

# Industrial air cooler VRB/VRZ

## Cooling/Freezing

StSt/Al - NH<sub>3</sub>

GEA Heat Exchangers



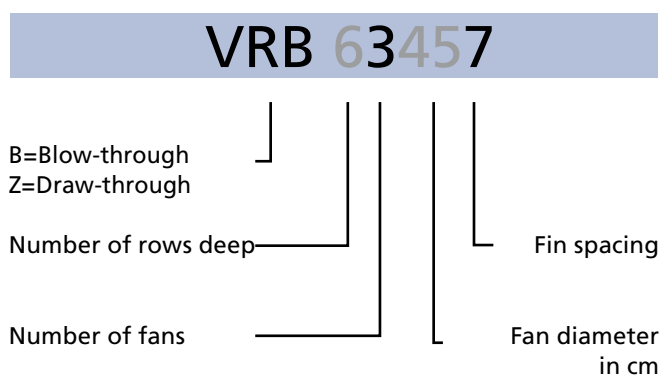
Goedhart



## Goedhart VRB/VRZ

The range Goedhart VRB/VRZ single discharge ceiling mounted industrial air coolers consists of 510 types with capacities between 3,9 and 131,3 kW. The Goedhart VRB/VRZ 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, stainless steel 304 tubes and aluminium fins. The fans are arranged for blow-through air configuration for the Goedhart VRB and draw-through for the Goedhart VRZ (please state which is required when ordering).. The modular design incorporates 5 different sizes of fan, with model options of up to 4 fans per cooler

### Type-description



### Coil block

- Tube pitch : 50x50 mm straight
- Fin spacings : 4, 7, 8, 10 and 12 mm
- Material : 15mm o.d stainless steel 304 tubes
- : aluminium HT-fins
- 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 hydraulic 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.
- Standard the air coolers are suitable for NH<sub>3</sub>-pumpcirculation (ratio 2/4).

### 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 protection 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.

# General range features

## Capacity

The listed nominal cooling capacities are based on NH<sub>3</sub>, DT1 and DTM and a RH of 85%.

### Influence of Coating on Capacity

The use of coated fins, or of a fully coated coil will result in a capacity decrease of approximately 3%

### Capacity optimisation

Since Goedhart tries to limit stock products, we are capable of optimising the circuitry of our evaporators. In order to do this, the following information is needed :

- Design capacity
- Air volume
- Refrigerant
- Air on temperature
- Evaporating temperature
- Liquid temperature before expansion valve.

## Sound data

The mean sound pressure (LpA @ 3m ± 2 dB (A)) each air cooler is a calculated indication value according to the EN13487 standard parallel pipe. Goedhart uses the fan manufacturer's sound power level (LwA) at the inlet side of the fan. Changes to or by the fan or the product, affect the sound, in these cases, consult the manufacturer for the new indication value. In critical sound requirements, we advise you to consult an expert.

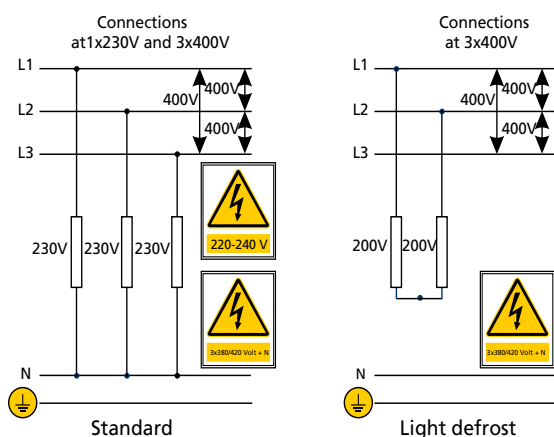
## Defrostsystem:

For room temperatures where ice build-up can be expected and where the coilblock can not be defrosted by the room air, electric or hotgas defrost is necessary. With low temperatures we also advise fan periphery heating.

### Electrical defrost:

The Goedhart VRB and VRZ can be provided with electric defrost. A distinction can be made here between heavy defrost loads for low temperatures and light defrost load for higher temperatures (room temperature approximately 0 °C).

The stainless steel heater elements are fitted in the coilblock in tubes, which forms a high conductive medium between the heaters and the fins. The driptray heaters are fitted to the underside of the aluminium inner tray with aluminium profiles. The heater elements which are rated for 220/240 V are connected for supply 380/415 V with neutral. The coilblock



elements are removable from the end opposite to the refrigerant connections, whilst the tray heater elements can be removed once the outer tray has been taken off.

### Hotgas defrost:

The coilblock can be made suitable for hotgas. At an extra price the driptray can be provided with a hotgas/cooling medium spiral. The stainless steel tubes of the hotgas spiral are enclosed in special aluminium profiles that are rigidly secured to the underside of the aluminium inner tray, thus providing a good bond for maximum heat transfer. Just as with electric defrost a distinction is made with hotgas defrost between light defrost load (room temperature about 0°C) and heavy defrost load.

## Accessories:

Standard accessories for the Goedhart VRB/VRZ air coolers are:

- Electric, hotgas and/or water defrost system.
- Fan periphery heating.
- Insulation within the driptray.
- Insulated hygienic polyester driptray.
- Goedhart VRZ supplied with bellmouth connection per fan for a longer air throw
- Goedhart VRB supplied with air diffusor for a longer air throw
- Goedhart VRB supplied with air diffusor with air operated damper to increase defrost efficiency (air volume reduced to approx. 90% and capacity reduced to approx. 95%)

The accessories are included in the price list.

