Air coolers FC38

Standard

Cu/Al-R404A/Coolants

GEA Heat Exchangers

Goedhart

Correction factors DT1 (=Air-on)

The nominale capacities of the Goedhart FC38i(dx) and FC38p(dx) air coolers are based on R-404A direct expansion, DT1 and a RH of 85%. DT1 it the difference between air-on temperature and the evaporation temperature of the cooler. The evaporation temperature is the saturated temperature corresponding to the pressure at the suction outlet of the cooler.

The nominal capacities:

(SC1) t_o = 0 °C and DT1= 10 K
(SC2) t_o = -8°C and DT1= 8 K
(SC3) t_o = - 25°C and DT1= 7 K

Correction factors for various evaporation temperatures and temperature differences (DT1) are as indicated in the tables below. The requested capacity must be multiplied by a correction factor from the table. so that a cooler with the resulting nominal capacity can be chosen from the selection tables.

Q nominal = factor x Q requested

R404A — SC1 DT1 = 10K, Air on = 10°C (0/+10°C)

DT1	Evaporation temperature (°C)									
K	+7	+6	+5	+4	+3	+2	+1	0	-1	-2
6	1,81	1,81	1,82	1,82	1,83	1,83	1,84	1,84	1,84	1,85
7	1,49	1,50	1,50	1,50	1,51	1,51	1,52	1,52	1,52	1,53
8	1,27	1,28	1,28	1,29	1,29	1,29	1,30	1,30	1,30	1,31
9	1,10	1,10	1,11	1,11	1,12	1,12	1,13	1,13	1,13	1,14
10	0,97	0,98	0,98	0,99	0,99	0,99	1,00	1,00	1,00	1,01
11	0,88	0,88	0,88	0,89	0,89	0,90	0,90	0,90	0,90	0,91
12	0,79	0,79	0,79	0,80	0,80	0,81	0,81	0,81	0,81	0,82

R404A — SC2 DT1 = 8K, Air on = 0°C (-8/0°C)

DT1	Evaporation temperature (°C)									
K	-3	-4	-5	-6	-7	-8	-9	-10	-11	-12
6	1,30	1,34	1,38	1,42	1,42	1,43	1,43	1,43	1,44	1,44
7	1,04	1,07	1,10	1,14	1,17	1,18	1,18	1,18	1,19	1,19
8	0,86	0,88	0,91	0,94	0,97	1,00	1,00	1,01	1,01	1,01
9	0,75	0,75	0,77	0,79	0,82	0,84	0,87	0,87	0,87	0,88
10	0,66	0,66	0,66	0,68	0,70	0,72	0,74	0,77	0,77	0,77
11	0,59	0,59	0,59	0,59	0,61	0,63	0,65	0,67	0,69	0,69
12	0,54	0,54	0,54	0,54	0,54	0,55	0,57	0,58	0,60	0,62

R404A — SC3 DT1 = 7K, Air on = -18°C (-25/-18°C)

DT1	Evaporation temperature (°C)									
K	-21	-22	-23	-24	-25	-26	-27	-28	-29	-30
6	1,20	1,20	1,21	1,21	1,21	1,22	1,22	1,23	1,23	1,23
7	0,99	0,99	0,99	1,00	1,00	1,00	1,00	1,01	1,01	1,02
8	0,84	0,84	0,84	0,85	0,85	0,85	0,85	0,86	0,86	0,86
9	0,73	0,73	0,73	0,73	0,73	0,74	0,74	0,74	0,74	0,75
10	0,64	0,64	0,64	0,64	0,65	0,65	0,65	0,65	0,66	0,66
11	0,57	0,57	0,57	0,58	0,58	0,58	0,58	0,58	0,59	0,59
12	0,52	0,52	0,52	0,52	0,52	0,52	0,53	0,53	0,53	0,53

Capacity optimization

To achieve the best possible combination of application, refrigerant and capacity, Goedhart can optimise the coil circuiting, depending on the specific conditions under which the products will be used. FC38 is a standard product to ensure shorter delivery times. The circuiting of these evaporators has been optimized according to the most commonly used coolants/ refrigerants and conditions. Specific applications can vary from this, our sales department is there to assist you in selecting the best circuiting for your application.

