Optigo FCC

CUBIC LIGHT INDUSTRIAL AIR COOLERS

SPECIFICATIONS

Refrigerants*

HFC CO_2 Brine

Capacity range**

5.4 - 60.4 kW

**(SC2 with R404)

Design pressure

up to 60 bar

*Brine refrigerant is not covered by Eurovent certification

BENEFITS

- Top performance
- Environment & installation-cost friendly
- Short delivery time
- Even cold room conditions
- Easy installation and maintenance
- Long life cycle
- Fit for purpose

LU-VE GROUP
leadership with passion

Optigo FCC

Cubic light industrial air coolers

General information and application

Optigo FCC are cubic light industrial air coolers for general application in small to medium-sized cooling, freezing and working rooms.
Optigo FCC models are especially suitable for refrigerated working, processing and storage rooms.

Capacity range (SC2 with R404)	5.4 up to 60.4 kW
Air flow	4,600 up to 32,400 m³/h
Min. room temperature	- 35 °C

Standard configuration

- High-efficiency coil manufactured from internally grooved Cu tubes and louvered aluminium fins.
- 6 and 8 rows for HFC and CO_2 units. 4, 6 and 8 rows for brine units. 10 tubes per row in F45CC; 14 tubes per row in F50CC.
- Standard fin spacings: 4.5, 6.0, 7.5 and 10.0 mm.
- Durable galvanized steel casing, powder coated RAL 9003. Metallic fan grid. Dismountable and openable casing for cleaning and inspecting purposes. Fitted with hinged drain tray.
- Each heat exchanger is leak tested with dry air and finally supplied with a dry air pre-charge.
- Fitted with schräder valve on the suction connection for testing purposes (only for HFC and CO_2 units).
- Delivered in mounting position in a wooden crate.

Design pressure

Refrigerant	Max working pressure
HFC*	24 bar
CO_2	45-60 bar
Brine	10 bar

* Fluid group 2 according to EN 378

Certifications

The Alfa LU-VE quality system is in accordance with ISO 9001.
All products are manufactured according to PED regulations.
Alfa LU-VE participates in the ECP programfor HE.
Check ongoing validity of certificate:
www.eurovent-certification.com

Optional features

Defrost technologies

- Electric defrost (E) - *includes both coil and drain tray*
- Hot gas defrost (G) - *hot gas in coil, electrical in drain tray*
- Air defrost (N)

Accessories

- Pre-coated aluminium fins (AP)
- Fan motors wired to a central connection box
- EC fans (0-10V) + Modbus
- Fan switches
- Fan shroud heater
- Insulated drain tray
- Shut-up sock
- Textile tube adapter
- Air streamer
- Top connections for brine units

Code description

F45CC	*	1100	N	4	*	*
1	2	3	4	5	6	7

1 Optigo cubic light industrial air coolers (F45CC=Ø 450 mm, F50CC=Ø 500 mm)
2 Application (blank=direct expansion, W=brine)
3 Model type
4 Defrost system (N=air defrost, E=electric defrost, G=hot-gas defrost)
5 Fin spacing (4=4.5, 6=6.0, 7=7.5, 10=10.0 mm)
6 Circuits code - only for brine units
7 Options