## Optional extras:

Various optional extras for the VRB/VRZ are available, price and delivery upon request:

- Insulation discs
- Feet for floor mounting
- Coating of the coilblock
- Fan hood
- 60 Hz motors
- EC-fans
- Single phase motors
- Over heat protection on the motors
- Glycol/water/etc. cooling mediums, NH<sub>3</sub> dx, R22 dx/pump-system.
- Stainless steel casing
- Coupling between hotgas spiral and coilblock
- Other fin spacings
- Stainless steel 316 tubes

## Mounting and Maintenance

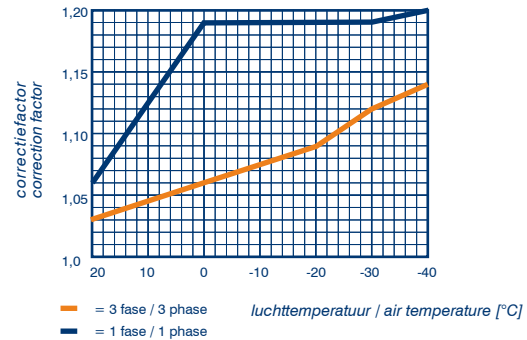
Goedhart VRB/VRZ is delivered on a wooden frame. When on the frame, Goedhart VRB/VRZ can be handled by forklift truck, which makes positioning and installation simple. Refer to our maintenance and installation manual..



# Fans

The manufacturer of the fans is Süd Electric (we reserve the right to alter the manufacturer). The fans have glass fibre reinforced polypropylene impellers. The motors are available for 400V-50Hz-3 phase or 230V-50Hz-1 phase electrical supply. 2-Speed regulation can be achieved at 400/690V-50Hz-3 phase by using a D-Y reconnection (fig. 1). 3 Phase motors are suitable for a frequency controller (A sinus filter is needed, fig. 2). 1 Phase motors are suitable for phase control and transformer. The motors are standard executed with a thermo contact. The fans are suitable for operation in air temperature applications between -40 °C and +45 °C. When the air temperature is lower than -40 °C, special fans are needed. These special fans have a longer delivery time. The technical data in the table below are the same as on the motor name plates and is valid for an air temperature of +40 °C.

For air temperatures lower than +40 °C, the current amperage can be calculated by using the diagram multiplication factor, suitable thermal overloads can then be selected.



## Three phase - 50 Hz

Fan type	Tension V	Δ				Y			Protection class*	Fan heating Watt (230V)
		Speed min <sup>-1</sup>	Input Watt	FLC A	Sound power indication each fan LwA (+/-2dB(A)) dB(A)	Speed min <sup>-1</sup>	Input Watt	FLC A		
		min <sup>-1</sup>	Watt	A	dB(A)	min <sup>-1</sup>	Watt	A		

### 4 pole motor (n=1500 rpm nom.)

400-32°	3x400/690	1350	250	0.60	74	1050	150	0.30	IP44	460
450-32°	3x400/690	1350	400	0.85	78	1050	300	0.50	IP44	580
500-40°	3x400/690	1380	880	1.90	85	1050	660	1.15	IP44	580
560-36°	3x400/690	1300	1250	2.30	85	1000	750	1.30	IP66	700
630-32°	3x400/690	1300	1250	2.30	86	1000	750	1.30	IP66	820
630-28°**	3x230/400				88	1400	1400	2.50	IP66	820

### 6 pole motor (n=1000 rpm nom.)

400-28°	3x400/690	900	105	0.33	63	750	65	0.13	IP44	460
450-32°	3x400/690	900	180	0.40	69	750	120	0.20	IP44	580
500-40°	3x400/690	900	500	1.00	81	760	350	0.65	IP44	580
560-32°	3x400/690	880	680	1.60	75	680	400	0.90	IP66	700
630-36°	3x400/690	880	680	1.60	80	680	400	0.90	IP66	820

## Single phase - 50 Hz

Ventilator type	Speed	Input	FLC	Protection class*
	min <sup>-1</sup>	Watt	A	

### 4 pole motor (n=1500 rpm nom.)

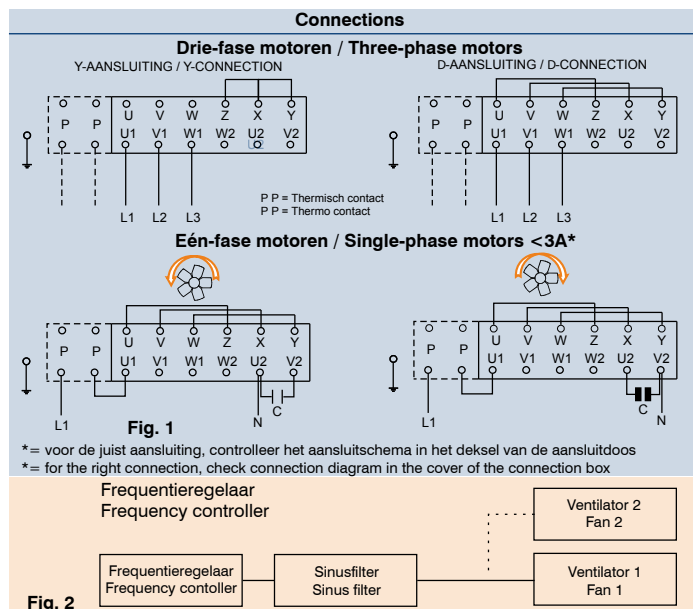
400-32°	1350	450	1.95	IP44
450-32°	1350	450	1.95	IP44
500-40°	1330	700	3.40	IP44
560-36°	1350	920	4.00	IP66
630-32°	1350	1300	7.10	IP66