Correction factors for coolants

The nominal capacities of the Goedhart FC38p(G) air coolers are based on an air-on temperature of 12°C, a RH of 85% and:

Water : in / out temperatuur = +1/+5°C
E-Glycol : in / out temperatuur = - 2/+3°C
P-Glycol : in / out temperatuur = - 2/+3°C
Pekasol : in / out temperatuur = - 2/+3°C
Freezium : in / out temperatuur = - 2/+3°C

Correction factors for various air-on temperatures and refrigerants or secondary coolants are as indicated in the tables below. The requested capacity must be multiplied by a correction factor from the table, so that a cooler with te resulting nominal capacity can be chosen from the selection tables.

Q nominal = faktor x Q requested

Water

in/out	Air-on temperature (°C)								
°C	+8	+9	+10	+11	+12	+13	+14	+15	+16
1 / 5	1,99	1,59	1,32	1,14	1,00	0,88	0,78	0,72	0,66
2 / 6		1,95	1,57	1,30	1,12	0,98	0,87	0,78	0,71
3 / 7			1,92	1,54	1,28	1,11	0,97	0,86	0,77
4 / 8				1,94	1,56	1,31	1,13	0,98	0,87
5 / 9					1,86	1,49	1,25	1,07	0,94

E-Glycol 28%

in/out	Air-on temperature (°C)								
°C	+8	+9	+10	+11	+12	+13	+14	+15	+16
-2 / 3	1,81	1,46	1,34	1,16	1,00	0,88	0,82	0,81	0,69
-1 / 4	2,35	1,72	1,41	1,28	1,10	0,96	0,85	0,79	0,75
0 / 5	2,43	2,30	1,64	1,40	1,24	1,06	0,93	0,84	0,76
1 / 6		2,38	2,28	1,59	1,37	1,21	1,05	0,92	0,82
2 / 7			2,28	2,09	1,55	1,35	1,17	1,03	0,91

P-Glycol 28%

in/out	Air-on temperature (°C)								
°C	+8	+9	+10	+11	+12	+13	+14	+15	+16
-2 / 3	1,66	1,45	1,26	1,11	1,00	0,91	0,83	0,76	0,70
-1 / 4	2,00	1,65	1,42	1,24	1,11	1,01	0,90	0,81	0,77
0 / 5	2,48	1,94	1,65	1,41	1,23	1,14	1,00	0,91	0,85
1 / 6		2,46	1,97	1,64	1,42	1,29	1,12	1,00	0,92
2 / 7			2,45	1,96	1,63	1,64	1,28	1,11	1,00

Pekasol 50%

in/out	Air-on temperature (°C)								
°C	+8	+9	+10	+11	+12	+13	+14	+15	+16
-2 / 3	1,68	1,42	1,26	1,11	1,00	0,90	0,82	0,77	0,70
-1 / 4	2,02	1,65	1,42	1,24	1,10	0,98	0,89	0,81	0,76
0 / 5	2,39	1,96	1,62	1,39	1,22	1,07	0,96	0,87	0,80
1 / 6		2,36	1,93	1,60	1,37	1,20	1,06	0,94	0,86
2 / 7			2,32	1,89	1,57	1,35	1,18	1,05	0,94

Freezium 24%

in/out	Air-on temperature (°C)								
°C	+8	+9	+10	+11	+12	+13	+14	+15	+16
-2 / 3	1,66	1,44	1,25	1,11	1,00	0,91	0,83	0,77	0,71
-1 / 4	1,94	1,62	1,42	1,23	1,09	0,98	0,89	0,82	0,76
0 / 5	2,38	1,91	1,59	1,39	1,21	1,07	0,97	0,88	0,81
1 / 6		2,34	1,88	1,57	1,37	1,20	1,06	0,95	0,86
2 / 7			2,30	1,86	1,55	1,35	1,18	1,05	0,94

