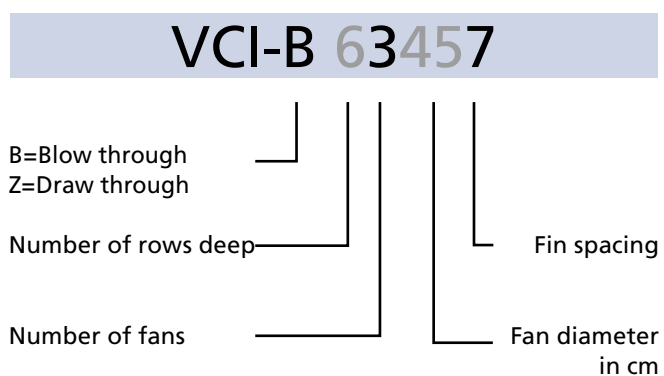




Goedhart VCI

The extensive range Goedhart VCI single discharge ceiling mounted industrial air coolers are available with capacities between 3,4 and 149 kW. The Goedhart VCI air coolers are suitable for cooling and freezing applications and with a wide variety of accessories and options available. The coil block is standard build from aluminium end plates, copper tubes and aluminium fins. The fans are arranged for blow-through air configuration for the Goedhart VCI-B and draw-through for the Goedhart VCI-Z (please state which is required when ordering).. The modular design incorporates 5 different sizes of fan, with model options of up to 8 fans per cooler.

Type description



Coil block

- Tube pitch : 50x50 mm straight
- Fin spacing : 4, 6, 7, 8 and 10 mm
- Material : 15mm o.d copper tube
- : aluminium HT-lamellen
- Optimized cooling circuits
- Standard refrigerant connections are positioned on the left hand side of the unit when looking with the direction of the airflow.
- A good thermal contact is achieved by expansion of the tubes into the fin collars, that are also utilised as spacers to provide a constant distance between the fins.
- All coolers are pressure tested to 30 bar (lower by cooling mediums) and are supplied with a light over pressure charge of dry nitrogen.
- Suitable for all known refrigerants and coolants, with the exception of NH3.

Casing

- Construction for ceiling mounting
- The flush mounting protects against and prevents accumulation of dust and dirt.
- Casing material of galvanized sheet steel
- Finishing is standard white epoxy spray (RAL 9003)
- Bend/header projection by end covers, easy removed for maintenance
- Hinged drip tray.
- Defrost by hot gas spiral or electric defrost elements will be fixed to the bottom side of the coil.

Correction factors

Correction factors DT1 (=air-on)

The capacities are based on R-404A direct expansion, DT1 and a RH of 85 %. DT1 is the difference between air-on temperature and the evaporation temperature of the cooler. The evaporation temperature is the saturate temperature corresponding to the pressure at the suction outlet of the cooler.

The nominal capacities: (SC1) $t_o=0^{\circ}\text{C}$ and $\text{DT1}=10\text{K}$
 (SC2) $t_o=-8^{\circ}\text{C}$ and $\text{DT1}=8\text{K}$
 (SC3) $t_o=-25^{\circ}\text{C}$ and $\text{DT1}=7\text{K}$

Correction factors for various air-on temperatures and temperature differences (DT1) are as indicated in the table 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.

$Q_{\text{nominal}} = \text{factor} \times Q_{\text{requested}}$

Cooling

DT1	SC1-DT1 =10K-Air-on=10°C (0/+10)									
	Evaporation temperature (°C)									
K	+7	+6	+5	+4	+3	+2	+1	0	-1	-2
6	1,87	1,87	1,87	1,88	1,88	1,89	1,89	1,89	1,89	1,90
7	1,53	1,53	1,54	1,54	1,54	1,55	1,55	1,55	1,55	1,56
8	1,28	1,28	1,28	1,29	1,29	1,30	1,30	1,30	1,30	1,31
9	1,11	1,11	1,11	1,12	1,12	1,13	1,13	1,13	1,13	1,14
10	0,98	0,98	0,98	0,99	0,99	0,99	1,00	1,00	1,00	1,01
11	0,89	0,89	0,89	0,90	0,90	0,91	0,91	0,91	0,91	0,92
12	0,78	0,79	0,79	0,79	0,80	0,80	0,80	0,80	0,80	0,81