### 6 pole motor (n=1000 rpm nom.)

400-28°	900	250	1.10	IP44
450-32°	900	250	1.10	IP44
500-40°	900	400	1.75	IP44
560-32°	870	700	3.40	IP66
630-36°	870	700	3.40	IP66

\*= IP44 motors also available in IP66 execution (extra price)

\*\*= Only freezing conditions



# Correction factors

## Capacities at DTM:

The capacities are based on NH<sub>3</sub> pump system and the difference between the mean air temperature and the evaporation temperature (DTM). The evaporation temperature is the saturated temperature corresponding to the pressure at the suction outlet of the cooler. The nominal capacities are based on evaporation temperatures of -5 °C and -25°C, a DTM of 7 K and light frosting. Capacities for other mediums and systems are available upon request.

Correction factors for various mean air temperatures and evaporation temperatures (DTM) are as indicated in the tables below.

The requested capacity must be multiplied by a correction factor from one of these tables.

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

## Capacities at DT1:

Hereby the capacities are based on NH<sub>3</sub> pump system and DT1. DT1 is 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 are based on evaporation temperatures of -8°C and DT1=8K and -25°C and DT1=7K and light frosting.

Capacities for other mediums and systems are available upon request.


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.


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

### NH<sub>3</sub> light frost = 0.2 mm RV = 85%

DTM	Evaporation temperature (°C)														
	K	0	-2,5	-5	-7,5	-10	-12,5	-15	-20	-22,5	-25	-27,5	-30	-32,5	-35
5	1.44	1.49	1.54	1.59	1.62	1.65	1.69	1.51	1.52	1.54	1.56	1.58	1.60	1.61	
6	1.14	1.18	1.23	1.26	1.29	1.31	1.32	1.18	1.20	1.22	1.23	1.25	1.26	1.28	
7	0.93	0.97	1.00	1.03	1.05	1.07	1.09	0.97	0.99	1.00	1.01	1.03	1.04	1.05	
8	0.79	0.82	0.85	0.87	0.88	0.90	0.92	0.82	0.83	0.85	0.86	0.87	0.88	0.89	
9	0.68	0.71	0.73	0.75	0.76	0.77	0.79	0.71	0.72	0.73	0.74	0.75	0.76	0.77	
10	0.61	0.61	0.64	0.65	0.67	0.68	0.69	0.62	0.63	0.64	0.65	0.66	0.66	0.67	
11	0.53	0.55	0.57	0.58	0.59	0.60	0.61	0.55	0.56	0.57	0.58	0.58	0.59	0.60	
12	0.47	0.49	0.51	0.52	0.53	0.54	0.55	0.50	0.50	0.51	0.52	0.52	0.53	0.54	

DT1	Evaporation temperature (°C)														
	K	0	-2,5	-5	-7,5	-10	-12,5	-15	-20	-22,5	-25	-27,5	-30	-32,5	-35
5	1.63	1.69	1.75	1.80	1.85	1.90	1.95	1.48	1.51	1.54	1.57	1.60	1.63	1.65	
6	1.29	1.34	1.39	1.43	1.47	1.50	1.54	1.17	1.20	1.22	1.24	1.26	1.29	1.31	
7	1.06	1.11	1.14	1.17	1.21	1.24	1.26	0.97	0.99	1.00	1.02	1.04	1.06	1.07	
8	0.90	0.94	0.97	1.00	1.02	1.04	1.06	0.82	0.83	0.85	0.86	0.88	0.89	0.91	
9	0.78	0.80	0.84	0.86	0.88	0.90	0.92	0.70	0.72	0.73	0.75	0.76	0.77	0.78	
10	0.68	0.70	0.74	0.76	0.78	0.79	0.80	0.62	0.63	0.64	0.65	0.66	0.67	0.69	
11	0.61	0.63	0.66	0.68	0.69	0.70	0.71	0.55	0.56	0.57	0.58	0.59	0.60	0.60	
12	0.54	0.56	0.59	0.60	0.62	0.63	0.64	0.49	0.50	0.51	0.52	0.53	0.54	0.53	

 = calculated without frost layer

 = calculated without frost layer

### NH<sub>3</sub> normal frost = 0.5 mm RV= 85%

DTM	Evaporation temperature (°C)														
	K	0	-2,5	-5	-7,5	-10	-12,5	-15	-20	-22,5	-25	-27,5	-30	-32,5	-35
5		1.67	1.72	1.77	1.80	1.83	1.86	1.65	1.67	1.69	1.71	1.74	1.76	1.77	
6		1.32	1.37	1.39	1.42	1.45	1.48	1.31	1.32	1.34	1.36	1.38	1.39	1.41	
7		1.10	1.13	1.16	1.17	1.19	1.21	1.08	1.09	1.11	1.12	1.13	1.15	1.16	
8			0.92	0.95	0.97	0.98	1.00	1.02	0.91	0.92	0.94	0.95	0.96	0.97	0.98
9				0.82	0.83	0.85	0.87	0.88	0.79	0.80	0.81	0.82	0.83	0.84	0.85
10				0.72	0.74	0.75	0.76	0.77	0.69	0.70	0.71	0.72	0.73	0.74	0.74
11				0.64	0.65	0.66	0.67	0.69	0.62	0.63	0.63	0.64	0.65	0.66	0.66
12				0.57	0.58	0.60	0.61	0.62	0.55	0.56	0.57	0.58	0.58	0.59	0.59