F38Dp(dx) - R404A

 =4 mm

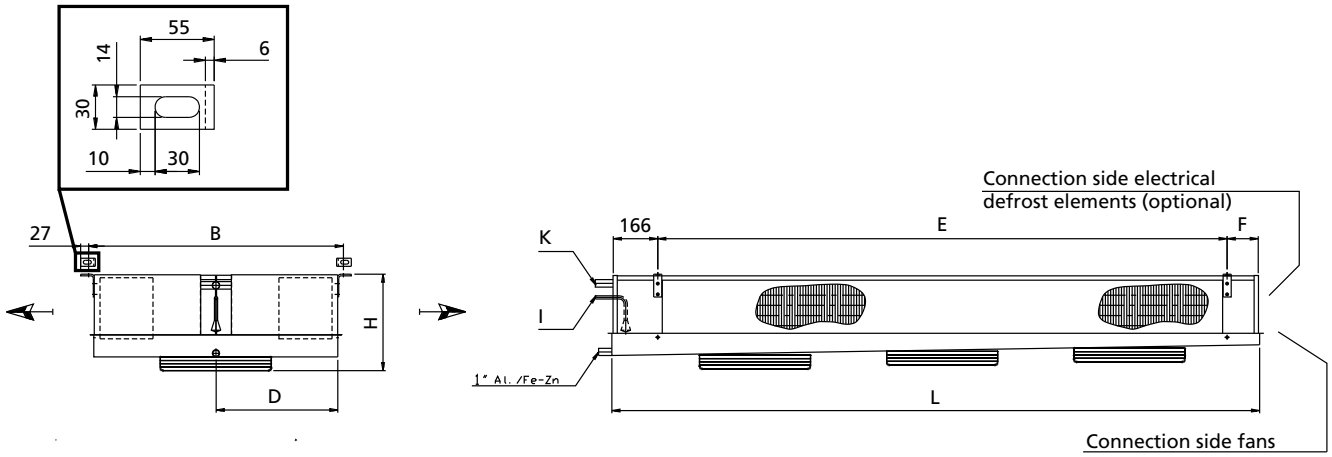
Type	Fan diameter	1x230V-50Hz-4 pole				1x230V-50Hz-6 pole				Surface	Connections		Weight	Internal volume	Air cooler details
		SC1 DT1 = 10K Air on =10°C 0 / +10	SC2 DT1 = 8K Air on =0°C -8 / 0	Air volume	LpA @ 3 m (+/- 2 dB(A))*	SC1 DT1 = 10K Air on =10°C 0 / +10	SC2 DT1 = 8K Air on =0°C -8 / 0	Air volume	LpA @ 3 m (+/- 2 dB(A))*		I	K			
FC38D	mm	kW	kW	m³/h	dB(A)	kW	kW	m³/h	dB(A)	m²	mm	mm	kg	dm³	
6.1.30.4	1x300	3,7	2,4	1048	52					16	12	12	54	4	
6.1.35.4	1x350	5,8	3,9	1644	57					20	12	22	66	6	
6.2.30.4	2x300	7,7	5,2	2045	55					30	12	22	82	8	
6.2.35.4	2x350	10,4	7,0	3060	60					34	12	22	92	8	
6.2.40.4	2x400	17,4	11,8	4890	63	13,6	9,2	3434	53	61	16	28	123	14	
6.2.45.4	2x450	29,1	19,5	8674	68	22,2	15,2	5669	58	95	16	35	161	20	
6.3.30.4	3x300	11,9	8,1	3155	57					48	12	22	114	10	
6.3.35.4	3x350	14,5	9,7	4343	62					48	12	22	116	10	
6.3.40.4	3x400	26,3	17,6	7339	64	20,6	14,0	5156	54	91	16	35	169	20	
6.3.45.4	3x450	45,2	30,0	13139	69	34,1	23,1	8600	60	146	16	35	228	32	
6.4.30.4	4x300	15,5	10,4	4095	58					61	16	28	138	14	
6.4.35.4	4x350	19,2	12,8	5609	63					61	16	28	139	14	
6.4.40.4	4x400	32,4	21,6	9240	65	25,5	17,3	6439	55	110	16	35	200	24	

