	35	70	4 x 350	230V-1	930	195	0,79	7,84
DPA 044C	✇✇✇✇	11,1	15,9	97,2	3800	2x8	20,4	22*	35	70	4 x 350	230V-1	930	195	0,79	7,84

Q_V - diagram (R22, R134A, R404A, R507)





Technical data DPA(E)...C Very quiet Speed S 4,5 mm

1,9 kW 8 kW

t_{L1} -25 °C +0 °C +20 °C

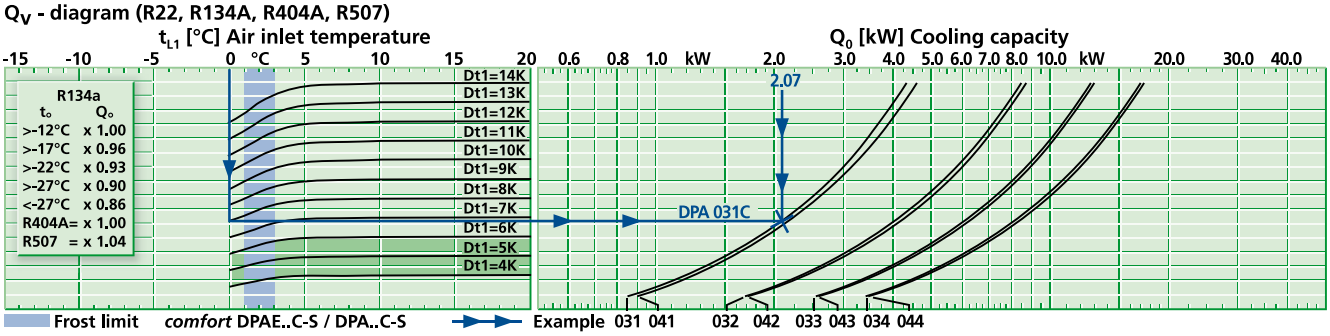


Model		Rating Q_0 at 50 Hz DT1, R404A t_{L1} ±0 °C DT1 = 8K	t_{L1} +10 °C DT1 = 10 K	Surface	Air flow	Air throw	Tube volume	Connections Inlet	Outlet	Sound L_{WA}**	Fans (Operating values at 50 Hz) Blade	Type of current	Per Fan			Electr. defrost
		kW	kW	m²	m³/h	m	dm³	Ø mm	Ø mm	dB(A)	St. x Ø mm	230±10% V-1 50/60Hz	min⁻¹	W	A	kW
DPA 031C	✇	2,07	3,04	16,3	760	2x5	3,4	10*	22	56	1 x 350	230V-1	660	195	0,79	2,30
DPA 041C	✇	2,13	3,13	24,3	670	2x4	5,1	10*	22	56	1 x 350	230V-1	660	195	0,79	2,30
DPA 032C	✇✇	4,14	6,08	32,6	1520	2x6	6,8	10*	28	59	2 x 350	230V-1	660	195	0,79	4,14
DPA 042C	✇✇	4,26	6,25	48,6	1340	2x5	10,2	10*	28	59	2 x 350	230V-1	660	195	0,79	4,14
DPA 033C	✇✇✇	6,21	9,11	48,9	2280	2x7	10,2	10*	28	61	3 x 350	230V-1	660	195	0,79	5,96
DPA 043C	✇✇✇	6,39	9,38	72,9	2010	2x6	15,3	15*	35	61	3 x 350	230V-1	660	195	0,79	5,96
DPA 034C	✇✇✇✇	8,28	12,2	65,2	3040	2x8	13,6	15*	35	62	4 x 350	230V-1	660	195	0,79	7,84
DPA 044C	✇✇✇✇	8,52	12,5	97,2	2680	2x7	20,4	22*	35	62	4 x 350	230V-1	660	195	0,79	7,84

Multiple injections via * the Küba-CAL® distributor

** For modifications of sound power levels, see page 59

Q_V - diagram (R22, R134A, R404A, R507)



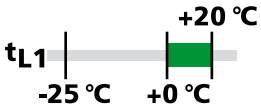
The technical data is also given in the product selection software.