DT1	Evaporation temperature (°C)														
	K	0	-2,5	-5	-7,5	-10	-12,5	-15	-20	-22,5	-25	-27,5	-30	-32,5	-35
5		1.86	1.92	1.98	2.03	2.08	2.13	1.68	1.71	1.73	1.74	1.76	1.79	1.80	
6		1.48	1.52	1.57	1.61	1.65	1.68	1.33	1.34	1.35	1.37	1.38	1.39	1.40	
7		1.22	1.26	1.29	1.33	1.36	1.39	1.08	1.09	1.10	1.11	1.12	1.13	1.14	
8		1.04	1.07	1.09	1.12	1.14	1.16	0.91	0.92	0.93	0.95	0.96	0.97	0.98	
9			0.92	0.95	0.97	0.99	1.00	0.79	0.80	0.81	0.81	0.82	0.83	0.84	
10			0.81	0.83	0.85	0.86	0.88	0.69	0.70	0.71	0.71	0.72	0.74	0.74	
11			0.72	0.74	0.76	0.77	0.78	0.61	0.62	0.63	0.64	0.64	0.65	0.66	
12			0.65	0.67	0.68	0.69	0.70	0.55	0.56	0.57	0.58	0.59	0.60	0.61	

## Attention!

### Moisture carry over from the coil block:

When you select VRB 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 VRZ. 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%.

### ATTENTION !!!

When making your selection, pay attention to the ratio between the airvolume and capacity. A low volume to capacity ratio results in a wide temperature drop across the coil which cause to dry out (especially on coils with a high number of rows deep).

