

Kelvion



avrora-arm.ru
+7 (495) 956-62-18

Goedhart® air coolers

Goedhart® Cu/Al air coolers

AIR COOLERS FOR WIDE RANGE OF APPLICATIONS







**Kelvion –
a tribute to
Lord Kelvin**

**70 branches and
sales partners
worldwide**

**More than 4,000
employees
worldwide**

Lord Kelvin (1824 – 1907) formulated
the laws of thermodynamics

EXPERTS IN HEAT EXCHANGE - SINCE 1920

Welcome to Kelvion. As successor to the GEA Heat Exchangers Group, we continue to break new ground, making discerning customers more successful than ever with our integrated heat exchanger solutions.

Our solutions for your applications:

We offer our customers one of the world's largest product portfolios in the field of heat exchangers. It includes individual solutions for practically all conceivable applications and complex environmental conditions: plate heat exchangers, shell and tube heat exchangers, finned tube heat exchangers, modular cooling tower systems, and refrigeration heat exchangers.

Your markets are our markets, too:

The markets in which you and we together operate are among the most important in the world: energy, the oil and gas industry, the chemical industry, marine applications, food and beverages, climate and environment. We provide every single market segment with solutions of outstanding efficiency, safety, and sustainability.

We are highly committed to earning your trust:

We want to win your trust with everything we do and convince you with the solutions we offer. With this high aim in mind, we invest our extensive know-how, our great precision, and our passion in everything we do: including product development, manufacturing, installation, and after-sales support.

Seeing things from the customer perspective:

Your specific requirements count – and nothing else. Whatever we offer you, it must meet these requirements. Our entire way of thinking and working is geared towards this aim. Our customers truly appreciate this: after all, this is how we make their companies more efficient.

We are at your service.

Kelvion – Experts in Heat Exchange.



GOEDHART® AIR COOLERS



Do not settle for compromise, but go for the best cooling solution to suit your situation. That is the philosophy which Kelvion makes himself hard. Since 1935 we develop, produce and deliver worldwide air coolers, air cooled condensers and composite systems for (semi) industrial applications and various markets. Our products are perfect for projects requiring a technical demand and involving a great deal of flexibility in terms of design, dimensions and accessories. Also our products are suitable for all thinkable cooling system types and methods.

To achieve the most optimal and cost efficient air cooler system we are using three levels of engineering:

- **Commercial products:** standard cooling systems available in different fixed sizes;
- **Customized products:** custom made cooling systems built from standard modules;
- **Designed to order products:** extensive cooling systems and applications developed especially for the niche market.

Extensive theoretical and practical project analysis by our professional sales engineers will determine which configuration, materials, and level of engineering best fit your program requirements. Additionally, you can use the innovative 'Goedhart Product Catalogue (GPC), the digital design program for all Commercial and Customized Industrial air coolers and air-cooled condensers.

For what level of engineering you choose; Your are with Goedhart in good hands in the field of refrigeration and freezing. This brochure provides information on Copper/Aluminium series, customized product.

Do you have any further questions, we are happy to help you personally. We thank you in advance for the interest you have shown in Kelvion and its products.

PRODUCT FAMILY

CUSTOMIZED AIR COOLERS

Cu/Al (50x50)	Goedhart VCI Küba SGI Searle SM	Goedhart VCe	Goedhart VNS	Goedhart DVS Küba DZ Searle LSR	Goedhart DVR	Goedhart BC50 Küba SF
	Goedhart VRB/VRZ	Goedhart VRe	Goedhart VRS	Goedhart DRS	Goedhart DRR	Goedhart BR50
StSt/Al (50x50 - 60x60) StSt/StSt (50x50)						
FeZn (60x60)	Goedhart ZFB/ZFZ	Goedhart ZGB/ZGZ	Goedhart DZS			

INDUSTRIAL DESIGNED TO ORDER & OEM AIR COOLERS

Cu/Al (50x50) StSt/Al (50x50 - 60x60) StSt/StSt (50x50) FeZn (60x60)	Goedhart KB	Goedhart TN	Goedhart PLK	Goedhart AU
	Goedhart LLK	Goedhart DL	Goedhart SLK	Goedhart DU
Cu/Al (50x50)	Searle FM			

APPLICATION DRIVEN DESIGNS

Cu/Al (50x50) StSt/Al (50x50 - 60x60) StSt/StSt (50x50) FeZn (60x60)	Agricultural	Fruit & vegetable	Distribution centers	Meat processing	Penthouse
	Test facilities	Marine sector	Cooling & Freezing tunnels	Leisure	High pressure

COMMERCIAL AIR COOLERS

CONDENSERS

DRY COOLERS

RADIATORS

LIFE IS EASY THE GOEDHART SELECTION PROGRAM



The Goedhart selection program provides an electronic catalogue covering the majority of product ranges offered by Kelvion. The range of products available to you is very broad with many options. This software provides the fastest and easiest way to select the most appropriate product for your specific needs. This selection program runs on the latest versions of Windows (including both 32-bit and 64-bit versions of Vista, Windows 7, Windows 8 and Windows 10).

