Küba *market plus* SP

High Performance Unit Cooler

Q_0

1,2 — 52 kW

+10 °C
±0 °C — SPA.D
-25 °C — SPB.D

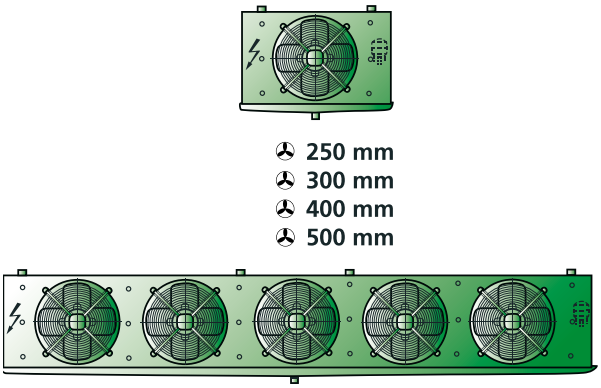
t_{L1}

EUROVENT CERTIFIED PERFORMANCE
www.eurovent-certification.com

Application Benefits for Contractors and Operators

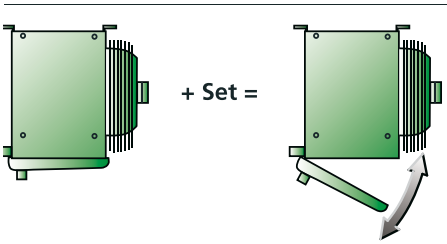
Expanded capacity range

- Up to 52 kW



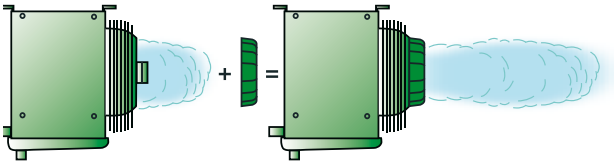
Closely spaced capacity settings

- 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	Rating Q_0 at 50 Hz DT1, R404A t_{L1} +10 °C DT1 = 10 K	Surface	Air flow	Air throw	Tube volume	Connections Inlet	Connections Outlet	Sound L_{WA**}	Fans (Operating values at 50 Hz) Blade	Fans Type of current	Fans 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

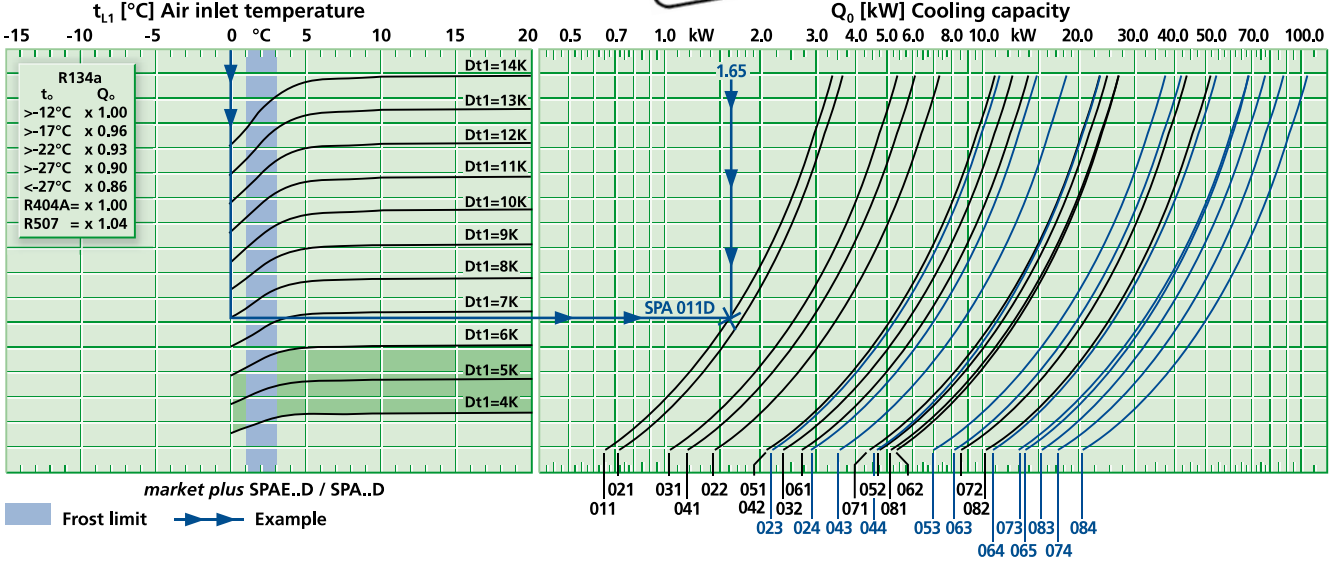
Multiple injections via * a flow distributor, ** KÜBA-CAL® distributor

*** 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

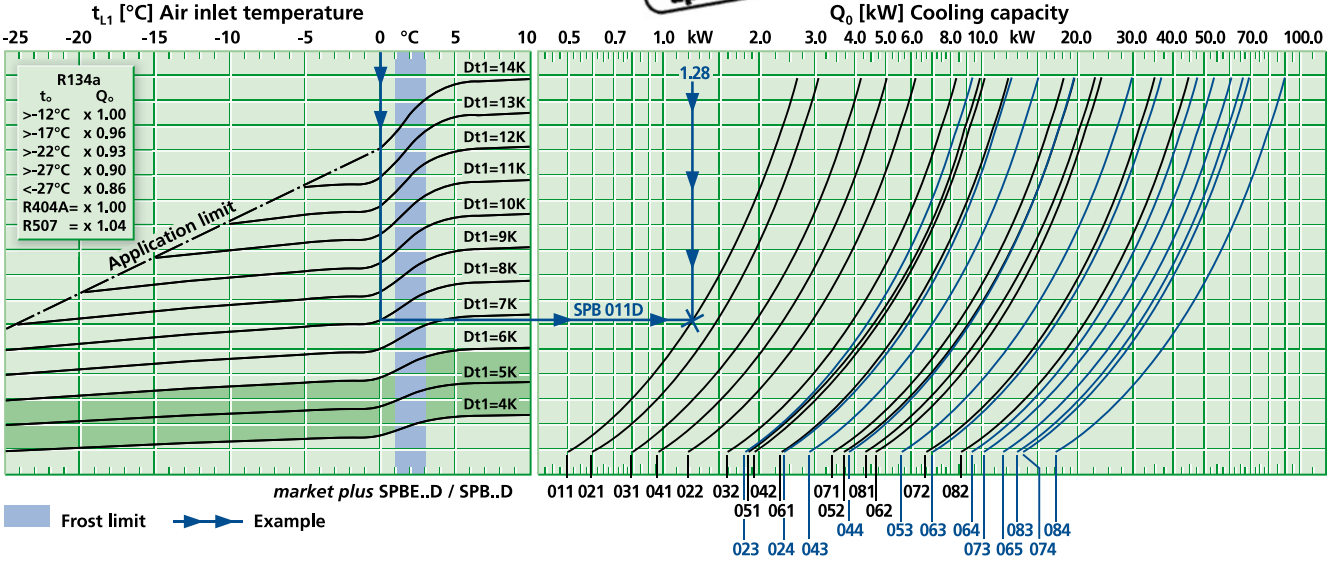
Multiple injections via * KÜBA-CAL® distributor