Technical data — DPB(E)...C Normal — Speed N — 7 mm

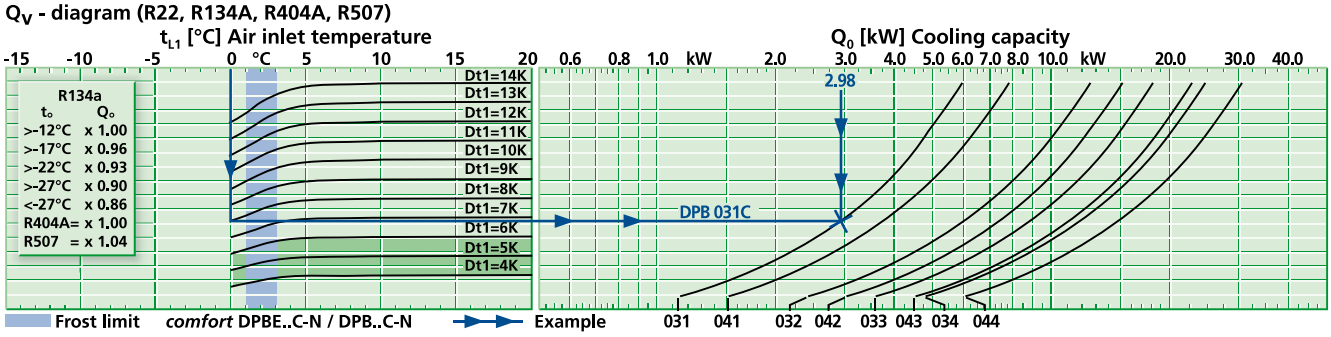






Model		Rating Q_0 at 50 Hz DT1, R404A t_{L1} ±0 °C DT1 = 8K	t_{L1} +10 °C DT1 = 10 K	Surface	Air flow	Air throw	Tube volume	Connections Inlet	Outlet	Sound L_{WA**}	Fans (Operating values at 50 Hz) Blade	Type of current	Per Fan			Electr. defrost
		kW	kW	m²	m³/h	m	dm³	Ø mm	Ø mm	dB(A)	St. x Ø mm	230±10% V-1 50/60Hz	min⁻¹	W	A	kW
DPB 031C	✇	2,98	4,37	11,0	1850	2x11	3,4	10*	22	74	1 x 350	230V-1	1320	185	0,72	2,30
DPB 041C	✇	3,72	5,46	16,4	1770	2x9	5,1	10*	22	74	1 x 350	230V-1	1320	185	0,72	2,30
DPB 032C	✇✇	5,96	8,75	22,0	3700	2x12	6,8	10*	28	77	2 x 350	230V-1	1320	185	0,72	4,14
DPB 042C	✇✇	7,44	10,9	32,8	3540	2x10	10,2	10*	28	77	2 x 350	230V-1	1320	185	0,72	4,14
DPB 033C	✇✇✇	8,94	13,1	33,0	5550	2x13	10,2	10*	28	79	3 x 350	230V-1	1320	185	0,72	5,96
DPB 043C	✇✇✇	11,2	16,4	49,2	5310	2x11	15,3	15*	35	79	3 x 350	230V-1	1320	185	0,72	5,96
DPB 034C	✇✇✇✇	11,9	17,5	44,0	7400	2x14	13,6	15*	35	80	4 x 350	230V-1	1320	185	0,72	7,84
DPB 044C	✇✇✇✇	14,9	21,8	65,6	7080	2x12	20,4	22*	35	80	4 x 350	230V-1	1320	185	0,72	7,84

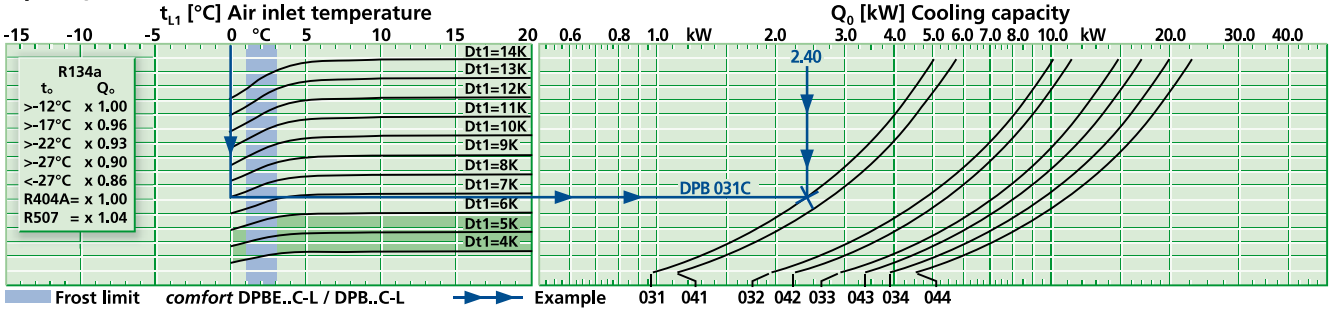
Q_V - diagram (R22, R134A, R404A, R507)