# VRB/VRZ 10mm Technical data

Type VRB VRZ	3x400V-50H-4pole (1500 min <sup>-1</sup> nom.)						Surface	Internal volume	Weight	Dimensions							Connections					
	NR3				Air volume	LpA @ 3 m (+/- 2 dB(A))				L	B	H	D	E1	E2	E3	Refrigerant			Waterdefrost		
	Cooling		Freezing														In	Uit	Hot gas	Drain	In	Drain
	DTM = 7K air mean = +2°C	DT1 = 8K (SCZ) air on = 0°C	DTM = 7K air mean = -18°C	DT1 = 7K (SC3) air on = -18°C																		
6.1.40.10	7,4	6,2	5,7	4,4	3460	52	24	8	78	1156	800	610	600	756			21,3	21,3	22	1/4	1/4	2
8.1.40.10	9,6	7,4	7,6	5,1	3374	52	32	11	92	1156	900	610	700	756			21,3	21,3	22	1/4	1/4	2
1.1.40.10	11,5	8,3	9,0	5,9	3289	52	40	14	105	1156	1000	610	800	756			21,3	26,7	22	1/4	1/4	2
6.1.45.10	10,8	9,1	8,7	6,5	5260	56	33	11	94	1256	840	710	600	856			21,3	26,7	22	1/4	1/4	2
8.1.45.10	13,9	10,8	10,9	7,8	5112	56	44	15	110	1256	940	710	700	856			21,3	26,7	22	1/4	1/4	2
1.1.45.10	16,7	12,1	13,2	8,6	4973	56	55	19	126	1256	1040	710	800	856			21,3	26,7	22	1/4	1/4	2
6.1.50.10	14,3	12,3	11,4	8,9	7457	63	41	14	116	1456	920	710	700	1056			21,3	26,7	22	1/4	1/4	2
8.1.50.10	18,6	14,7	14,9	10,6	7264	63	55	19	135	1456	1020	710	800	1056			21,3	33,7	22	1/4	1/4	2
1.1.50.10	22,5	16,7	17,8	12,0	7081	63	68	23	154	1456	1120	710	900	1056			21,3	33,7	22	1/4	1/4	2
6.1.56.10	20,7	17,7	16,7	12,8	10632	63	60	20	158	1556	1060	910	800	1156			21,3	33,7	22	1/4	1/4	2
8.1.56.10	26,9	21,3	21,3	15,4	10413	63	80	27	183	1556	1160	910	900	1156			21,3	33,7	22	1/4	1/4	2
1.1.56.10	32,0	23,9	25,6	17,4	10203	63	100	34	210	1556	1260	910	1000	1156			21,3	42,2	22	1/4	1/4	2
6.1.63.10	26,9	22,5	21,7	16,4	13173	63	82	27	197	1656	1060	1110	800	1256			21,3	42,2	22	1/4	1/4	2
8.1.63.10	34,9	27,1	27,2	19,7	12957	63	109	36	229	1656	1160	1110	900	1256			21,3	42,2	22	1/4	1/4	2
1.1.63.10	42,3	30,9	33,5	21,8	12743	63	137	45	262	1656	1260	1110	1000	1256			21,3	42,2	22	1/4	1/4	2
6.2.40.10	14,8	12,4	11,9	8,9	6918	55	48	16	125	1856	800	610	600	1456			21,3	26,7	22	1/4	1/4	2
8.2.40.10	19,1	14,7	15,1	10,3	6742	55	64	21	147	1856	900	610	700	1456			21,3	33,7	22	1/4	1/4	2
1.2.40.10	22,9	16,5	18,1	11,8	6570	55	80	27	168	1856	1000	610	800	1456			21,3	33,7	22	1/4	1/4	2
6.2.45.10	21,5	18,1	17,3	13,1	10514	59	65	22	152	2056	840	710	600	1656			21,3	33,7	22	1/4	1/4	2
8.2.45.10	27,7	21,6	21,8	15,6	10217	59	87	29	179	2056	940	710	700	1656			21,3	42,2	22	1/4	1/4	2
1.2.45.10	33,4	24,1	26,4	17,5	9937	59	109	36	207	2056	1040	710	800	1656			21,3	42,2	22	1/4	1/4	3
6.2.50.10	28,6	24,5	22,8	17,8	14907	66	82	27	193	2456	920	710	700	2056			21,3	42,2	22	1/4	1/4	3
8.2.50.10	37,1	29,5	29,7	21,2	14520	66	109	36	226	2456	1020	710	800	2056			21,3	42,2	22	1/4	1/4	3
1.2.50.10	45,0	33,0	35,6	23,9	14151	66	137	45	260	2456	1120	710	900	2056			21,3	42,2	22	1/4	1/4	3
6.2.56.10	41,4	35,3	33,3	25,6	21258	66	120	40	265	2656	1060	910	800	2256			21,3	42,2	22	1/4	1/4	3
8.2.56.10	53,7	42,6	42,6	30,8	20817	66	160	53	311	2656	1160	910	900	2256			21,3	48,3	34	1/4	1/4	3
1.2.56.10	63,9	47,8	51,1	34,7	20395	66	201	66	357	2656	1260	910	1000	2256			21,3	48,3	34	1/4	1/4	3
6.2.63.10	53,7	45,0	43,3	32,8	26340	66	164	54	335	2856	1060	1110	800	2456			21,3	48,3	34	1/4	1/4	3
8.2.63.10	69,7	54,1	54,4	39,4	25907	66	219	72	395	2856	1160	1110	900	2456			21,3	60,3	34	1/4	1/4	3
1.2.63.10	84,6	61,7	65,2	43,6	25475	66	274	90	455	2856	1260	1110	1000	2456			21,3	60,3	34	1/4	1/4	3
6.3.45.10	32,2	27,1	26,0	19,4	15769	61	98	33	213	2856	840	710	600	2456			21,3	42,2	22	1/4	1/4	3
8.3.45.10	41,5	32,4	33,2	23,4	15321	61	131	44	252	2856	940	710	700	2456			21,3	42,2	22	1/4	1/4	3
1.3.45.10	50,0	36,1	39,4	26,1	14901	60	164	54	292	2856	1040	710	800	2456			21,3	42,2	34	1/4	1/4	3
6.3.50.10	42,9	36,8	34,7	26,7	22358	67	123	41	272	3456	920	710	700	3056	1028	2028	21,3	42,2	22	2x1/4	2x1/4	3
8.3.50.10	55,6	43,7	43,9	31,9	21776	67	164	54	320	3456	1020	710	800	3056	1028	2028	21,3	48,3	34	2x1/4	2x1/4	2x3
1.3.50.10	65,9	49,5	53,4	35,9	21221	67	205	68	367	3456	1120	710	900	3056	1028	2028	21,3	48,3	34	2x1/4	2x1/4	2x3
6.3.56.10	62,1	52,9	50,0	38,1	31883	67	180	60	373	3806	1060	910	800	3356	2228	1128	21,3	60,3	34	2x1/4	2x1/4	2x3
8.3.56.10	80,4	63,7	64,2	44,6	31221	67	241	79	439	3806	1160	910	900	3356	2228	1128	21,3	60,3	34	2x1/4	2x1/4	2x3
1.3.56.10	97,7	72,2	77,1	51,8	30589	67	301	99	506	3806	1260	910	1000	3356	2228	1128	26,7	60,3	42	2x1/4	2x1/4	2x3
6.3.63.10	79,6	67,8	65,0	49,3	39509	67	246	81	476	4106	1060	1110	800	3656	2428	1228	26,7	60,3	34	2x1/4	2x1/4	2x3
8.3.63.10	104,5	81,8	83,6	59,0	38854	67	328	108	561	4106	1160	1110	900	3656	2428	1228	26,7	60,3	42	2x1/4	2x1/4	2x3
1.3.63.10	126,8	92,5	100,1	66,5	38208	67	410	135	647	4106	1260	1110	1000	3656	2428	1228	26,7	60,3	42	2x1/4	2x1/4	2x3
6.4.50.10	56,5	48,7	46,2	35,6	29808	68	164	54	348	4506	920	710	700	4056	2028	2028	21,3	48,3	34	2x1/4	2x1/4	2x3
8.4.50.10	74,1	58,9	59,4	42,4	29031	68	219	72	411	4506	1020	710	800	4056	2028	2028	21,3	60,3	34	2x1/4	2x1/4	2x3
1.4.50.10	89,8	65,9	71,0	47,8	28291	68	273	90	473	4506	1120	710	900	4056	2028	2028	26,7	60,3	34	2x1/4	2x1/4	2x3
6.4.56.10	82,7	70,6	66,6	51,2	42510	68	240	79	480	4906	1060	910	800	4456	2228	2228	26,7	60,3	34	2x1/4	2x1/4	2x3
8.4.56.10	107,4	85,1	85,1	61,5	41626	68	321	106	566	4906	1160	910	900	4456	2228	2228	26,7	60,3	42	2x1/4	2x1/4	2x3
1.4.56.10	127,8	95,6	102,1	69,3	40780	68	401	132	652	4906	1260	910	1000	4456	2228	2228	26,7	60,3	42	2x1/4	2x1/4	2x3
6.4.63.10	107,3	90,6	86,6	65,5	52676	68	328	108	625	5306	1060	1110	800	4856	2428	2428	26,7	60,3	42	2x1/4	2x1/4	2x3
8.4.63.10	139,4	108,2	108,7	78,7	51803	68	438	144	738	5306	1160	1110	900	4856	2428	2428	33,7	76,1	42	2x1/4	2x1/4	2x3
1.4.63.10	169,0	122,4	130,7	88,8	50941	68	547	180	850	5306	1260	1110	1000	4856	2428	2428	33,7	76,1	48	2x1/4	2x1/4	2x3