** 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

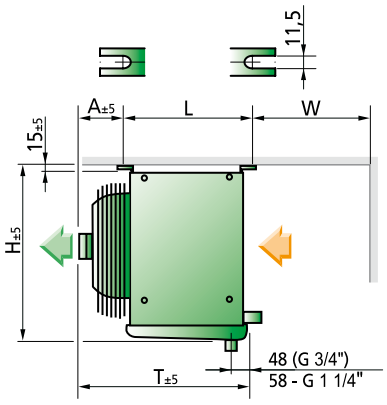
Q_V - diagram (R22, R134A, R404A, R507)



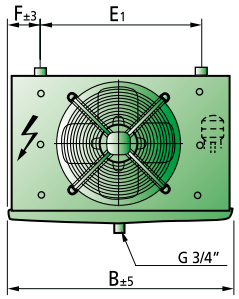
Dimensions, electric defrost, weights

	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

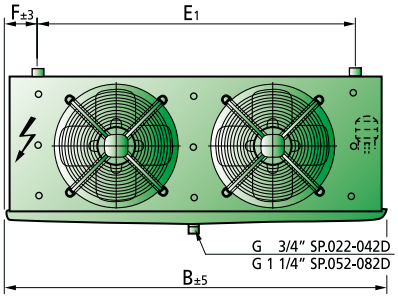
Dimensional drawings



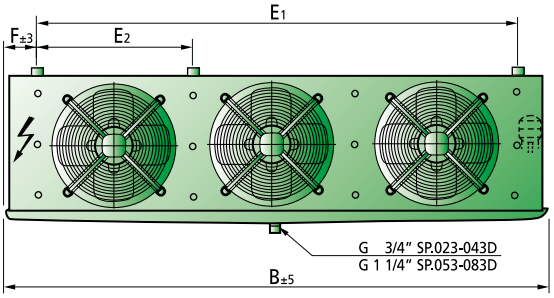
SP.(E) 011, 021, 031, 041, 051, 061, 071, 081 D



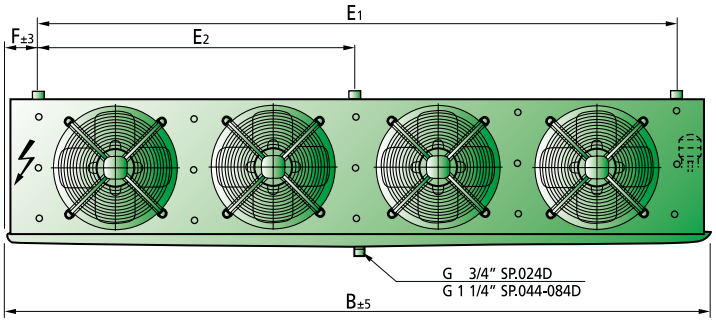
SP.(E) 022, 032, 042, 052, 062, 072, 082 D



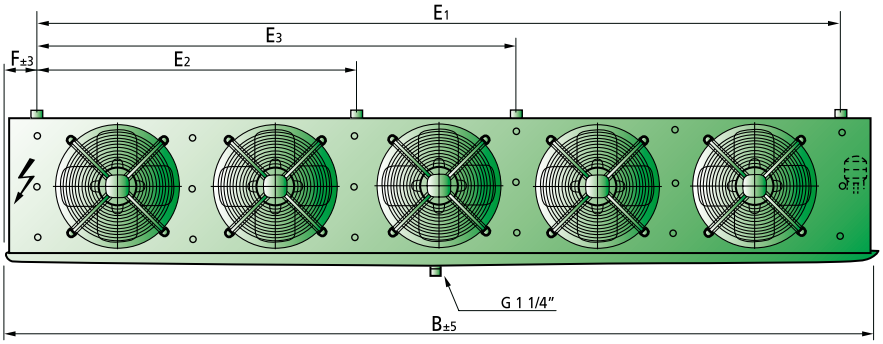
SP.(E) 023, 043, 053, 063, 073, 083 D



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!

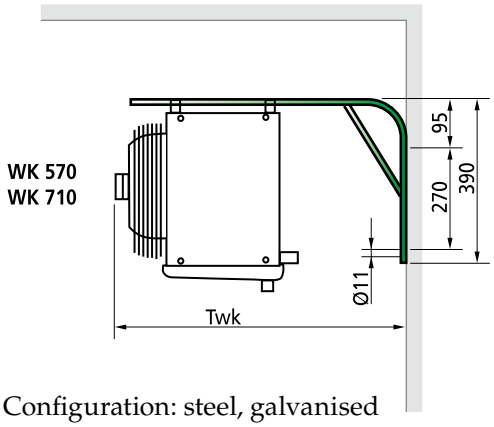
Included in delivery:
- Electrical finned tube radiator CrNi steel Ø 28 mm
- Connection ends 1000 mm long
- Al and Nirosta for fastening
- Branching box acc. to VDE, ÖVE, SEV

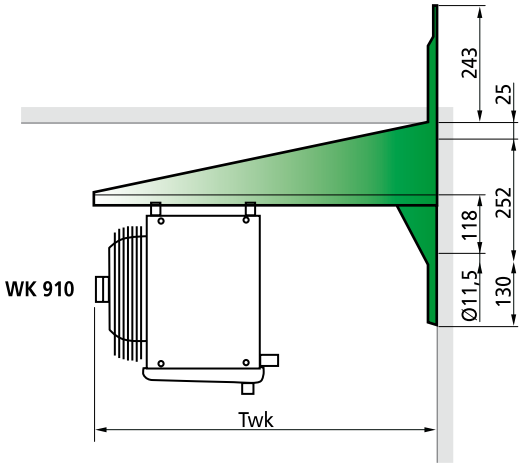
Model	For Blade	Nominal power at 230 V	Weight	Dimensions
	Ø mm	kW	kg	mm
SPHR25	250	1,36	0,65	245
SPHR30	300	1,75	0,75	300
SPHR40	400	2,47	0,94	400
SPHR50	500	3,19	1,13	500