Technical data — DPB(E)...C Quiet — Speed L — 7 mm

Model		Rating Q_0 at 50 Hz DT1, R404A t_{L1} ±0 °C DT1 = 8K	t_{L1} +10 °C DT1 = 10 K	Surface	Air flow	Air throw	Tube volume	Connections Inlet	Outlet	Sound L_{WA**}	Fans (Operating values at 50 Hz) Blade	Type of current	Per Fan			Electr. defrost
		kW	kW	m²	m³/h	m	dm³	Ø mm	Ø mm	dB(A)	St. x Ø mm	230±10% V-1 50/60Hz	min⁻¹	W	A	kW
DPB 031C	✇	2,40	3,52	11,0	1300	2x8	3,4	10*	22	64	1 x 350	230V-1	930	195	0,79	2,30
DPB 041C	✇	2,74	4,02	16,4	1140	2x5	5,1	10*	22	64	1 x 350	230V-1	930	195	0,79	2,30
DPB 032C	✇✇	4,80	7,04	22,0	2600	2x9	6,8	10*	28	67	2 x 350	230V-1	930	195	0,79	4,14
DPB 042C	✇✇	5,48	8,04	32,8	2280	2x6	10,2	10*	28	67	2 x 350	230V-1	930	195	0,79	4,14
DPB 033C	✇✇✇	7,20	10,6	33,0	3900	2x10	10,2	10*	28	69	3 x 350	230V-1	930	195	0,79	5,96
DPB 043C	✇✇✇	8,22	12,1	49,2	3420	2x7	15,3	15*	35	69	3 x 350	230V-1	930	195	0,79	5,96
DPB 034C	✇✇✇✇	9,60	14,1	44,0	5200	2x11	13,6	15*	35	70	4 x 350	230V-1	930	195	0,79	7,84
DPB 044C	✇✇✇✇	11,0	16,1	65,6	4560	2x8	20,4	22*	35	70	4 x 350	230V-1	930	195	0,79	7,84

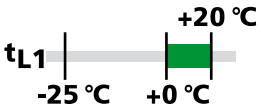
Q_V - diagram (R22, R134A, R404A, R507)





Technical data DPB(E)...C Very quiet Speed S 7 mm



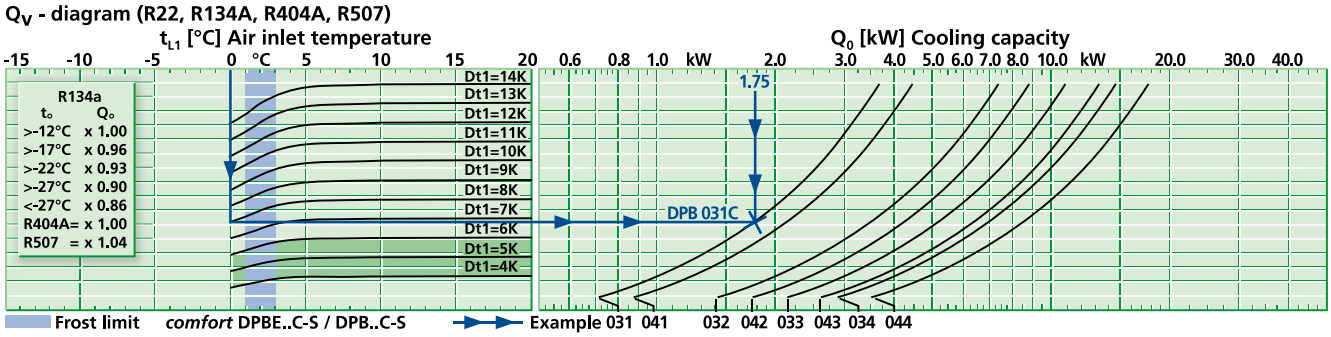




Model		Rating Q_0 at 50 Hz DT1, R404A t_{L1} ±0 °C DT1 = 8K	t_{L1} +10 °C DT1 = 10 K	Surface	Air flow	Air throw	Tube volume	Connections Inlet	Outlet	Sound L_{WA}**	Fans (Operating values at 50 Hz) Blade	Type of current	Per Fan			Electr. defrost
		kW	kW	m²	m³/h	m	dm³	Ø mm	Ø mm	dB(A)	St. x Ø mm	230±10% V-1 50/60Hz	min⁻¹	W	A	kW
DPB 031C	✇	1,75	2,57	11,0	810	2x5	3,4	10*	22	56	1 x 350	230V-1	660	195	0,79	2,30
DPB 041C	✇	2,13	3,13	16,4	800	2x4	5,1	10*	22	56	1 x 350	230V-1	660	195	0,79	2,30
DPB 032C	✇✇	3,50	5,14	22,0	1620	2x6	6,8	10*	28	59	2 x 350	230V-1	660	195	0,79	4,14
DPB 042C	✇✇	4,26	6,25	32,8	1600	2x5	10,2	10*	28	59	2 x 350	230V-1	660	195	0,79	4,14
DPB 033C	✇✇✇	5,25	7,70	33,0	2430	2x7	10,2	10*	28	61	3 x 350	230V-1	660	195	0,79	5,96
DPB 043C	✇✇✇	6,39	9,38	49,2	2400	2x6	15,3	15*	35	61	3 x 350	230V-1	660	195	0,79	5,96
DPB 034C	✇✇✇✇	7,00	10,3	44,0	3240	2x8	13,6	15*	35	62	4 x 350	230V-1	660	195	0,79	7,84
DPB 044C	✇✇✇✇	8,52	12,5	65,6	3200	2x7	20,4	22*	35	62	4 x 350	230V-1	660	195	0,79	7,84