Pay attention to the relation capacity / air volume !!

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

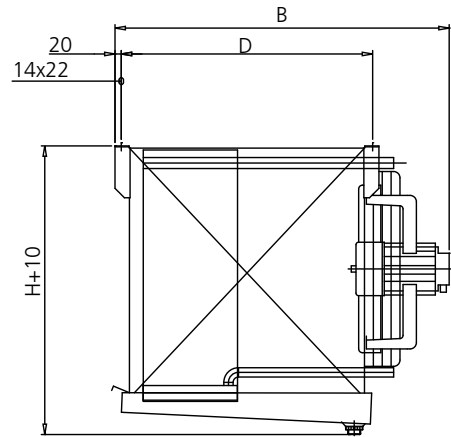
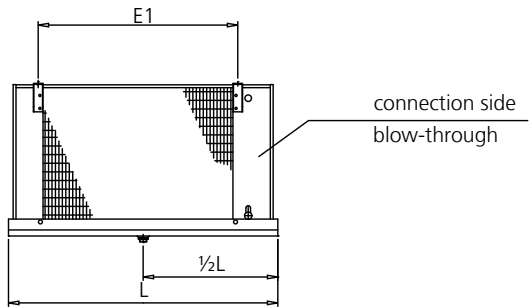
For moisture carry over see remark pag 5