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





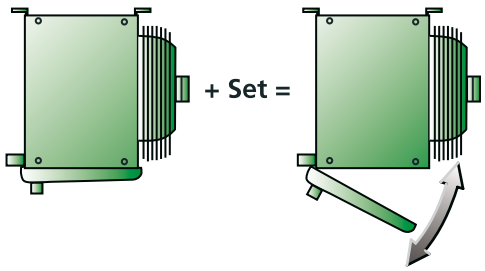
Configuration: steel, galvanised

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

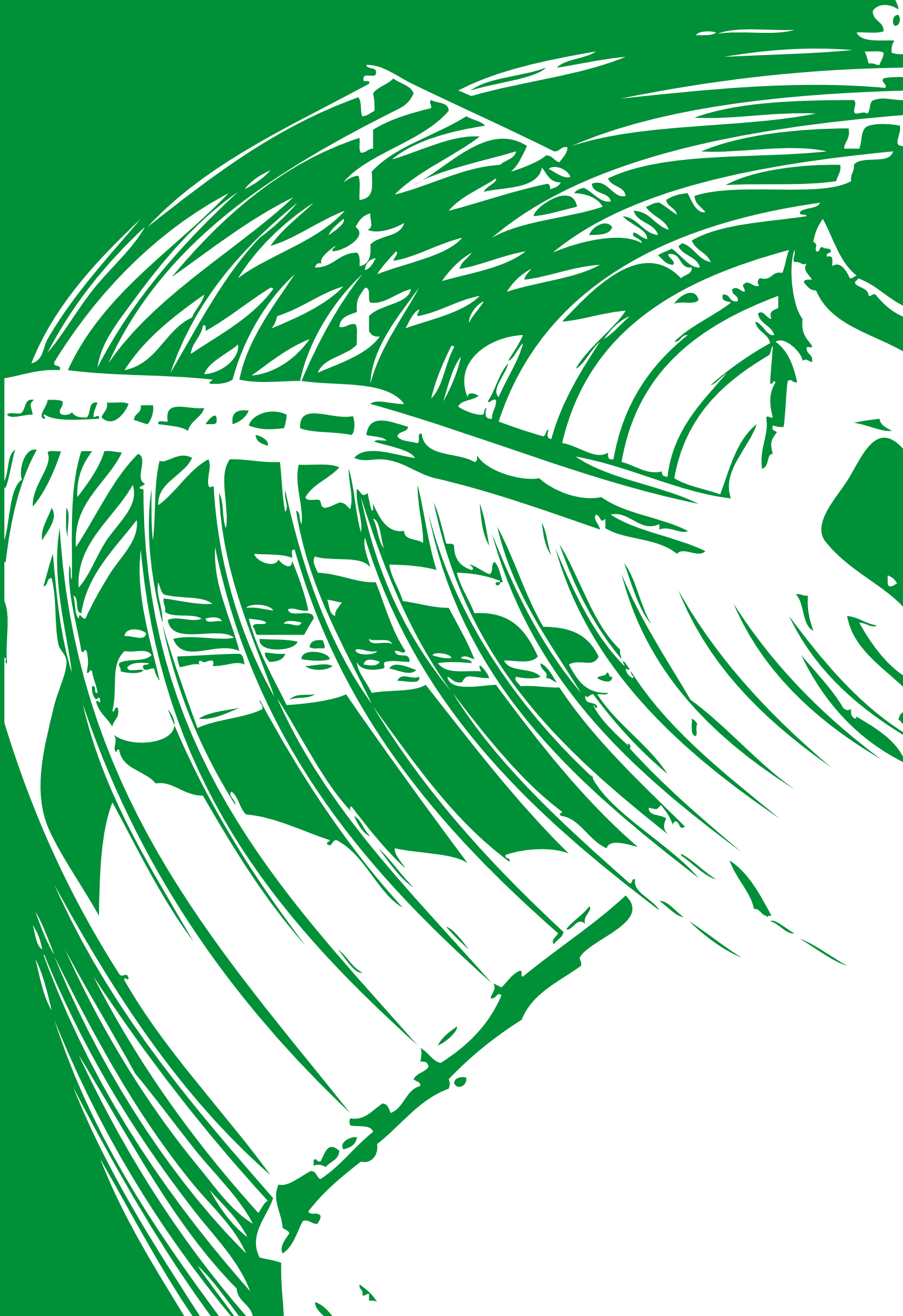
Model	Order quantity
SP. 011D-041D	2x WK 570
SP. 051D-061D	2x WK 710
SP. 071D-081D	2x WK 910
SP. 022D-042D	2x WK 570
SP. 052D-062D	2x WK 710
SP. 072D-082D	2x WK 910
SP. 023D-043D	2x WK 570
SP. 053D-063D	3x WK 710
SP. 073D-083D	3x WK 910
SP. 024D-044D	3x WK 570
SP. 064D	3x WK 710
SP. 074D-084D	3x WK 910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

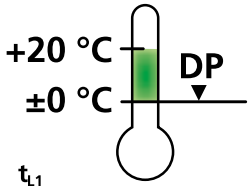


Küba *comfort* DP

Ceiling Air Cooler

Q_0

2,2 — 28 kW



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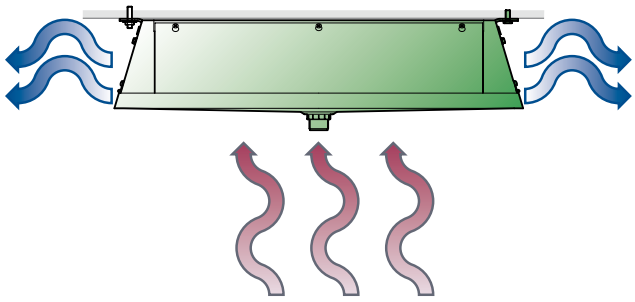
Application Benefits for Contractors and Operators