Multiple injections via * the Küba-CAL® distributor

** For modifications of sound power levels, see page 59

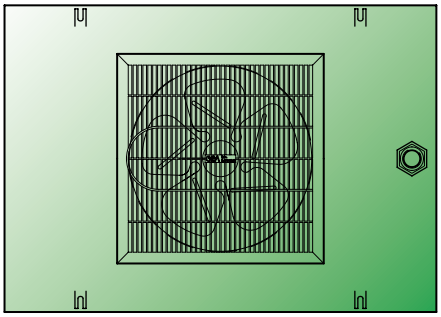


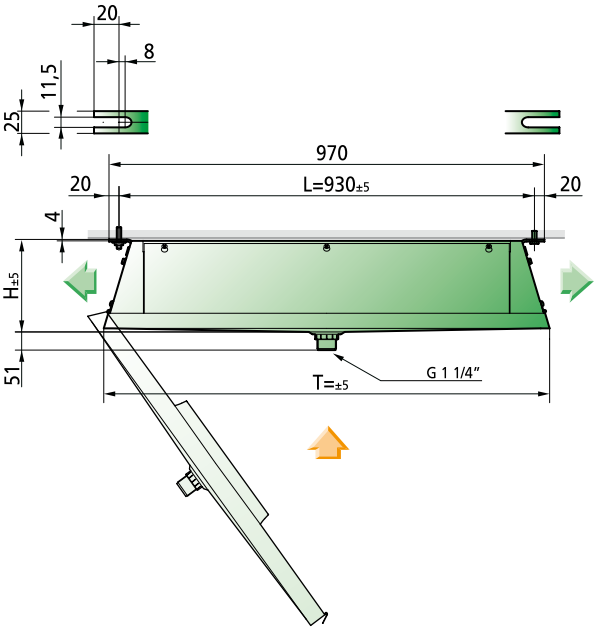
The technical data is also given in the product selection software.