Fans

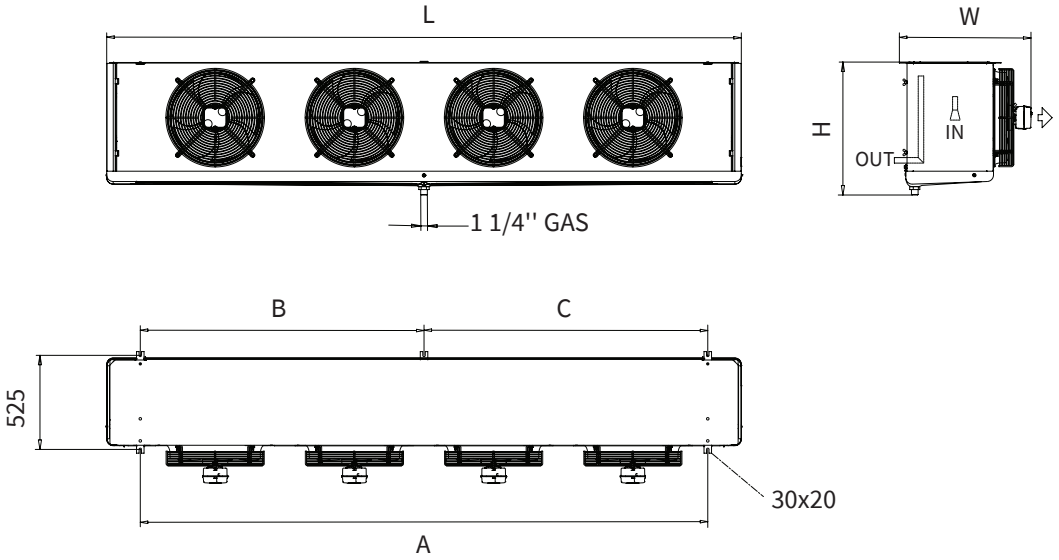
1 to 4 fans fitted with high efficiency AC or EC fan motors, available in two fan diameters (450 and 500 mm) drawing through the coil. EC fan motors with 0–10 V control input, suitable for ModBus communication.

Type	Power supply	Ø	Nominal power	Nominal current
		mm	W (x1)	A (x1)
AC	1~230 V - 50/60 Hz	450	480/665	2.1/2.9
AC	3~400 V - 50 Hz Δ/Y	500	840/540	1.45/0.96
AC	3~460 V - 60 Hz Δ/Y	500	1200/700	2.0/1.05
EC	1~230 V - 50/60 Hz	450	410	1.8
EC	3~400 V - 50/60 Hz	500	1000	1.6

Defrost

Model	Fans no.	Electric defrost (E)	Hot gas defrost (G)	Fan shroud heater
		W (tot)	W (tot)	W (tot)
F45CC **00	1	3400	850	250
F45CC **02	1	5100	850	250
F45CC **06	2	6340	1585	500
F45CC **08	2	9510	1585	500
F45CC **12	3	9200	2300	750
F45CC **14	3	13800	2300	750
F45CC **18	4	12080	3020	1000
F45CC **20	4	18120	3020	1000
F50CC **00	1	4250	850	280
F50CC **02	1	5950	850	280
F50CC **06	2	7925	1585	560
F50CC **08	2	11095	1585	560
F50CC **12	3	11500	2300	840
F50CC **14	3	16100	2300	840
F50CC **18	4	15100	3020	1120
F50CC **20	4	21140	3020	1120

Dimensions



	Model	Fans no.	Dimensions (mm)					
			L	A	B	C	W	H
F45CC	**00 **02	1	1290	800	800	-	675	660
F45CC	**06 **08	2	2090	1600	1600	-	675	660
F45CC	**12 **14	3	2890	2400	2400	-	675	660
F45CC	**18 **20	4	3690	3200	1600	1600	675	660
F50CC	**00 **02	1	1290	800	800	-	730	880
F50CC	**06 **08	2	2090	1600	1600	-	730	880
F50CC	**12 **14	3	2890	2400	2400	-	730	880
F50CC	**18 **20	4	3690	3200	1600	1600	730	880

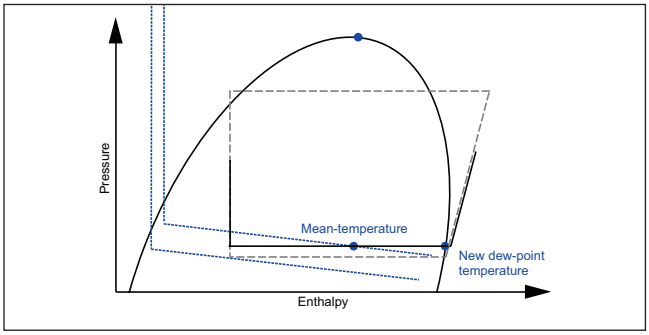
Cooling capacities air coolers

Cooling capacities as given in the tables are nominal capacities for wet conditions (Qn) in compliance with Eurovent regulations and EN328:2014. These nominal values have been calculated from the standard (dry) condition Qst with the following formula: Qn = Qst x correction factor.