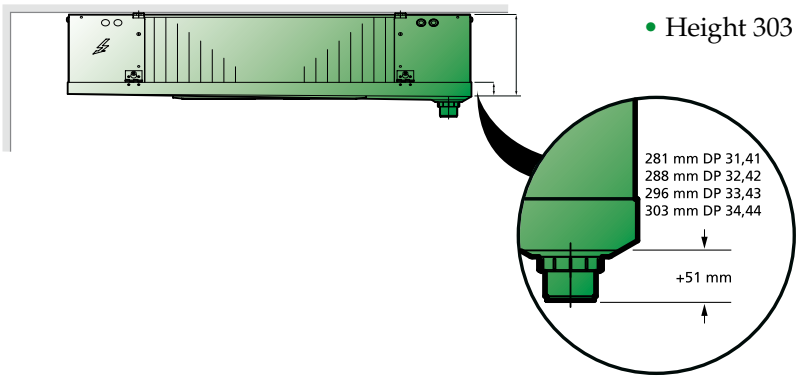
Expanded capacity range

- Up to 28 kW



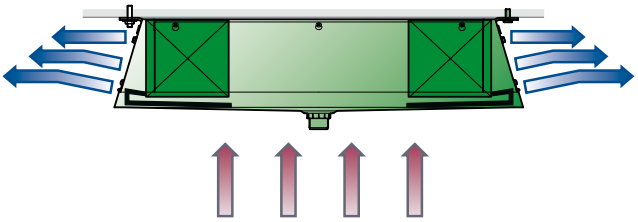
Low draught levels

- 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

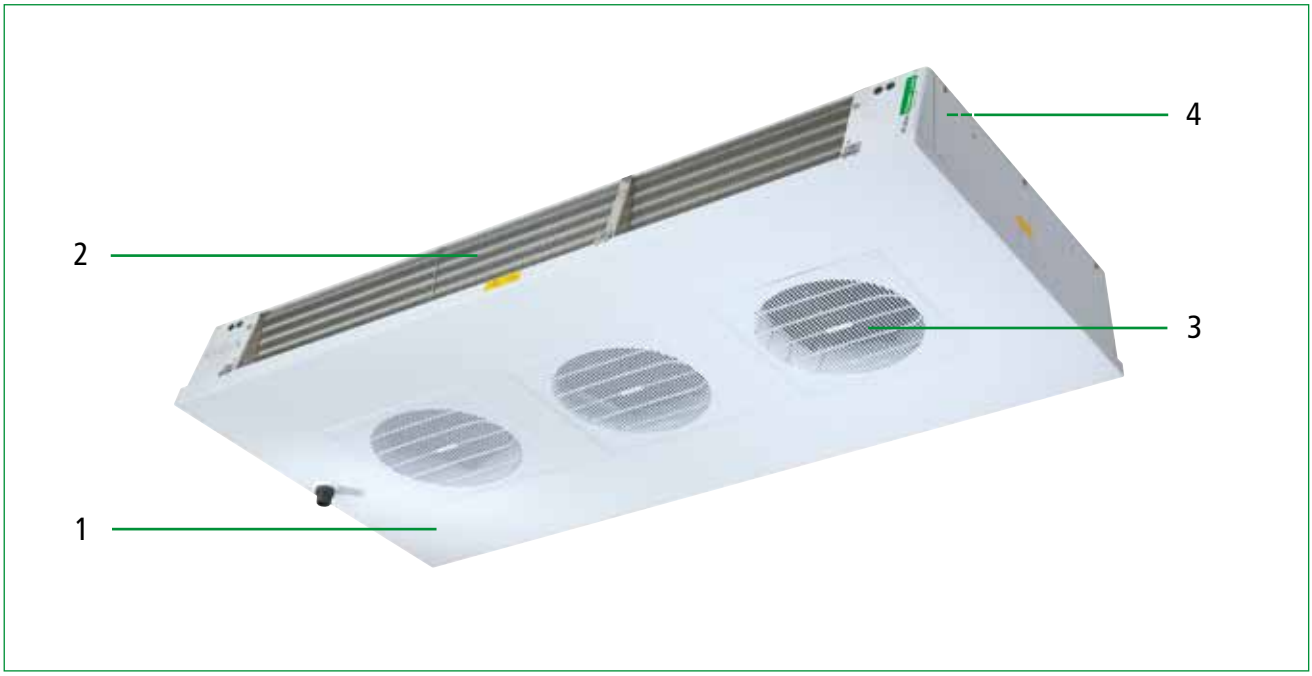
Nomenclature

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)

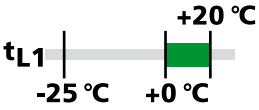
Motor label data (max. allowable value +40 °C)

		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

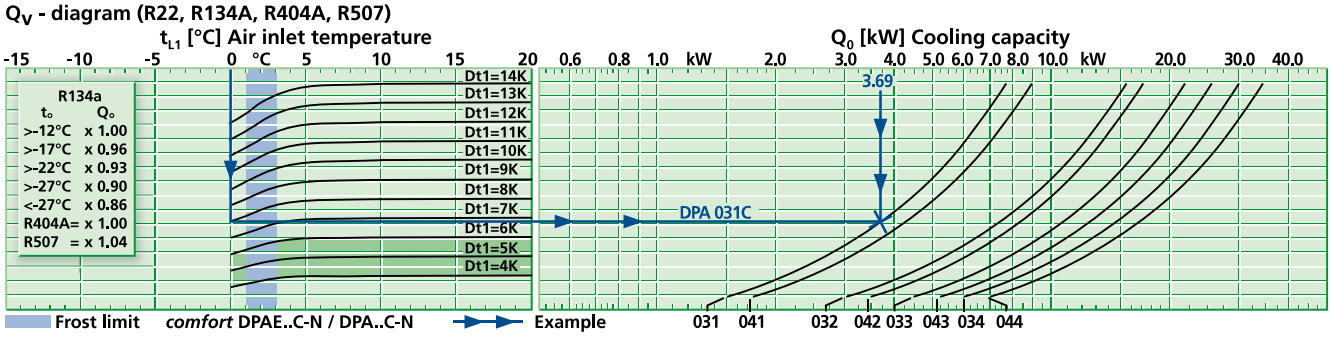
- Pre-wired, ready to connect in the terminal box
- To prevent steam build-up and to accomplish heat exchange with almost no loss, the heaters are mounted in special expanded tube sleeves
- 230 V-1 / 400 V-3
- With defrost water draining plates