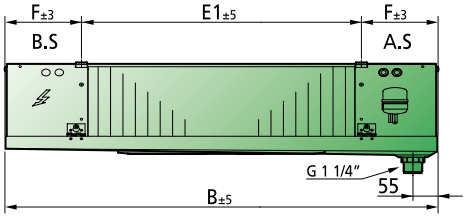


Dimensions and weights

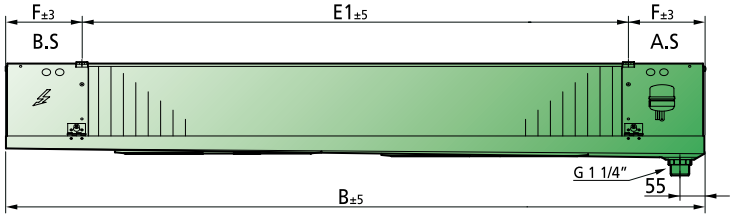




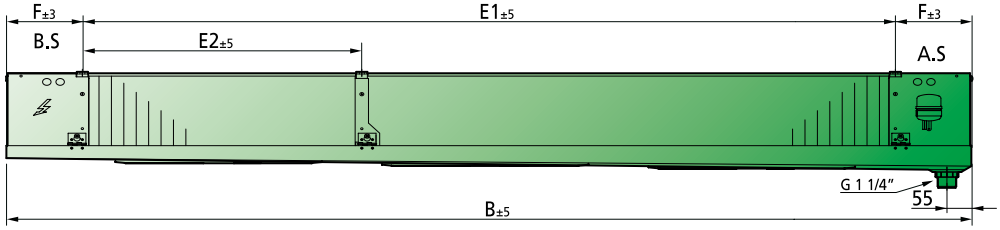
DP.(E) 031, 041 C



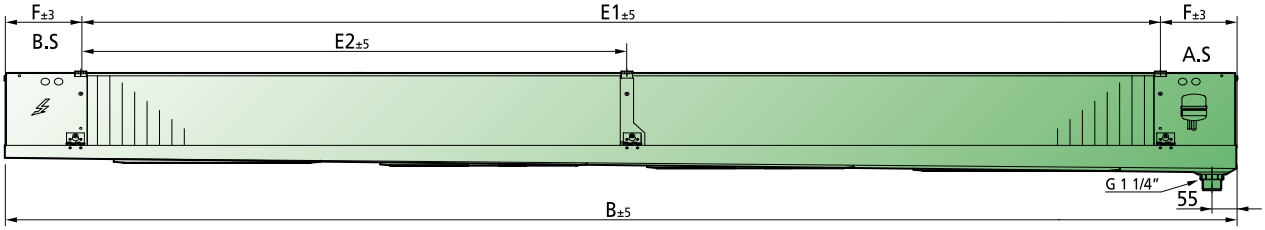
DP.(E) 032, 042 C



DP.(E) 033, 043 C



DP.(E) 034, 044 C



Model	Dimensions (mm)							Weight (net)		Weight (gross)	
								DPA.C	DPB.C	DPA.C	DPB.C
	H	B	T	L	E_1	E_2	F	kg	kg	kg	kg
DP. 031C	281	972	1010	930	630	-	171	42,5	42	67	66,5
DP. 041C	281	972	1010	930	630	-	171	46,5	46	71	70,5
DP. 032C	288	1572	1010	930	1230	-	171	68,5	66	102,5	100
DP. 042C	288	1572	1010	930	1230	-	171	76,5	70	110,5	104
DP. 033C	296	2172	1010	930	1830	629	171	94,5	97	139,5	142
DP. 043C	296	2172	1010	930	1830	629	171	106	104	151	149
DP. 034C	303	2772	1010	930	2430	1229	171	122,5	117,5	175,5	170,5
DP. 044C	303	2772	1010	930	2430	1229	171	141	127	194	180



Versions and Electrical radiators

Water/brine circulation

- **Version .V2.05** with a large number of distributors (small pressure drop)
- **Version .V2.06** with a small number of distributors (large pressure drop)

Connections for brine / water operation

Please use our Küba selection software for configuring the brine Air Coolers. Do not hesitate to contact us if you have any further questions.

For Cooler	Inlet and Outlet	
	.V2.05	.V2.06
DP. 031C	Ø 22	Ø 22
DP. 041C	Ø 22	Ø 22
DP. 032C	Ø 28	Ø 22
DP. 042C	Ø 28	Ø 22
DP. 033C	Ø 28	Ø 22
DP. 043C	Ø 28	Ø 22
DP. 034C	Ø 28	Ø 28
DP. 044C	Ø 35	Ø 28

Configuration
- Soldered connections
- Ventilation and drainage

Insulated drip tray

- **Version .V3.09**

Insulation prevents condensation from forming on the underside of the tray and reduces the transfer of defrosting heat into the cooling rooms.

Area of application
- Foodstuffs industry, i.e. butchering rooms

Electrical radiator

Configuration
- Electrical tubular radiator with CrNi jacket Ø 8,5 mm
- Connection is impervious to water vapour, 1,0 mm² x 1000 mm acc. to VDE 0700 / part 1
- Aluminium fin
- Sendzimir zinc-plated end, middle and top plates
- Copper tube bush
- Completely powder-coated

Model	Nominal power at 230 V		Dimensions		Weight
	kW	A	H	L	kg
DPHR 600	0,96	4,2	210	600	1,7
DPHR 1200	1,91	8,3	210	1200	2,9
DPHR 1800	2,87	12,5	210	1800	4,2
DPHR 2400	3,75	16,3	210	2400	5,6

			Electrical radiator at 230V ± 10%, V-1	
Model	Piece	Model	Connected load per Air Cooler	
			kW	A
DP031, 041C	2	DPHR 600	1,92	8,4
DP032, 042C	2	DPHR 1200	3,82	16,6
DP033, 043C	2	DPHR 1800	5,74	25,0
DP034, 044C	2	DPHR 2400	7,50	32,6

Corrosion protection

- **Version V6.01**

Cooler:
Tubing: Cu
Fins: Al „goldlack“ coating
End plates: Al, anti-corrosion paint coating on both sides

Casing:
Top Panel: Al or Sendzimir zinc-plated steel, anti-corrosion paint coating on both sides

- **Version V6.04**

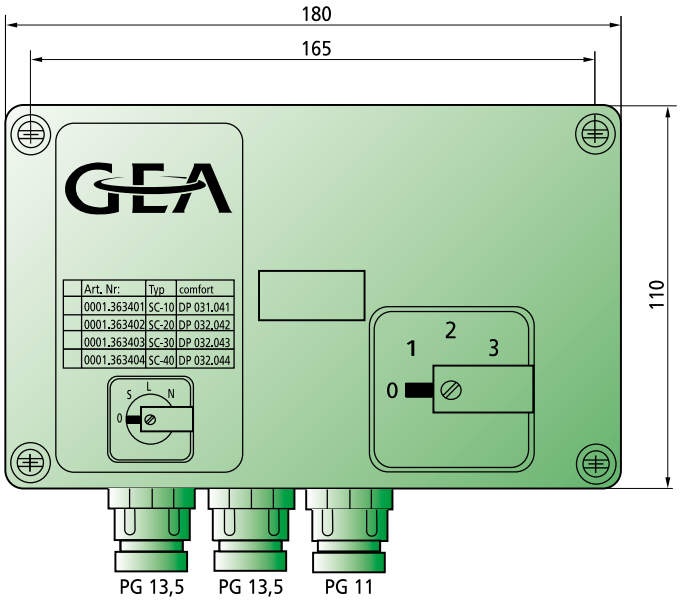
Cooler:
Tubing: Cu
Fins: Al „goldlack“ coating
End plates: Al