# VRB/VRZ Electrical defrost

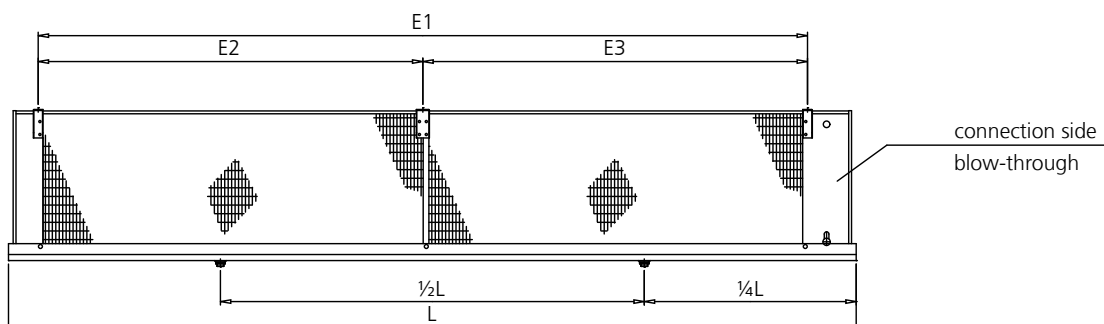
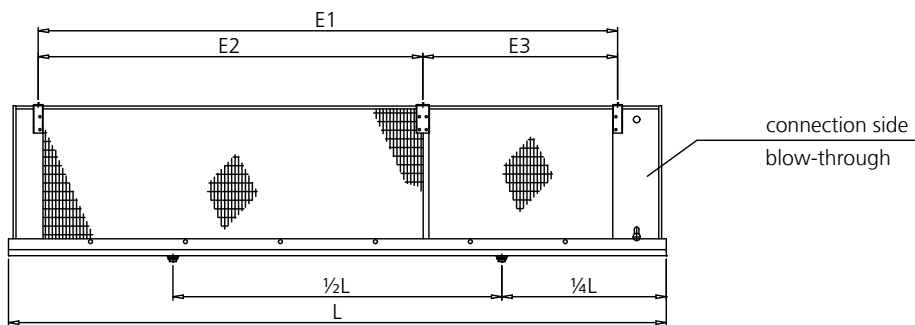
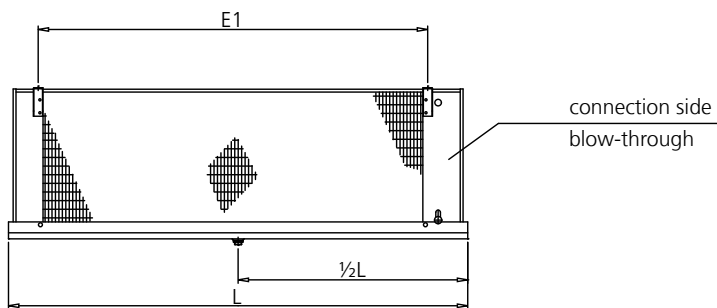
Type	Light defrost			Heavy defrost		
	Coil	Drip tray	Total	Coil	Drip tray	Total
	kW	kW	kW	kW	kW	kW
3/4.1.40.f	1.64	1.06	2.70	2.46	1.40	3.86
3/4.1.45.f	1.64	1.18	2.82	2.46	1.58	4.04
3/4.1.50.f	2.12	1.30	3.42	3.18	1.76	4.94
3/4.1.56.f	3.18	1.42	4.60	4.24	1.94	6.18
3/4.1.63.f	5.90	1.54	7.44	7.08	2.12	9.20
3/4.2.40.f	2.60	1.66	4.26	3.90	2.30	6.20
3/4.2.45.f	3.08	1.77	4.85	4.62	2.48	7.10
3/4.2.50.f	3.54	2.13	5.67	5.31	3.02	8.33
3/4.2.56.f	6.06	2.37	8.43	8.08	3.18	11.26
3/4.2.63.f	10.65	2.53	13.18	12.78	3.54	16.32
3/4.3.45.f	4.26	2.53	6.79	6.39	3.54	9.93
3/4.3.50.f	5.20	2.12	7.32	7.80	4.24	12.04
3/4.3.56.f	8.52	2.30	10.82	11.36	4.60	15.96
3/4.3.63.f	15.40	2.48	16.64	18.48	4.96	23.44
3/4.4.50.f	6.64	2.64	9.28	9.96	5.28	15.24
3/4.4.56.f	10.62	3.02	13.64	14.16	6.04	20.20
3/4.4.63.f	20.20	3.18	21.79	24.24	6.36	30.60
5/6.1.40.f	1.64	1.06	2.70	3.28	1.40	4.68
5/6.1.45.f	2.46	1.18	3.64	3.28	1.58	4.86
5/6.1.50.f	3.18	1.30	4.48	4.24	1.76	6.00
5/6.1.56.f	4.24	1.42	5.66	6.36	1.94	8.30
5/6.1.63.f	5.90	1.54	7.44	7.08	2.12	9.20
5/6.2.40.f	2.60	1.66	4.26	5.20	2.30	7.50
5/6.2.45.f	4.62	1.77	6.39	6.16	2.48	8.64
5/6.2.50.f	5.31	2.13	7.44	7.08	3.02	10.10
5/6.2.56.f	8.08	2.37	10.45	12.12	3.18	15.30
5/6.2.63.f	10.65	2.53	13.18	12.78	3.54	16.32
5/6.3.45.f	6.39	2.53	8.92	8.52	3.54	12.06
5/6.3.50.f	7.80	2.12	9.92	10.40	4.24	14.64
5/6.3.56.f	11.36	2.30	13.66	17.04	4.60	21.64
5/6.3.63.f	15.40	2.48	16.64	18.48	4.96	23.44
5/6.4.50.f	9.96	2.64	12.60	13.28	5.28	18.56
5/6.4.56.f	14.16	3.02	17.18	21.24	6.04	27.28
5/6.4.63.f	20.20	3.18	21.79	24.24	6.36	30.60
8.1.40.f	2.46	1.06	3.52	4.92	1.40	6.32
8.1.45.f	3.28	1.18	4.46	4.92	1.58	6.50
8.1.50.f	4.24	1.42	5.66	6.36	1.76	8.12
8.1.56.f	6.36	1.94	8.30	8.48	1.94	10.42
8.1.63.f	8.26	2.12	10.38	10.62	2.12	12.74
8.2.40.f	3.90	1.66	5.56	7.80	2.30	10.10
8.2.45.f	6.16	1.77	7.93	9.24	2.48	11.72
8.2.50.f	7.08	2.13	9.21	10.62	3.02	13.64
8.2.56.f	12.12	3.36	15.48	16.16	3.18	19.34
8.2.63.f	14.91	3.54	18.45	19.17	3.54	22.71
8.3.45.f	8.52	2.53	11.05	12.78	3.54	16.32
8.3.50.f	10.40	2.12	12.52	15.60	4.24	19.84
8.3.56.f	17.04	4.60	21.64	22.72	4.60	27.32
8.3.63.f	21.56	4.96	26.52	27.72	4.96	32.68
8.4.50.f	13.28	2.64	15.92	19.92	5.28	25.20
8.4.56.f	21.24	6.04	27.28	28.32	6.04	34.36
8.4.63.f	28.28	6.36	34.64	36.36	6.36	42.72
1.1.40.f	2.46	1.18	3.64	4.92	1.40	6.32
1.1.45.f	3.28	1.30	4.58	4.92	1.58	6.50
1.1.50.f	4.24	1.76	6.00	6.36	1.76	8.12
1.1.56.f	6.36	1.94	8.30	8.48	1.94	10.42
1.1.63.f	8.26	2.12	10.38	10.62	2.12	12.74
1.2.40.f	3.90	1.77	5.67	7.80	2.30	10.10
1.2.45.f	6.16	1.89	8.05	9.24	2.48	11.72
1.2.50.f	7.08	3.02	10.1	10.62	3.02	13.64
1.2.56.f	12.12	3.36	15.48	16.16	3.18	19.34
1.2.63.f	14.91	3.54	18.45	19.17	3.54	22.71
1.3.45.f	8.52	2.53	11.05	12.78	3.54	16.32
1.3.50.f	10.40	4.24	14.64	15.60	4.24	19.84
1.3.56.f	17.04	4.60	21.64	22.72	4.60	27.32
1.3.63.f	21.56	4.96	26.52	27.72	4.96	32.68
1.4.50.f	13.28	5.28	18.56	19.92	5.28	25.20
1.4.56.f	21.24	6.04	27.28	28.32	6.04	34.36
1.4.63.f	28.28	6.36	34.64	36.36	6.36	42.72