Cooling / Freezing

DT1	SC2-DT1 =8K-Air-on=0°C (-8/0)									
	Evaporation temperature (°C)									
K	-3	-4	-5	-6	-7	-8	-9	-10	-11	-12
6	1,32	1,34	1,39	1,43	1,46	1,46	1,47	1,47	1,48	1,49
7	1,05	1,08	1,12	1,15	1,18	1,19	1,19	1,20	1,20	1,21
8	0,86	0,88	0,91	0,94	0,97	1,00	1,00	1,01	1,01	1,02
9	0,76	0,76	0,78	0,80	0,82	0,86	0,86	0,87	0,87	0,88
10	0,66	0,67	0,69	0,71	0,73	0,74	0,74	0,75	0,75	0,76
11	0,58	0,59	0,59	0,60	0,62	0,64	0,64	0,65	0,66	0,67
12	0,55	0,54	0,54	0,54	0,55	0,55	0,56	0,57	0,58	0,59

Freezing

DT1	SC3-DT1 =7K-Air-on=-18°C (-25/-18)									
	Evaporation temperature (°C)									
K	-21	-22	-23	-24	-25	-26	-27	-28	-29	-30
6	1,20	1,20	1,21	1,21	1,22	1,22	1,23	1,23	1,24	1,24
7	0,99	0,99	0,99	1,00	1,00	1,00	1,01	1,01	1,02	1,02
8	0,83	0,84	0,84	0,84	0,85	0,85	0,85	0,85	0,86	0,86
9	0,72	0,72	0,72	0,73	0,73	0,73	0,73	0,74	0,74	0,74
10	0,63	0,63	0,63	0,64	0,64	0,64	0,64	0,65	0,65	0,65
11	0,56	0,56	0,56	0,57	0,57	0,57	0,50	0,58	0,58	0,58
12	0,50	0,51	0,51	0,51	0,51	0,51	0,52	0,52	0,52	0,52

Rekenvoorbeeld

Lamelafstand	: 6 mm	-	DT1 = +3- (+10) = 7K
Gevraagde capaciteit	: 30 kW	-	Correctiefactor = 1,54
Luchtintrede temperatuur	: +10 oC	-	Vermenigvuldig gevraagde capaciteit met correctie factor.
Verdampingstemperatuur	: +3 oC		30 kW x 1,54 = 46,2 kW
Euroventconditie	: SC1		
Koudemiddel	: R-404A	-	Selecteer luchtkoeler uit tabel (SC1 type VCI-B 44566=46,5 kW)

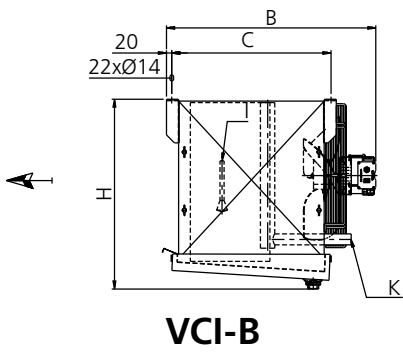
Attention!

Moisture carry over from the coil block:

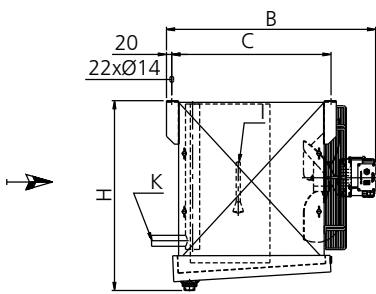
When you select VCI-B with a Ø500 mm fan in an application with a high relative humidity and/or defrost with room air, Goedhart advises the use of a fan with a low pitch angle or the draw-through execution VCI-Z. Thus, you will avoid the risk of moisture carry over from the coil block. The fan with a low pitch angle give a reducing of the capacity of approx. 5% and a reduction of the air volume of approx. 10%.