* = Sound pressure indication (LpA) at 3 m distance each air cooler (+/- 2 dB(A)) , free field conditions, according EN13487

 =7 mm

Type	Fan diameter	1x230V-50Hz-4 pole				1x230V-50Hz-6 pole				Surface	Connections		Weight	Internal volume	Air cooler details
		SC1 DT1 = 10K Air on =10°C 0 / +10	SC2 DT1 = 8K Air on =0°C -8 / 0	Air volume	LpA @ 3 m (+/- 2 dB(A))*	SC1 DT1 = 10K Air on =10°C 0 / +10	SC2 DT1 = 8K Air on =0°C -8 / 0	Air volume	LpA @ 3 m (+/- 2 dB(A))*		I	K			
FC38D	mm	kW	kW	m³/h	dB(A)	kW	kW	m³/h	dB(A)	m²	mm	mm	kg	dm³	
6.1.30.7	1x300	3,2	2,2	1262	52					10	12	12	51	4	
6.1.35.7	1x350	4,8	3,2	2004	57					12	12	22	62	6	
6.2.30.7	2x300	6,4	4,3	2480	55					18	12	22	77	8	
6.2.35.7	2x350	8,7	5,8	3706	60					21	12	22	87	8	
6.2.40.7	2x400	14,2	9,4	5793	63	11,7	8,0	4197	53	36	12	22	114	14	
6.2.45.7	2x450	23,9	16,0	10019	68	18,9	12,8	6703	58	57	16	28	145	20	
6.3.30.7	3x300	10,2	6,9	3795	57					29	12	22	107	10	
6.3.35.7	3x350	12,4	8,2	5320	62					29	12	22	109	10	
6.3.40.7	3x400	21,7	14,5	8695	64	17,8	12,0	6299	54	55	16	28	154	20	
6.3.45.7	3x450	36,7	24,3	15125	69	28,8	19,4	10128	60	88	16	35	203	32	
6.4.30.7	4x300	13,0	8,7	4964	58					36	12	22	128	14	
6.4.35.7	4x350	15,9	10,5	6912	63					36	16	22	129	14	
6.4.40.7	4x400	27,2	18,1	11135	65	22,4	15,1	7999	55	66	16	28	181	24	

* = Sound pressure indication (LpA) at 3 m distance each air cooler (+/- 2 dB(A)) , free field conditions, according EN13487



Declarations

Connection ≤ 35 mm	: Declaration of incorporation (SEP)
Connection 42mm and 54 mm	: module A
Group of fluid	: 2
PS	: 28 bar
TS	: +55 / -40 °C