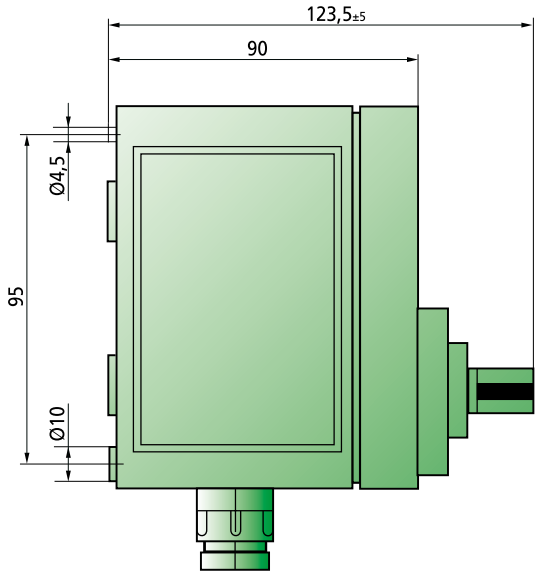
Casing:
Top Panel: Al, anti-corrosion paint coating



Accessories

Speed switch operation N, L, S

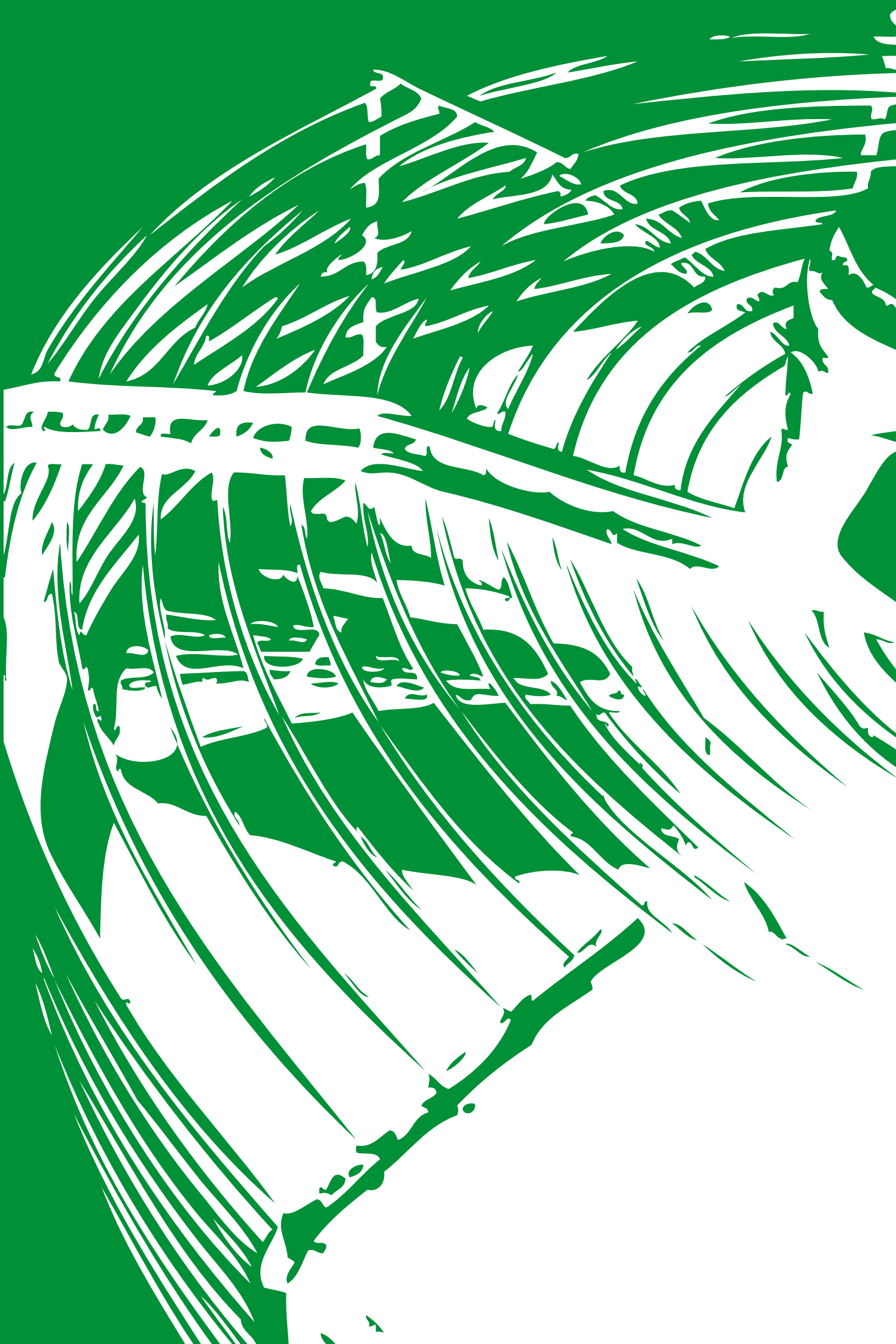




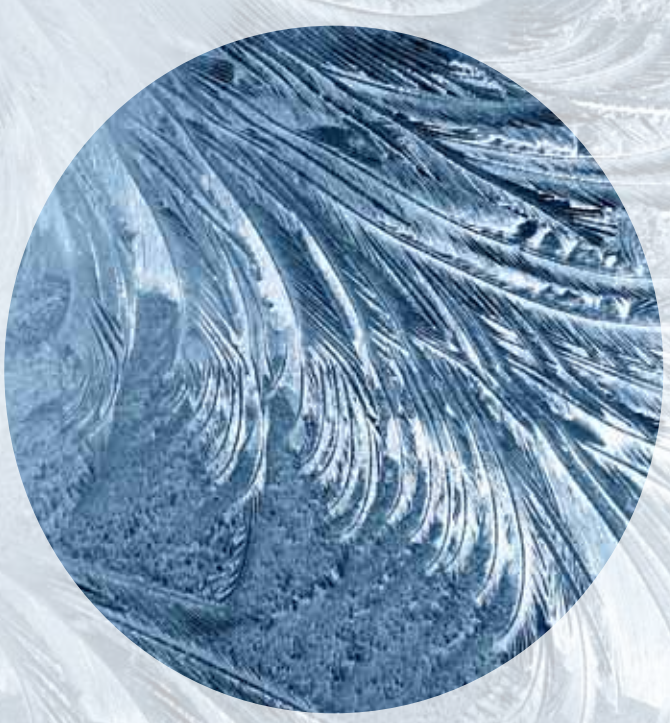
Model	for		Index of protection	µF
SC-10**	DP 031C, 041C	✇	IP 54	10
SC-20**	DP 032C, 042C	✇✇	IP 54	20
SC-30**	DP 033C,043C	✇✇✇	IP 54	30
SC-40**	DP 034C, 044C	✇✇✇✇	IP 54	40

Model	for		Index of protection	µF
C-10	DP 031C, 041C	✇	IP 54	10
C-20	DP 032C, 042C	✇✇	IP 54	20
C-30	DP 033C,043C	✇✇✇	IP 54	30
C-40	DP 034C, 044C	✇✇✇✇	IP 54	40

** - incl. capacitor (C)
- with potential-free changeover switch with fan ON/OFF, contact open in switching position 0
- Make-before-break contacts floating to terminal 11/12



Further information



Sound specifications

Introduction

In the technical design of Air Coolers and condensers, capacity and sound output are defined parameters that must be realised. There are a variety of methods used in the international markets to calculate sound output specifications. Each of these specifications holds a different significance for refrigeration contractors, designers and planners. For heat exchangers and condensers, compliance with specific immission values (i.e. noise level, workplace safety legislation, etc.), is best calculated using sound power usage in the form of acoustic pressure Lp(A). However, for Air Coolers, information regarding sound power $L_{W(A)}$ is most suitable.