Air throw** (only draw-through execution)

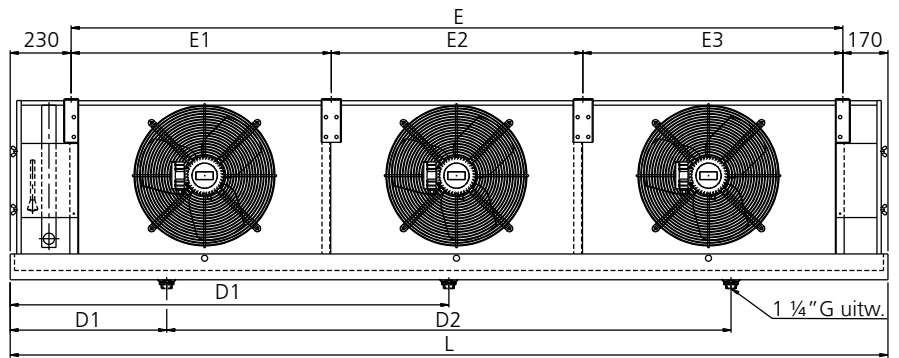
The air throw mentioned in the selection table indicated with ** is based on an air temperature of 20°C, blowing under a flat ceiling without any obstruction. The height and air circulation fold of the room can influence the air throw. The air speed at the end of the throw-length is 0,25 m/sec