Standard Condition	Air inlet temp. (°C)	Evaporating temp. (°C)	Relative humidity	Correction factor
SC2	0	-8	85 %	1.15

High glide refrigerants and air coolers

Traditional air cooler design is based on evaporating temperature being the refrigerant dew-point temperature at the evaporating pressure. This design approach boosts the evaporator's performance in case of refrigerants with glide thus reducing it's size. If the size is reduced, there is the chance to reduce the cost of the cooler. Mean-temperature design instead of dew-point can be used for evaporators when dealing with high-glide refrigerants and is the advised approach for unpacked food applications, for which dew-point approach may result in higher dehumidification and consequent higher weight losses of the products stored.



DT1 - 10 K conditions

In addition to the Eurovent Standard Conditions, the tables also show DT1 - 10 K capacities air coolers for T_{air}= 2,5 °C and T_{evap} = -7,5 °C. They correspond to dry atmosphere capacities multiplied by a factor of 1.25 (latent heat factor) to take into account the increase of capacity (latent heat) caused by the condensation of water vapour on the surfaces of the unit cooler. This factor depends on the operating conditions of the cold room. It increases for high room temperatures and decreases for low room temperatures as indicated in the table.

Air inlet temperature (°C)	Latent heat factor
10	1.35
2.5	1.25
0	1.15
-18	1.05
-25	1.01

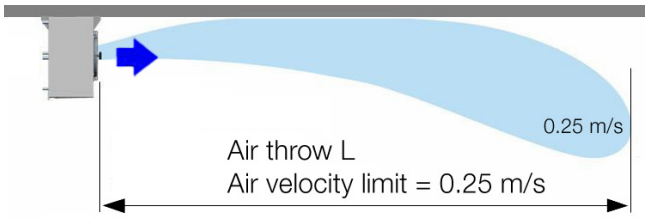
Correction factors air coolers

All nominal capacities are calculated with R404A.
To get capacity with other refrigerants, multiply by the following correction factors R404A capacity in the same condition:

Refrigerant	Correction factors for dew-point selection		Correction factors for mean temperature selection	
	SC2	DT1 - 10 K	SC2	DT1 - 10K
R134a	0.91	0.92	-	-
R507A	0.97	0.97	-	-
R407A	1.24	1.22	-	
R407C	1.26	-	-	-
R407F	1.24	1.22	-	-
R448A	1.26	1.24	0.96	0.92
R449A	1.23	1.22	0.95	0.92
R450A	0.91	0.92	0.89	-
R452A	1.12	1.11	0.94	0.93
R513A	0.91	0.91	0.9	-

Air throw

The values given in the tables are for ceiling mounted coolers at t=20 °C, an unrestrained air flow in the cold room and a minimal air velocity of 0.25 m/s at the given air throw distance. The height and air circulation of the room may influence the air throw.



Sound power level dB(A)

Sound power level is the acoustic energy emitted by a source which produces a sound pressure level at some distance.

Sound pressure dB(A)

Sound pressure are sound pressure levels in dB(A) in free field conditions according to EN13487, at 3 m distance. Values may deviate depending on situations at site.