Acoustic pressure L_P

Pressure = force / surface [N/m²]
Alternating pressure generated by acoustic oscillation through the medium (i.e. air)

- **Advantage:**
  Measurement can be directly determined
  Thermal analogy: temperature measurement
- **Disadvantages:**
  Independent of environmental influences, of distance to the sound source and of the reference surface used.

Acoustic power L_W

is the sound energy radiated per time unit in [W] = [Nm/s]

- Advantages:
  Independent of environmental influences, of distance to the sound source or on the reference surface used
- Disadvantage:
  Cannot be measured directly

Sound intensity and A-evaluation

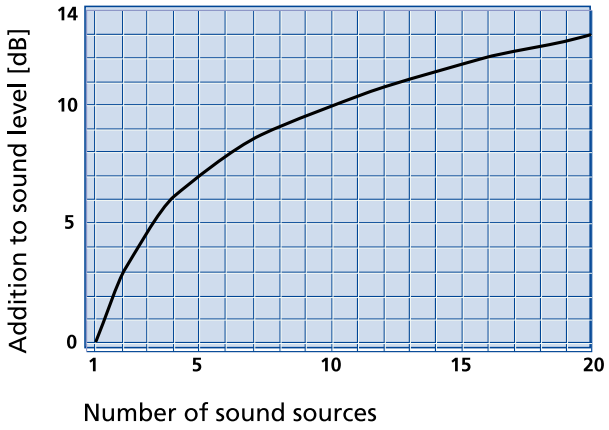
The human ear can perceive sound at frequencies between approx. 15 and 20,000 Hertz. Perception or sensitivity to sound depends strongly on the respective frequency. Very high and low tones are often percieved as less loud than those in the mid-frequency range from about 1000 to 5000 Hertz. For this reason, evaluation filters in accordance to EN 61 672-1 are used. In audio technology and in the environmental field, the A-evaluation is most significant because, for certain sound intensities, it has frequency behavior similar to that of the human ear.