VCI-B



VCI-Z



VCI Electrical defrost

Type VC	Light defrost								Heavy defrost*							
	Coil block			Drip tray				Total each air cooler	Coil block			Drip tray				Total each air cooler
	Number	Type of heating element	Total	Number	Type of heating element	Tension	Total		Number	Type of heating element	Total	Number	Type of heating element	Tension	Total	
	n	mm	kW	aantal	mm	V	kW		kW	n	mm	kW	aantal	mm	V	
4.1.40.f	2	1900	1,52	1	2800	230	1,16	2,68	3	1900	2,28	2	2500	200	1,56	3,84
6.1.40.f	2	1900	1,52	1	2800	230	1,16	2,68	4	1900	3,04	2	2500	200	1,56	4,6
8.1.40.f	3	1900	2,28	1	2800	230	1,16	3,44	6	1900	4,56	2	2500	200	1,56	6,12
1.1.40.f	3	1900	2,28	1	3100	230	1,29	3,57	6	1900	4,56	2	2500	200	1,56	6,12
4.1.45.f	2	2200	1,78	1	3100	230	1,29	3,07	3	2200	2,67	2	2800	200	1,76	4,43
6.1.45.f	3	2200	2,67	1	3100	230	1,29	3,96	4	2200	3,56	2	2800	200	1,76	5,32
8.1.45.f	4	2200	3,56	1	3100	230	1,29	4,85	6	2200	5,34	2	2800	200	1,76	7,1
1.1.45.f	4	2200	3,56	1	3400	230	1,42	4,98	6	2200	5,34	2	2800	200	1,76	7,1
4.1.50.f	2	2500	2,04	1	3400	230	1,42	3,46	3	2500	3,06	2	3100	200	1,96	5,02
6.1.50.f	3	2500	3,06	1	3400	230	1,42	4,48	4	2500	4,08	2	3100	200	1,96	6,04
8.1.50.f	4	2500	4,08	1	3700	230	1,55	5,63	6	2500	6,12	2	3100	200	1,96	8,08
1.1.50.f	4	2500	4,08	2	3100	200	1,96	6,04	6	2500	6,12	2	3100	200	1,96	8,08
4.1.56.f	3	2800	3,48	1	3700	230	1,55	5,03	4	2800	4,64	2	3400	200	2,14	6,78
6.1.56.f	4	2800	4,64	1	3700	230	1,55	6,19	6	2800	6,96	2	3400	200	2,14	9,1
8.1.56.f	6	2800	6,96	2	3400	200	2,14	9,1	8	2800	9,28	2	3400	200	2,14	11,42
1.1.56.f	6	2800	6,96	2	3400	200	2,14	9,1	8	2800	9,28	2	3400	200	2,14	11,42
4.1.63.f	5	3100	6,45	1	4000	230	1,68	8,13	6	3100	7,74	2	3700	200	2,34	10,08
6.1.63.f	5	3100	6,45	1	4000	230	1,68	8,13	6	3100	7,74	2	3700	200	2,34	10,08
8.1.63.f	7	3100	9,03	2	3700	200	2,34	11,37	9	3100	11,61	2	3700	200	2,34	13,95
1.1.63.f	7	3100	9,03	2	3700	200	2,34	11,37	9	3100	11,61	2	3700	200	2,34	13,95
4.2.40.f	2	3400	2,84	1	4300	230	1,81	4,65	3	3400	4,26	2	4000	200	2,54	6,8
6.2.40.f	2	3400	2,84	1	4300	230	1,81	4,65	4	3400	5,68	2	4000	200	2,54	8,22
8.2.40.f	3	3400	4,26	1	4300	230	1,81	6,07	6	3400	8,52	2	4000	200	2,54	11,06
1.2.40.f	3	3400	4,26	1	4600	230	1,94	6,2	6	3400	8,52	2	4000	200	2,54	11,06
4.2.45.f	2	3700	3,1	1	4600	230	1,94	5,04	3	3700	4,65	2	4300	200	2,74	7,39
6.2.45.f	3	3700	4,65	1	4600	230	1,94	6,59	4	3700	6,2	2	4300	200	2,74	8,94
8.2.45.f	4	3700	6,2	1	4600	230	1,94	8,14	6	3700	9,3	2	4300	200	2,74	12,04
1.2.45.f	4	3700	6,2	1	4900	230	2,07	8,27	6	3700	9,3	2	4300	200	2,74	12,04
4.2.50.f	2	4600	3,88	1	5500	230	2,13	6,01	3	4600	5,82	2	5200	200	3,34	9,16
6.2.50.f	3	4600	5,82	1	5500	230	2,13	7,95	4	4600	7,76	2	5200	200	3,34	11,1
8.2.50.f	4	4600	7,76	1	5500	230	2,13	9,89	6	4600	11,64	2	5200	200	3,34	14,98
1.2.50.f	4	4600	7,76	2	5200	200	3,34	11,1	6	4600	11,64	2	5200	200	3,34	14,98
4.2.56.f	3	4900	6,21	1	6100	230	2,6	8,81	4	4900	8,28	2	5500	200	3,52	11,8
6.2.56.f	4	4900	8,28	1	6100	230	2,6	10,88	6	4900	12,42	2	5500	200	3,52	15,94
8.2.56.f	6	4900	12,42	2	5500	200	3,52	15,94	8	4900	16,56	2	5500	200	3,52	20,08
1.2.56.f	6	4900	12,42	2	5500	200	3,52	15,94	8	4900	16,56	2	5500	200	3,52	20,08
4.2.63.f	5	5500	11,65	1	6400	230	2,76	14,41	6	5500	13,98	2	6100	200	3,92	17,9
6.2.63.f	5	5500	11,65	1	6400	230	2,76	14,41	6	5500	13,98	2	6100	200	3,92	17,9
8.2.63.f	7	5500	16,31	2	6100	200	3,92	20,23	9	5500	20,97	2	6100	200	3,92	24,89
1.2.63.f	7	5500	16,31	2	6100	200	3,92	20,23	9	5500	20,97	2	6100	200	3,92	24,89
4.3.45.f	2	5500	4,66	1	6400	230	2,76	7,42	3	5500	6,99	2	6100	200	3,92	10,91
6.3.45.f	3	5500	6,99	1	6400	230	2,76	9,75	4	5500	9,32	2	6100	200	3,92	13,24
8.3.45.f	4	5500	9,32	1	6400	230	2,76	12,08	6	5500	13,98	2	6100	200	3,92	17,9
1.3.45.f	4	5500	9,32	1	6400	230	2,76	12,08	6	5500	13,98	2	6100	200	3,92	17,9
4.3.50.f	4	3400	5,68	2	3700	200	2,34	8,02	6	3400	8,52	4	3700	200	4,68	13,2
6.3.50.f	6	3400	8,52	2	3700	200	2,34	10,86	8	3400	11,36	4	3700	200	4,68	16,04
8.3.50.f	8	3400	11,36	2	3700	200	2,34	13,7	12	3400	17,04	4	3700	200	4,68	21,72
1.3.50.f	8	3400	11,36	4	3700	200	4,68	16,04	12	3400	17,04	4	3700	200	4,68	21,72
4.3.56.f	6	3700	9,3	2	4000	200	2,54	11,84	8	3700	12,4	4	4000	200	5,08	17,48
6.3.56.f	8	3700	12,4	2	4000	200	2,54	14,94	12	3700	18,6	4	4000	200	5,08	23,68
8.3.56.f	12	3700	18,6	4	4000	200	5,08	23,68	16	3700	24,8	4	4000	200	5,08	29,88
1.3.56.f	12	3700	18,6	4	4000	200	5,08	23,68	16	3700	24,8	4	4000	200	5,08	29,88
4.3.63.f	10	4000	16,8	2	4300	200	2,74	19,54	12	4000	20,16	4	4300	200	5,48	25,64
6.3.63.f	10	4000	16,8	2	4300	200	2,74	19,54	12	4000	20,16	4	4300	200	5,48	25,64
8.3.63.f	14	4000	23,52	4	4300	200	5,48	29	18	4000	30,24	4	4300	200	5,48	35,72
1.3.63.f	14	4000	23,52	4	4300	200	5,48	29	18	4000	30,24	4	4300	200	5,48	35,72
4.4.45.f	4	3400	5,68	2	4000	200	2,54	8,22	6	3400	8,52	4	4000	200	5,08	13,6
6.4.45.f	6	3400	8,52	2	4000	200	2,54	11,06	8	3400	11,36	4	4000	200	5,08	16,44
8.4.45.f	8	3400	11,36	2	4000	200	2,54	13,9	12	3400	17,04	4	4000	200	5,08	22,12
1.4.45.f	8	3400	11,36	4	4000	200	5,08	16,44	12	3400	17,04	4	4000	200	5,08	22,12
4.4.50.f	4	4300	7,24	2	4600	200	2,92	10,16	6	4300	10,86	4	4600	200	5,84	16,7
6.4.50.f	6	4300	10,86	2	4600	200	2,92	13,78	8	4300	14,48	4	4600	200	5,84	20,32
8.4.50.f	8	4300	14,48	2	4600	200	2,92	17,4	12	4300	21,72	4	4600	200	5,84	27,56
1.4.50.f	8	4300	14,48	4	4600	200	5,84	20,32	12	4300	21,72	4	4600	200	5,84	27,56
4.4.56.f	6	4600	11,64	2	5200	200	3,34	14,98	8	4600	15,52	4	5200	200	6,68	22,2
6.4.56.f	8	4600	15,52	2	5200	200	3,34	18,86	12	4600	23,28	4	5200	200	6,68	29,96
8.4.56.f	12	4600	23,28	4	5200	200	6,68	29,96	16	4600	31,04	4	5200	200	6,68	37,72
1.4.56.f	12	4600	23,28	4	5200	200	6,68	29,96	16	4600	31,04	4	5200	200	6,68	37,72
4.4.63.f	10	5200	22	2	5500	200	3,52	25,52	12	5200	26,4	4	5500	200	7,04	33,44
6.4.63.f	10	5200	22	2	5500	200	3,52	25,52	12	5200	26,4	4	5500	200	7,04	33,44
8.4.63.f	14	5200	30,8	4	5500	200	7,04	37,84	18	5200	39,6	4	5500	200	7,04	46,64
1.4.63.f	14	5200	30,8	4	5500	200	7,04	37,84	18	5200	39,6	4	5500	200	7,04	46,64