Model	Nominal capacities R404A		AC fans Ø 450 mm								Connections	
		DT1		motor	air	sound	sound	air	coil	int.	OD	
	SC2	+2.5/-7.5 °C	fans	cons.	throw	power level	pressure	flow	surface	volume	in	out
F45CC	W	W	no.	W	m	dB(A)	dB(A)	m^3/h	m^2	dm^3	mm	mm
Fin spacing 4.5 mm												
F45CC1100-4	**9**	12.2	1	430	24	78	57	4900	34.0	7	16	35
F45CC1102-4	**10.4**	14.1	1	430	22	78	57	4600	45.3	9.2	16	35
F45CC1106-4	**18**	24.4	2	860	28	81	60	9800	68.1	13.2	16	42
F45CC1108-4	**20.9**	28.3	2	860	26	81	60	9200	90.8	17.4	16	42
F45CC1112-4	**27**	36.6	3	1290	32	83	62	14700	102.1	19.6	28	54
F45CC1114-4	**30.9**	41.9	3	1290	30	83	62	13800	136.1	25.2	28	54
F45CC1118-4	**36.4**	49.3	4	1720	35	84	63	19600	136.1	25.6	28	54
F45CC1120-4	**42**	56.9	4	1720	32	84	63	18400	181.5	34.3	28	64
Fin spacing 7.5 mm												
F45CC1300-7	**6.9**	9.4	1	415	26	78	57	5300	21.3	7	16	35
F45CC1302-7	**8.6**	11.6	1	430	25	78	57	5100	28.5	9.2	16	35
F45CC1306-7	**13.9**	18.8	2	830	31	81	60	10600	42.7	13.2	16	42
F45CC1308-7	**17.1**	23.2	2	860	29	81	60	10200	57	17.4	16	42
F45CC1312-7	**21.3**	28.8	3	1245	35	83	62	15900	64	19.6	16	42
F45CC1314-7	**25.5**	34.5	3	1290	33	83	62	15300	85.4	25.2	28	54
F45CC1318-7	**28.3**	38.4	4	1660	38	84	63	21200	85.4	25.6	28	54
F45CC1320-7	**34.4**	46.6	4	1720	36	84	63	20400	113.9	34.3	28	64

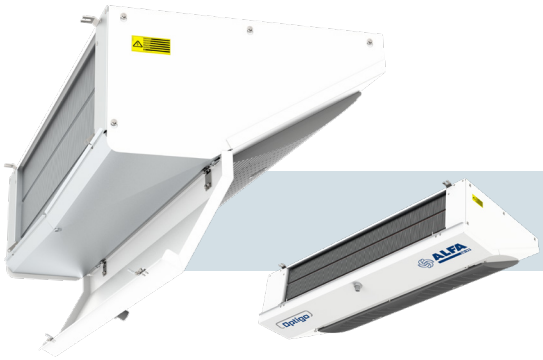
Model	Nominal capacities R404A		AC fans Ø 500 mm								Connections	
		DT1		motor	air	sound	sound	air	coil	int.	OD	
	SC2	+2.5/-7.5 °C	fans	cons.	throw	power level	pressure	flow	surface	volume	in	out
F50CC	W	W	no.	W	m	dB(A)	dB(A)	m^3/h	m^2	dm^3	mm	mm
Fin spacing 4.5 mm												
F50CC1600-4	**12.9**	17.5	1	730	32	80	59	7400	47.6	9.8	16	35
F50CC1602-4	**15.1**	20.4	1	730	30	80	59	7000	63.5	13.2	16	42
F50CC1606-4	**26**	35.2	2	1460	39	83	62	14800	95.3	19.1	28	54
F50CC1608-4	**30.1**	40.8	2	1460	36	83	62	14000	127.1	24.9	28	54
F50CC1612-4	**38.9**	52.7	3	2190	43	85	64	22200	142.9	28.1	28	64
F50CC1614-4	**43.7**	59.2	3	2190	41	85	64	21000	190.5	34.9	28	54
F50CC1618-4	**51.8**	70.2	4	2920	47	86	65	29600	190.5	36.5	28	64
F50CC1620-4	**60.4**	81.9	4	2920	44	86	65	28000	254.1	48.9	35	76
Fin spacing 7.5 mm												
F50CC1800-7	**10**	13.5	1	700	35	80	59	7800	29.9	9.8	16	35
F50CC1802-7	**12.3**	16.6	1	700	32	80	59	7600	39.8	13.2	16	42
F50CC1806-7	**19.9**	27	2	1400	42	83	62	15600	59.7	19.1	28	54
F50CC1808-7	**24.6**	33.4	2	1400	39	83	62	15200	79.8	24.9	28	54
F50CC1812-7	**30.4**	41.2	3	2100	47	85	64	23400	89.7	28.1	28	54
F50CC1814-7	**36**	48.8	3	2100	44	85	64	22800	119.6	34.9	28	54
F50CC1818-7	**40.5**	54.9	4	2800	51	86	65	31200	119.6	36.5	28	64
F50CC1820-7	**49.3**	66.8	4	2800	48	86	65	30400	159.4	48.9	35	76