Type	Dimensions						Electrical defrost at 3x400V-50Hz					
	L	B	H	D	E	F	Coil block		Drip tray		Standard	Light
FC38D	mm	mm	mm	mm	mm	mm	number	O [mm]	number	O [mm]	kW	kW**
6.1.30.*	925	850	280	405	575	166	2x L=1600	132	2x L=1600	150	2,5	
6.1.35.*	1080	850	280	405	730	166	2x L=1900	132	2x L=1900	150	3,0	
6.2.30.*	1425	850	280	405	1075	166	2x L=2500	132	2x L=2500	150	4,1	
6.2.35.*	1570	850	280	405	1220	166	2x L=2800	132	2x L=2800	150	4,6	
6.2.40.*	1775	950	390	455	1425	166	4x L=3100	132	2x L=3400	150	8	6,1
6.2.45.*	2025	1000	465	480	1675	166	4x L=3700	132	2x L=3700	150	9,3	7,0
6.3.30.*	2025	850	280	405	1675	166	2x L=3700	132	2x L=3700	150	6,2	
6.3.35.*	2025	850	280	405	1675	166	2x L=3700	132	2x L=3700	150	6,2	
6.3.40.*	2475	950	390	455	2125	166	4x L=4600	132	2x L=4600	150	11,6	8,8
6.3.45.*	2850	1000	465	480	2550	116	4x L=5500	132	2x L=5500	150	14,0	10,6
6.4.30.*	2475	850	280	405	2125	166	2x L=4600	132	2x L=4600	150	7,8	
6.4.35.*	2475	850	280	455	2125	166	2x L=4600	132	2x L=4600	150	7,8	
6.4.40.*	2850	950	390	480	2550	116	4x L=5500	132	2x L=5500	150	14,0	10,6

Dimensions & Electrical defrost

F38Lp(dx) - R404A

 =4 mm

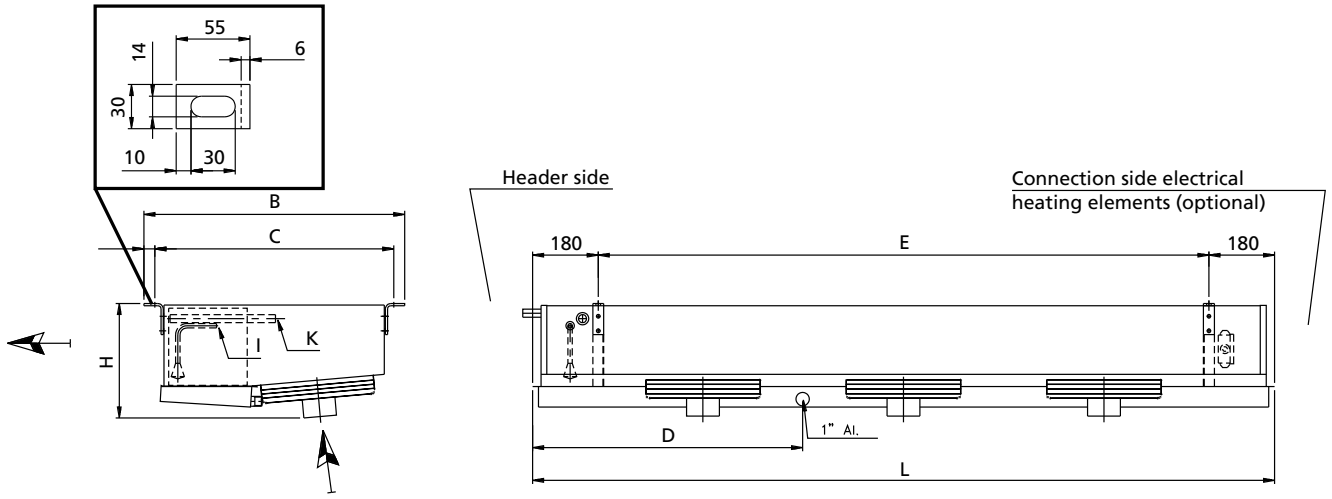
Type	Fan diameter	1x230V-50Hz-4 pole (1500 min⁻¹ nom.) SC1 DT1 = 10K Air on =10°C 0 / +10	SC2 DT1 = 8K Air on =0°C -8 / 0	SC3 DT1 = 7K Air on =-18°C -25 / -18	Air volume	LpA @ 3 m (+/- 2 dB(A))*	Surface	Connections I	Connections K	Weight	Internal volume	Air cooler details
FC38L	mm	kW	kW	kW	m³/h	dB(A)	m²	mm	mm	kg	dm³	
6.1.25.4	1x250	1,9	1,3		488	47	9	12	12	15	2	
6.1.30.4	1x300	3,3	2,3		930	52	13	12	12	20	3	
6.1.40.4	1x400	8,5	5,7		2386	60	29	12	22	40	7	
6.2.25.4	2x250	3,8	2,6		977	50	18	12	22	25	4	
6.2.30.4	2x300	6,8	4,6		1861	55	26	12	22	35	6	
6.2.40.4	2x400	17,1	11,5		4770	63	58	12	28	60	13	
6.3.30.4	3x300	10,4	7,0		2792	57	39	12	22	45	9	
6.3.40.4	3x400	25,3	16,8		7156	64	87	16	28	90	19	
6.4.30.4	4x300	13,8	9,3		3723	58	52	16	22	60	11	