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



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

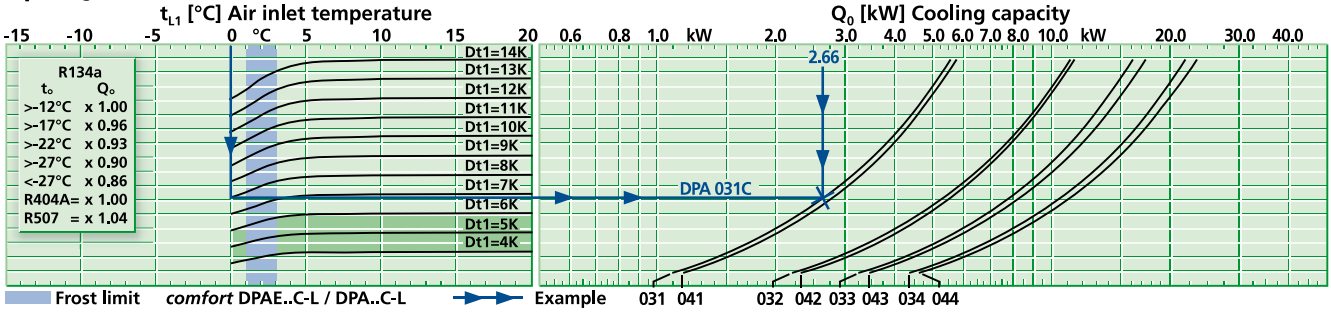
Q_V - diagram (R22, R134A, R404A, R507)



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

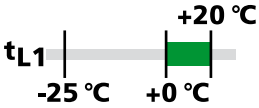
Model		Rating Q_0 at 50 Hz DT1, R404A t_{L1} ±0 °C DT1 = 8K	t_{L1} +10 °C DT1 = 10 K	Surface	Air flow	Air throw	Tube volume	Connections Inlet	Outlet	Sound L_{WA**}	Fans (Operating values at 50 Hz) Blade	Type of current	Per Fan			Electr. defrost
		kW	kW	m²	m³/h	m	dm³	Ø mm	Ø mm	dB(A)	St. x Ø mm	230±10% 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

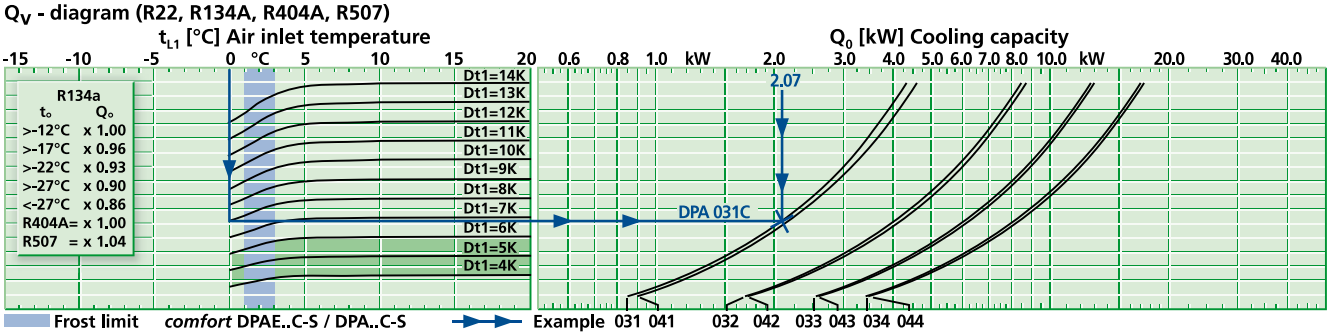


Model		Rating Q_0 at 50 Hz DT1, R404A t_{L1} ±0 °C DT1 = 8K	t_{L1} +10 °C DT1 = 10 K	Surface	Air flow	Air throw	Tube volume	Connections Inlet	Outlet	Sound L_{WA}**	Fans (Operating values at 50 Hz) Blade	Type of current	Per Fan			Electr. defrost
		kW	kW	m²	m³/h	m	dm³	Ø mm	Ø mm	dB(A)	St. x Ø mm	230±10% 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

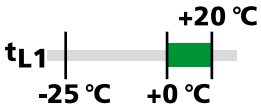
** For modifications of sound power levels, see page 59

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



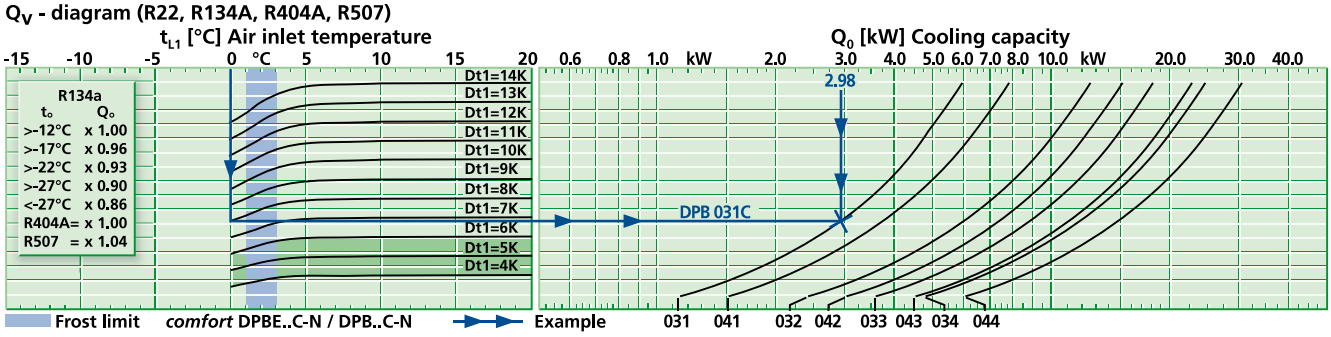
The technical data is also given in the product selection software.