Model	Nominal capacities CO_2		AC fans Ø 450 mm								Connections	
		DT1		motor	air	sound	sound	air	coil	int.	OD	
	SC2	+2.5/-7.5 °C	fans	cons.	throw	power level	pressure	flow	surface	volume	in	out
F45CC	W	W	no.	W	m	dB(A)	dB(A)	m^3/h	m^2	dm^3	mm	mm
Fin spacing 4.5 mm												
F45CC1100-CO2-4	**10**	13.1	1	430	24	78	57	4900	34	7	12	28
F45CC1102-CO2-4	**11**	14.1	1	430	22	78	57	4600	45.3	9.2	12	28
F45CC1106-CO2-4	**19.5**	25.1	2	860	28	81	60	9800	68.1	13.2	12	28
F45CC1108-CO2-4	**22.3**	28.7	2	860	26	81	60	9200	90.8	17.4	12	28
F45CC1112-CO2-4	**29.9**	38.8	3	1290	32	83	62	14700	102.1	19.6	16	35
F45CC1114-CO2-4	**32.4**	41.3	3	1290	30	83	62	13800	136.1	25.2	16	35
F45CC1118-CO2-4	**39.3**	50.6	4	1720	35	84	63	19600	136.1	25.6	16	35
F45CC1120-CO2-4	**45**	57.9	4	1720	32	84	63	18400	181.5	34.3	16	42
Fin spacing 7.5 mm												
F45CC1300-CO2-7	**8.3**	10.8	1	415	26	78	57	5300	21.3	7	12	28
F45CC1302-CO2-7	**9.7**	12.6	1	430	25	78	57	5100	28.5	9.2	12	28
F45CC1306-CO2-7	**16.3**	21.2	2	830	31	81	60	10600	42.7	13.2	12	28
F45CC1308-CO2-7	**19.6**	25.5	2	860	29	81	60	10200	57	17.4	12	28
F45CC1312-CO2-7	**24.8**	32.4	3	1245	35	83	62	15900	64	19.6	16	35
F45CC1314-CO2-7	**28.9**	37.2	3	1290	33	83	62	15300	85.4	25.2	16	35
F45CC1318-CO2-7	**32.8**	42.7	4	1660	38	84	63	21200	85.4	25.6	16	35
F45CC1320-CO2-7	**39.5**	51.4	4	1720	36	84	63	20400	113.9	34.3	16	42