* = Sound pressure indication (LpA) at 3 m distance each air cooler (+/- 2 dB(A)) , free field conditions, according EN13487

 =7 mm

Type	Fan diameter	1x230V-50Hz-4 pole (1500 min⁻¹ nom.) SC1 DT1 = 10K Air on =10°C 0 / +10	SC2 DT1 = 8K Air on =0°C -8 / 0	SC3 DT1 = 7K Air on =-18°C -25 / -18	Air volume	LpA @ 3 m (+/- 2 dB(A))*	Surface	Connections I	Connections K	Weight	Internal volume	Air cooler details
FC38L	mm	kW	kW	kW	m³/h	dB(A)	m²	mm	mm	kg	dm³	
6.1.25.7	1x250	1,6	1,1	0,8	593	47	5	12	12	15	2	
6.1.30.7	1x300	3,0	2,0	1,4	1157	52	8	12	12	20	3	
6.1.40.7	1x400	7,0	4,6	3,4	2847	60	17	12	22	30	7	
6.2.25.7	2x250	3,2	2,2	1,6	1186	50	11	12	12	20	4	
6.2.30.7	2x300	6,0	4,0	2,9	2313	55	16	12	22	30	6	
6.2.40.7	2x400	14,3	9,5	6,9	5695	63	35	12	22	55	13	
6.3.30.7	3x300	9,1	6,1	4,3	3470	57	23	12	22	40	9	
6.3.40.7	3x400	21,1	14,0	9,9	8543	64	52	16	28	80	19	
6.4.30.7	4x300	12,2	8,1	5,8	4626	58	31	12	22	55	11	

* = Sound pressure indication (LpA) at 3 m distance each air cooler (+/- 2 dB(A)) , free field conditions, according EN13487



Declarations

Connection ≤ 35 mm	: Declaration of incorporation (SEP)
Connection 42mm and 54 mm	: module A
Group of fluid	: 2
PS	: 28 bar
TS	: +55 / -40 °C

Type	Dimensions					Electrical defrost at 3x400V-50Hz				Standard
	L	B	H	E	D1	Coil block		Drip tray		
FC38L	mm	mm	mm	mm	mm	number	O [mm]	number	O [mm]	kW
6.1.25.*	890	705	280	530	245	2x L=1300	132	1x L=1300	175	1,5
6.1.30.*	990	705	315	630	295	2x L=1600	132	1x L=1600	175	1,9
6.1.40.*	1190	865	465	830	295	2x L=1900	132	1x L=2200	175	3,2
6.2.25.*	1390	705	280	1030	695	2x L=2500	132	1x L=2500	175	3,1
6.2.30.*	1590	705	315	1230	795	2x L=2800	132	1x L=2800	175	3,5
6.2.40.*	1990	865	465	1630	995	2x L=3700	132	1x L=3700	175	4,7
6.3.30.*	2190	705	315	1830	795	2x L=4000	132	1x L=4000	175	5,0
6.3.40.*	2790	865	465	2430	995	2x L=5200	132	1x L=5200	175	6,6
6.4.30.*	2790	705	315	2430	1395	2x L=5200	132	1x L=5200	175	6,6