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

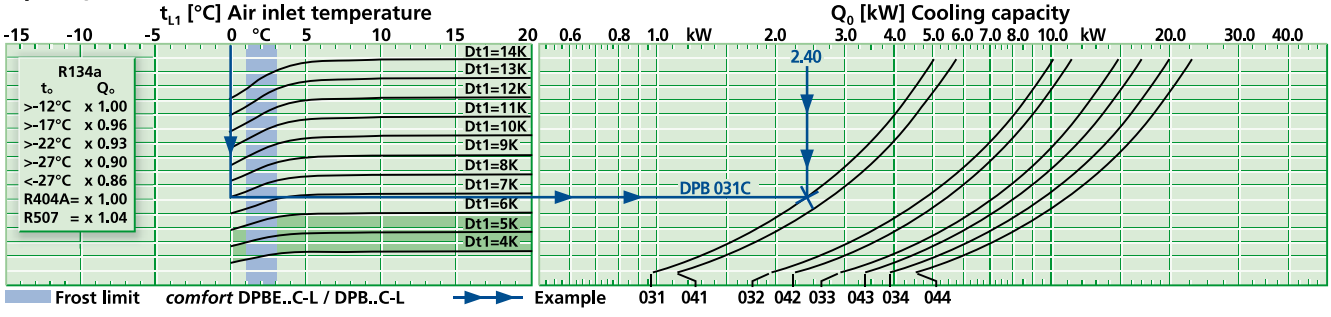
Q_V - diagram (R22, R134A, R404A, R507)



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

1,9 kW 8 kW

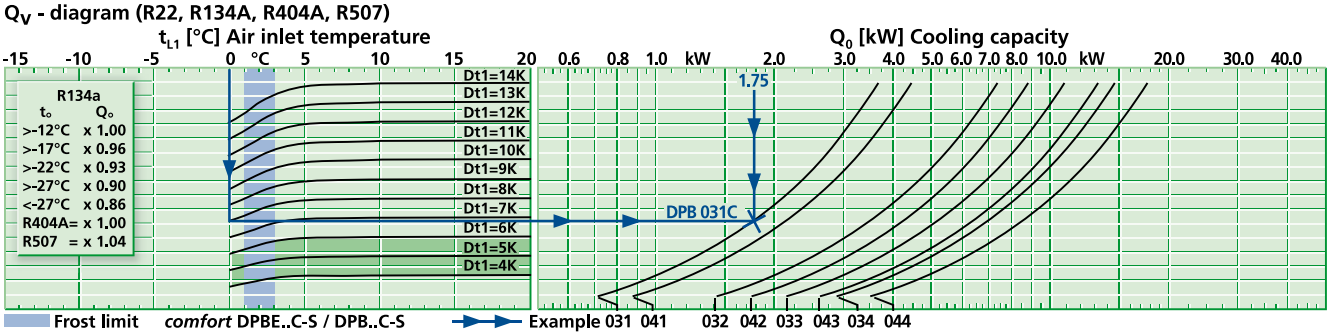
t_{L1} +20 °C -25 °C +0 °C

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} +10 °C DT1 = 10 K	Surface	Air flow	Air throw	Tube volume	Connections Inlet	Connections Outlet	Sound L_{WA}**	Fans (Operating values at 50 Hz) Blade	Fans Type of current	Fans 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

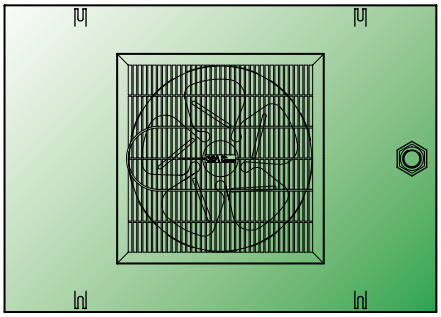
** For modifications of sound power levels, see page 59

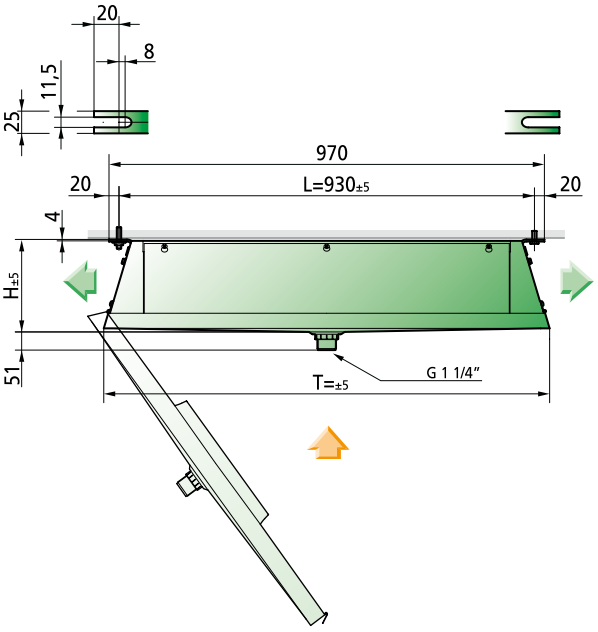
Q_V - diagram (R22, R134A, R404A, R507)



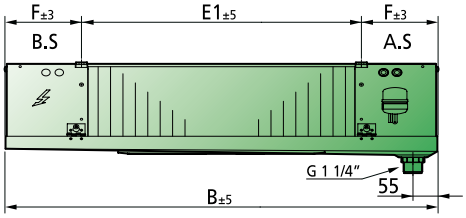
The technical data is also given in the product selection software.