f = fin spacing

# VRB Drawing

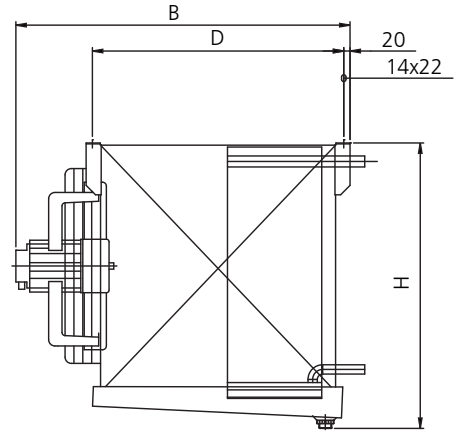
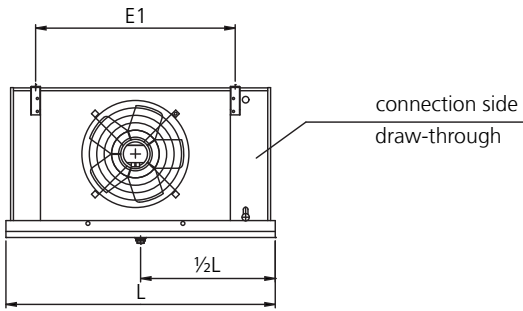


Air configuration : Blow through

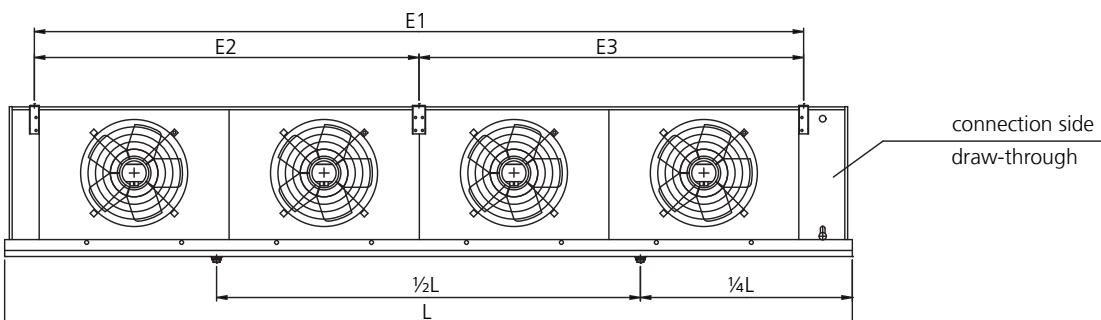
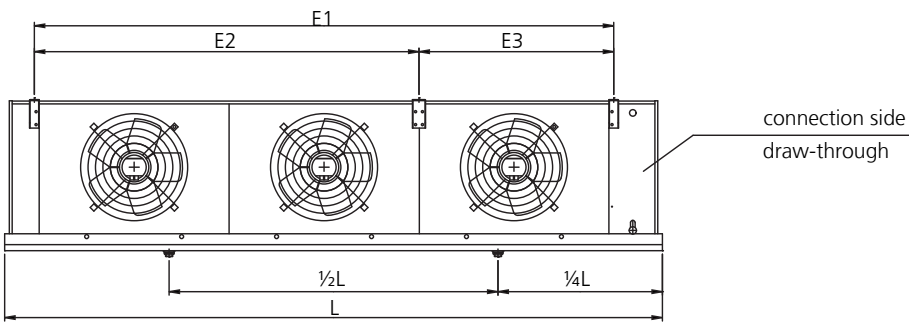
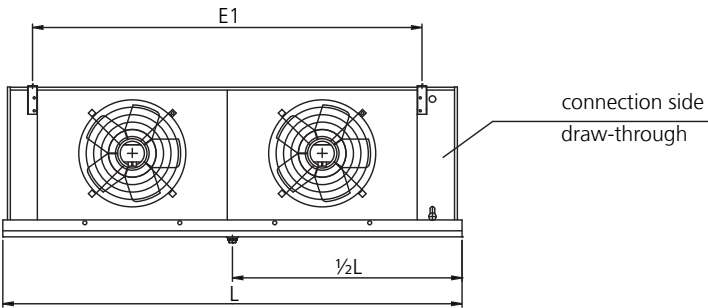




# VRZ Drawing



Air configuration : Draw through



# Goedhart standard product information

## Goedhart standard aircooler overview



VCI



DVS/DRS/DZS



ZGB/ZGZ



PAC



FC38



ZFB/ZFZ



# 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](http://www.goedhart.nl).