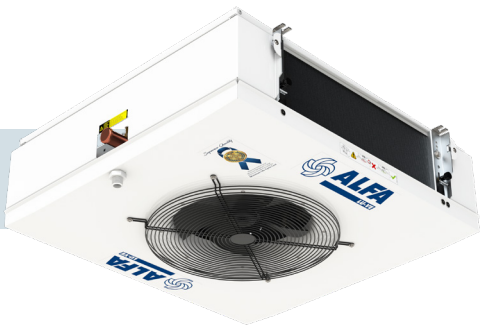
Model	Nominal capacities CO_2		AC fans Ø 500 mm								Connections	
		DT1		motor	air	sound	sound	air	coil	int.	OD	
	SC2	+2.5/-7.5 °C	fans	cons.	throw	power level	pressure	flow	surface	volume	in	out
F50CC	W	W	no.	W	m	dB(A)	dB(A)	m^3/h	m^2	dm^3	mm	mm
Fin spacing 4.5 mm												
F50CC1600-CO2-4	**13.3**	17	1	730	32	80	59	7400	47.6	9.8	12	28
F50CC1602-CO2-4	**16.4**	21.4	1	730	30	80	59	7000	63.5	13.2	12	28
F50CC1606-CO2-4	**28.7**	37.6	2	1460	39	83	62	14800	95.3	19.1	16	35
F50CC1608-CO2-4	**32.7**	42.5	2	1460	36	83	62	14000	127.1	24.9	16	35
F50CC1612-CO2-4	**41**	52.7	3	2190	43	85	64	22200	142.9	28.1	16	35
F50CC1614-CO2-4	**47.6**	61.2	3	2190	41	85	64	21000	190.5	34.9	16	42
F50CC1618-CO2-4	**52.9**	67.4	4	2920	47	86	65	29600	190.5	36.5	16	35
F50CC1620-CO2-4	**65.7**	85.6	4	2920	44	86	65	28000	254.1	48.9	28	54
Fin spacing 7.5 mm												
F50CC1800-CO2-7	**11.3**	14.6	1	700	35	80	59	7800	29.9	9.8	12	28
F50CC1802-CO2-7	**14.2**	18.6	1	700	32	80	59	7600	39.8	13.2	12	28
F50CC1806-CO2-7	**23.5**	30.9	2	1400	42	83	62	15600	59.7	19.1	16	35
F50CC1808-CO2-7	**28.3**	37.2	2	1400	39	83	62	15200	79.8	24.9	16	35
F50CC1812-CO2-7	**34.5**	44.8	3	2100	47	85	64	23400	89.7	28.1	16	35
F50CC1814-CO2-7	**41.9**	54.4	3	2100	44	85	64	22800	119.6	34.9	16	42
F50CC1818-CO2-7	**45.1**	58.2	4	2800	51	86	65	31200	119.6	36.5	16	35
F50CC1820-CO2-7	**56.9**	74.6	4	2800	48	86	65	30400	159.4	48.9	28	54

Optigo FMC | Commercial cubic air coolers
Optigo FMC are cubic commercial air coolers for general application in small to medium-sized cooling, freezing and working rooms. The products are especially suitable for refrigerated working, processing and storage rooms.

Optigo FMS | Slim commercial air coolers
Optigo FMS is a commercial slim air coolers line for general application in small to medium-sized cooling and freezing rooms. All FMS models are characterised by a low silhouette for the efficient use of cold room space.



Optigo FMD | Dual discharge industrial air coolers
Optigo FMD are commercial dual discharge air coolers for general application in small to medium-sized cooling, freezing and working rooms.
Low air velocity and noise level make them especially suitable for refrigerated working and processing rooms.



Product selection

Selection and pricing is to be performed with our online air heat exchanger selection software Plair.
Selection output includes all relevant technical data and dimensional drawings.

Alfa LU-VE in brief

Alfa LU-VE is a leading global provider of specialized products and engineered solutions.

Our equipment, systems and services are dedicated to helping customers optimize the performance of their processes.

Time and time again.

We help our customers to cool products such as water, foodstuffs, beverages, chemicals, pharmaceuticals and oil. Our worldwide organization works closely with customers to help them stay ahead.

How to contact Alfa LU-VE

Up-to-date Alfa LU-VE contact details for all countries are always available on our website at alfa.luvegroup.com

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