Dimensions and weights

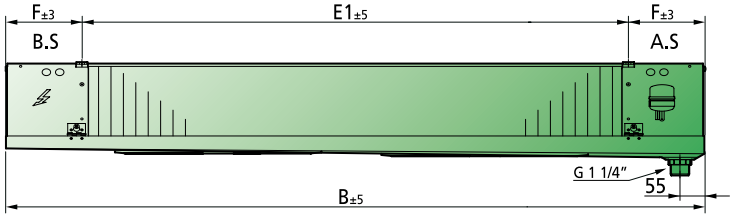




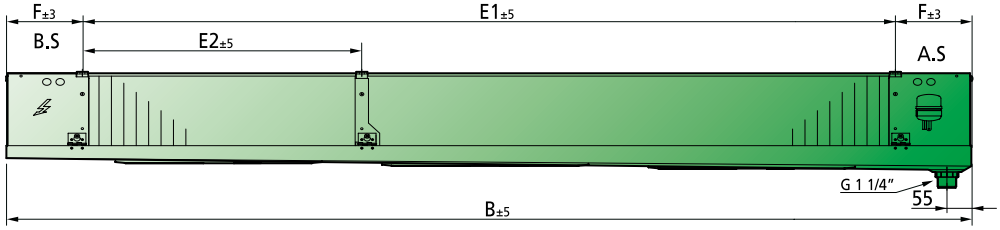
DP.(E) 031, 041 C



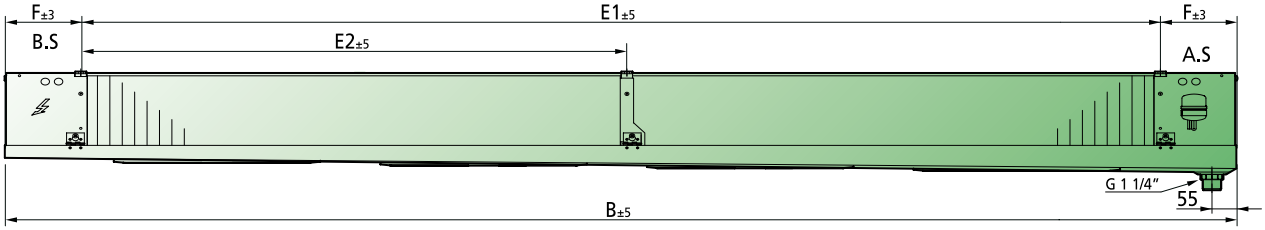
DP.(E) 032, 042 C



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

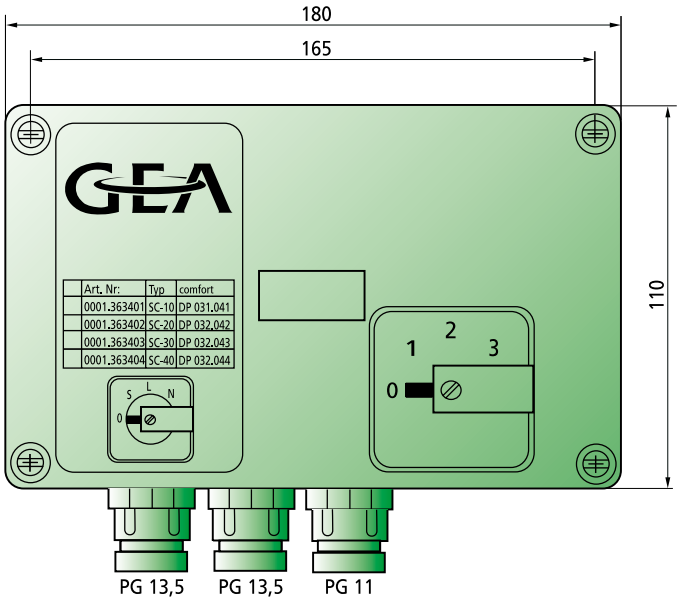
- **Version V6.04**

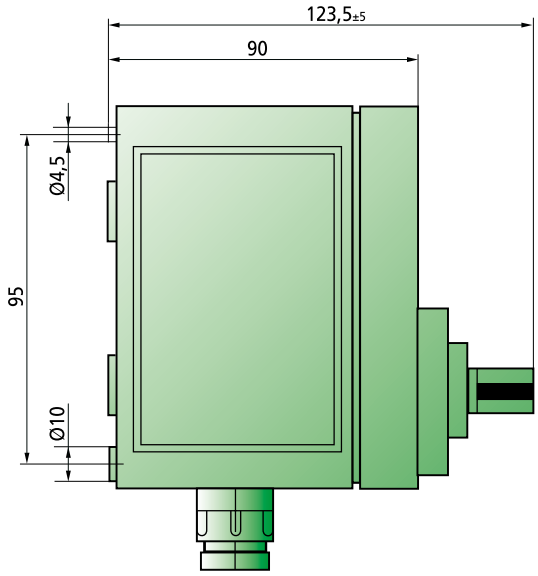
Cooler:
Tubing: Cu
Fins: Al „goldlack“ coating
End plates: Al