f = Fin spacing

* = Always heavy electric defrost when using cooling mediums.



Goedhart air cooler for every application

For Contractors and Original Equipment Manufacturers (OEM) related to the industrial refrigeration industry, GEA Goedhart B.V. offers an unlimited range of air coolers and air cooled condensers in several configurations.

Depending on the application, the optimum configuration will be selected in close cooperation with our customers.

Configurations

The following material combinations are available in various tube pitches and various fin spacing:

Tube material	Tube configuration	Fin material
Copper (Cu)	38x33, 50x50, 60x60	Aluminium (Al)
Stainless steel (Stst)	38x33, 50x50, 60x60	Aluminium (Al)
Stainless steel (Stst)	50x50	Stainless steel (Stst)
Aluminium (Al)	60x60	Aluminium (Al)
Hot dipped galvanized steel (FeZn)	60x60, 75x75	Hot dipped galvanized steel (FeZn)

Options on aluminium fins

- Goldlack coated fins
- Seawater resistant aluminium fins (AlMg)

Applications

Cooling	Freezing
Cold stores / Distribution centres	Cold stores / Distribution centres
Food processing rooms	Tunnel / spiral freezers
Fruit storage	Slaughter houses
Banana ripening storage	Automotive testing rooms
Greenhouse conditioning	Ski domes

Pressure Equipment Directive (P.E.D.)

All aircoolers produced by Goedhart comply with the Pressure Equipment Directive 97/23/EC. PED certificates can be downloaded from www.goedhart.nl.