Sound output specifications for Air Coolers

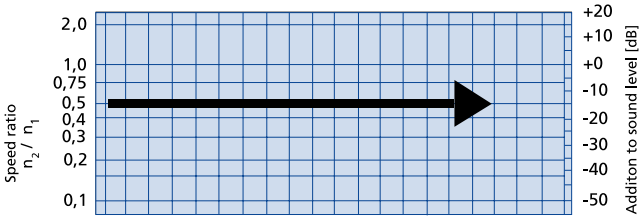
Due to the reflection in the cold storage area, the sound power $L_{W(A)}$ should always be used for a technical comparison between Air Coolers. In this case, only sound power offers information that can be compared because it does not depend on the distance to the sound source, the installation location or the surroundings.

Sound power

Addition of sound sources at the same level



Correction of sound level by change of fan speed



Assembly

Suction line (not to be used with brine operation) ①

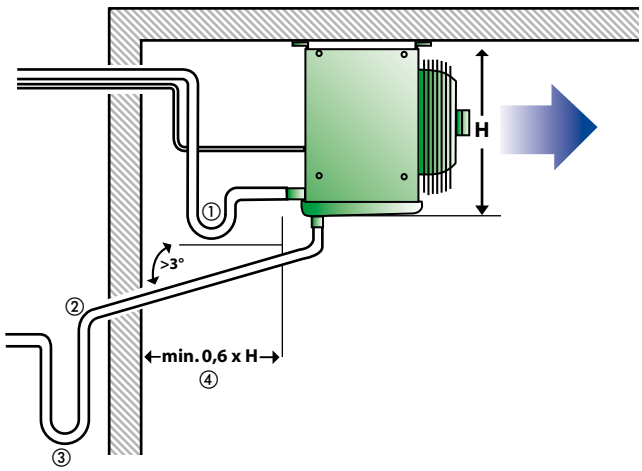
If the suction line cannot be laid on an incline to the evaporator, an oil collector should be installed. The high speed of the refrigerant in the bend will ensure that oil is recirculated to the compressor. The bend should be located below the cooler so that the air cooler capacity is not affected by oil collecting in the Air Cooler.

Condensation water line ②

The condensation water line must always be laid at an incline great enough to ensure that the water can flow out. In cold storage areas with an ambient temperature below 4 °C, plan to use trace heating to prevent the condensation water from freezing in the line.

Trap ③

Installing a trap is required for trouble-free operation and not just from an energy perspective. If an Air Cooler is operated without a trap, „warm air“ with high temperatures and humidity is drawn in from outside the Cold Room. This „warm air“ significantly reduces the Air Cooler capacity, and can, depending on temperature level, lead to ice formation and total failure of the system. The trap should always be installed outside of the Cold Room. Each cooler should have it´s own trap to prevent the risk of interaction.

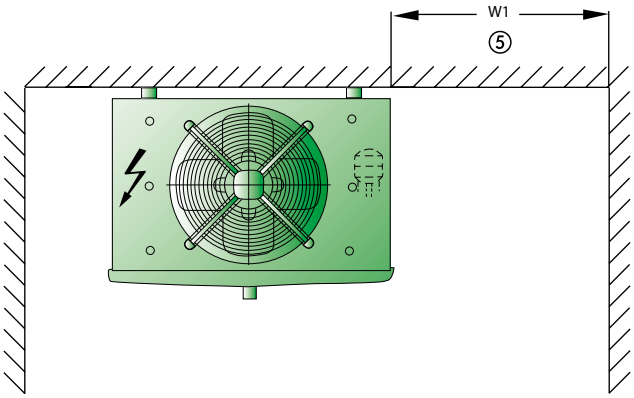


Wall clearance ④

Maintain a sufficient wall clearance to ensure optimum Air Cooler air flow rates. No tubes, etc. should pass through this minimum clearance area. In some circumstances this can lead to uneven frost build-up and loss of capacity. The recommended clearance always includes a free intake area.

Side clearance ⑤

Side clearance should be selected such that service work can be carried out. This, together with the wall clearance ④, should be equal to at least the area of the air inlet. This ensures a 100% air flow rate and full cooling capacity.



Notes

Notes

Notes

Excellence Passion Integrity Responsibility GEA-versity

GEA Group is a global mechanical engineering company with multi-billion euro sales and operations in more than 50 countries. Founded in 1881 the company is one of the largest providers of innovative equipment and process technology. GEA Group is listed in the STOXX Europe 600 Index.

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