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

Accessories

Speed switch operation N, L, S

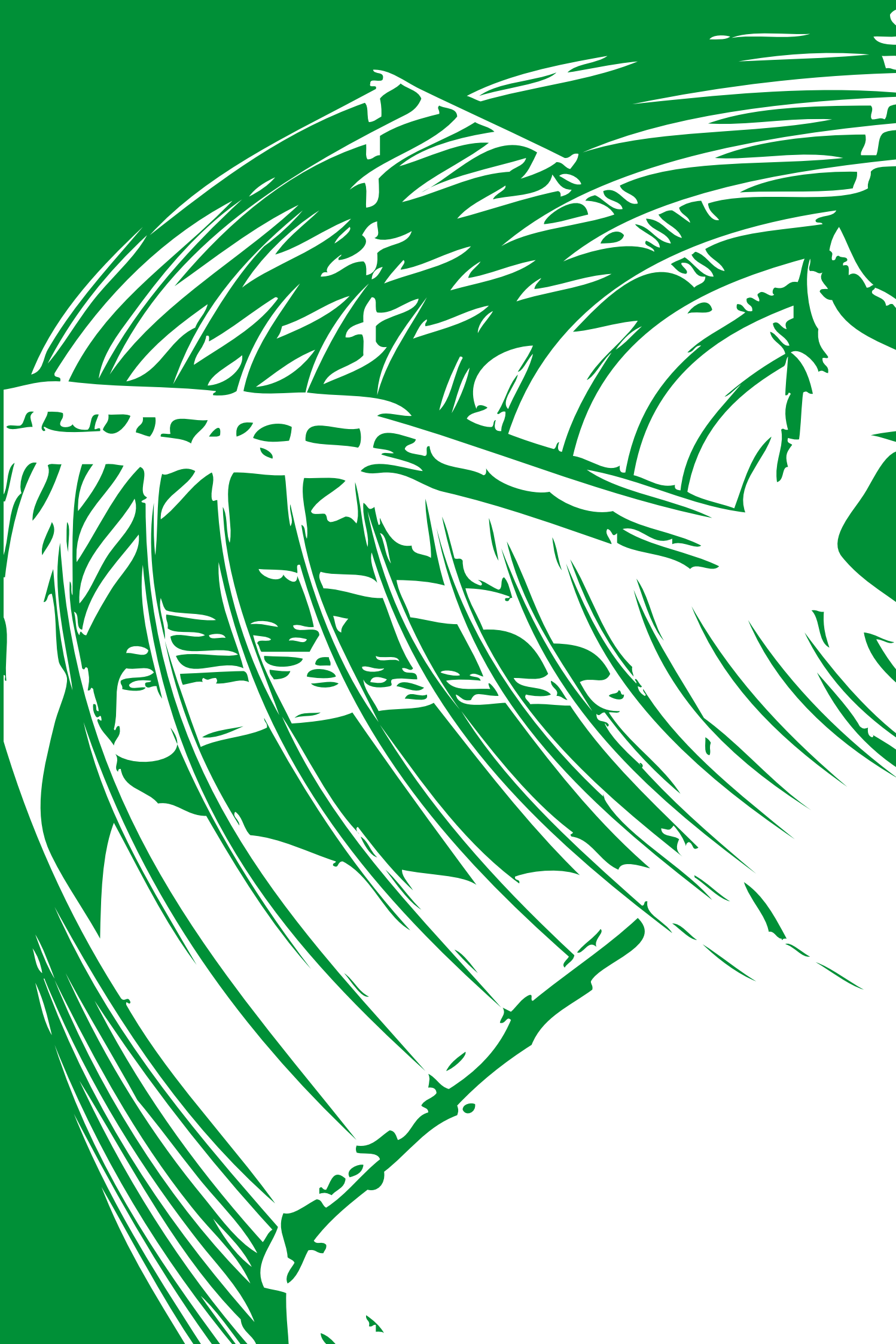




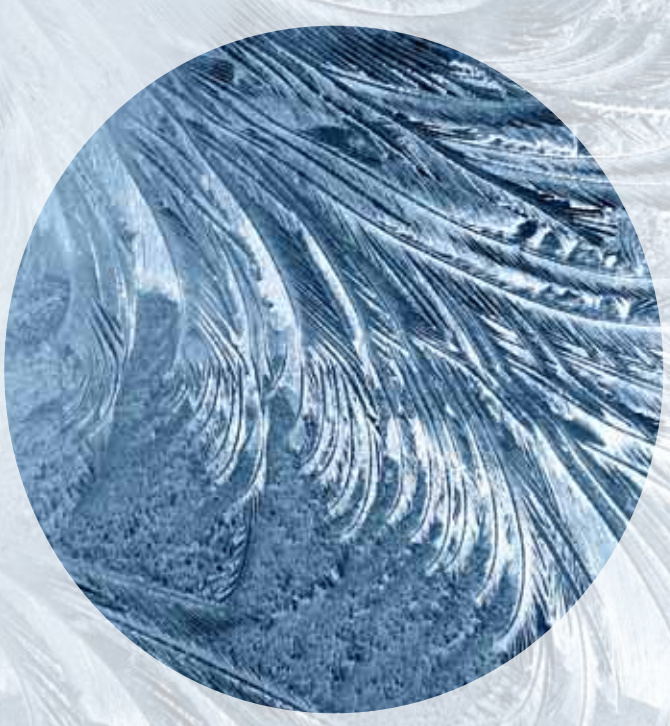
Model	for		Index of protection	µF
SC-10**	DP 031C, 041C	✇	IP 54	10
SC-20**	DP 032C, 042C	✇✇	IP 54	20
SC-30**	DP 033C,043C	✇✇✇	IP 54	30
SC-40**	DP 034C, 044C	✇✇✇✇	IP 54	40

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

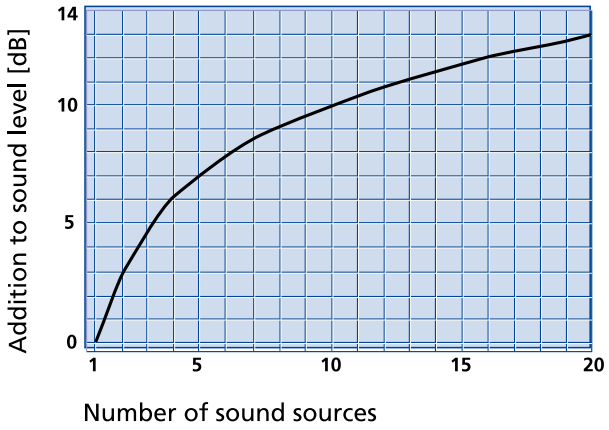
The human ear can perceive sound at frequencies between approx. 15 and 20,000 Hertz. Perception or sensitivity to sound depends strongly on the respective frequency. Very high and low tones are often percieved as less loud than those in the mid-frequency range from about 1000 to 5000 Hertz. For this 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

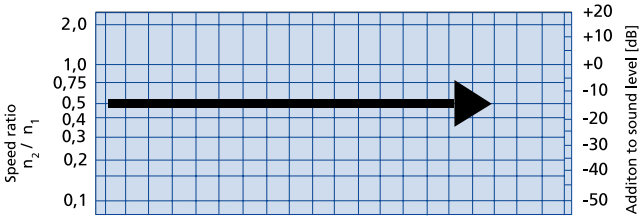
Due to the reflection in the cold storage area, the sound power $L_{W(A)}$ should always be used for a technical comparison between Air Coolers. In this case, only sound power offers information that can be compared because it does not depend on the distance to the sound source, the installation location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

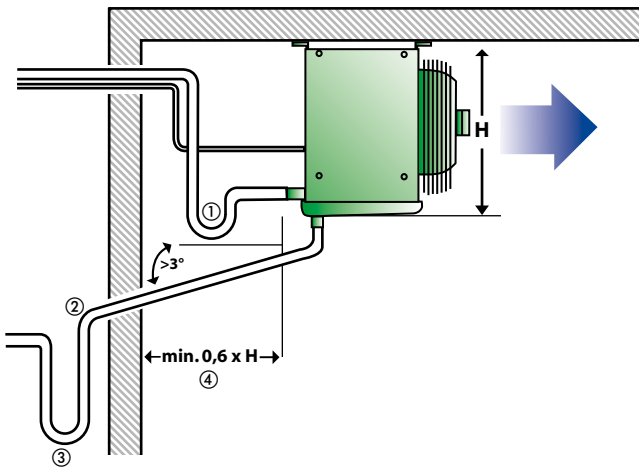
If the suction line cannot be laid on an incline to the evaporator, an oil collector should be installed. The high speed of the refrigerant in the bend will ensure that oil is recirculated to the compressor. The bend should be located below the cooler so that the air cooler capacity is not affected by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

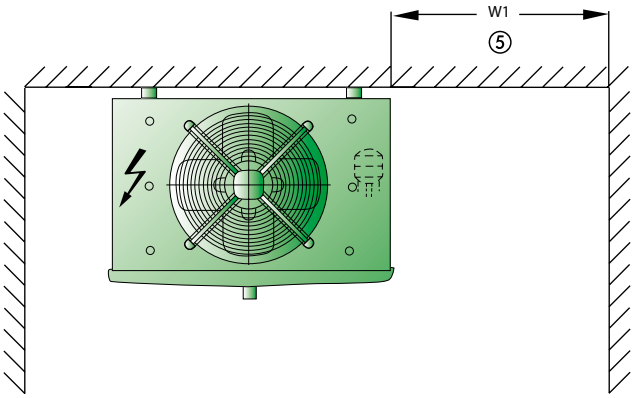


Wall clearance ④

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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