All four product types (Coolers, Condensers and Glycol Coolers) are available in a single program. The Goedhart selection program is an easy to use selection tool for contractors, consultants and every other thinkable user and gives you access to many advantages such as:

- Multilingual
- Pre-select buttons to application
- Spare parts
- Selections including drawings
- An extensive list of accessories
- Accurate capacities: During your selection a sophisticated capacity calculation program optimizes the circuits to the design conditions
- Selections possible on several criteria such as capacity, price, fan variations like noise and speed etc.

If you know the model number or the range you require (for example Goedhart® VCI-p 63457), you can type this into the Start area of the Goedhart selection program. This will make the selection faster and exclude models which may not be relevant for your needs.

You can start a selection by clicking the Start button, fill in the required heat exchanger data in the input area and produce PDF or Word files of your selection results. Also it is possible to print a drawing of the selected unit and make your choice belonging to your selected unit. The program normally operates using SI units.

What is important to you? - You can decide which features of the product are most important for each application: energy efficiency, footprint (physical size) and price. You adjust the slider controls to indicate the relative importance to you of each of these three elements. You can also choose to display all possible models, or just the 'top 10' which best meet your selection criteria. Once the selected models are displayed, the 'best' options in each category (energy efficiency, footprint and price) will be on top of the table.

Quality, Support and Website - Trained staff will advise you through every step of the selection process. Our customer service continues past the product delivery, and we are always on hand to advise on any issues.



GOEDHART® CU/AL SERIES

STANDARD CUSTOMIZED

For all Cu/Al models and series of the Goedhart® air coolers your schedule of requirements is leading. Depending on the application, our sales team searches for the optimal configuration in close cooperation with the customer. You have a free choice in:

- dimensions
- Air direction
- blow-through or draw-through
- model: with feet of suspension profiles
- cooling system: natural (NH₃ and CO₂) and synthetic refrigerants
- materials: copper tubes/aluminium fins, Stainless steel tubes/aluminium fin, Stainless steel tubes and fins or steel tubes and fins / hot dipped galvanized
- accessories: eg defrost, coatings

INNOVATION







We can not emphasize often enough that we can meet our “customized production” philosophy to every customer requirements. Common customer requirements lead to innovation of our products. A good example is the energy efficient Goedhart® VCe-p and VCe-i ranges in the copper / aluminum version of our air coolers and air-cooled condensers

LEVEL OF ENGINEERING - 'CUSTOMIZED PRODUCTS'

The custom-made cooling systems built from standard product components are so-called “Level 2 Flexible products”. Within this level of engineering, you can choose from air coolers consisting of copper tubes with aluminum fins (Cu / Al 50x50), stainless steel tubes with aluminum fins (St / Al 50x50), stainless steel tubes and fins (St/St / Al 50x50) and hot dipped galvanized steel tubes and fins (FeZn 60x60).



AVAILABLE CU/AL MODEL RANGES

Goedhart® Type		Tube configuration	Description	Cooling system	Internally increased tube possible
VCI-p VCI-i		50x50	Single blow-through / draw-through air cooler for industrial cooling and freezing applications	DE, coolant, Pump system, CO2	Yes
VCE-p VCE-i		50x50	Single blow-through / draw-through air cooler with last generation efficient fans and optimized coil block modules	DE, coolant, Pump system, CO2	Yes
VNS		50x50	Single blow-through air cooler for the cooling of sensitive products by means of moderate air flow and relatively high humidity	DE, coolant, Pump system, CO2	No
DVS-p DVS-i		50x50	Dual discharge air cooler for working room applications	DE, coolant, Pump system, CO2	Yes
DVR-i DVR-p		50x50	Low height dual discharge air cooler with Radial fans	DE, coolant, Pump system, CO2	Yes
BC50-p BC50XF-p BC50-i BC50XF-i		50x50	Air coolers intended for freezing products. The extra forte (XF) range has reinforced fans for overcoming the air resistance in the room	DE, coolant, Pump system, CO2	Yes

Goedhart® Cu/Al air coolers

BALANCED AIR FLOW



FAN SYSTEM

Because of the flexible construction of the Goedhart® air cooler, in principle it is possible to deliver with different fans. We selected a standard fan range of Ziehl Abegg and EBM (we reserve the right to alter the manufacturer) which fits perfectly on the Goedhart® flexible air coolers. The fans can be supplied in both blow-through and draw-through executions. Against an extra price stainless steel guards and EC-fans are available.

Fan execution

The fans meet the ErP2015 directive. The fans have very good aerodynamic features because of the special impeller geometry. This special impeller geometry gives the fan a low noise level and a high efficiency.

SPECIFICATIONS

Fan data

1x230V-AC	: till -25°C environment temperature
3x400V-AC	: till -40°C environment temperature (between -40°C en -50°C environment temperature on request)
1x230V-EC	: till -25°C environment temperature
3x400V-EC	: till -35°C environment temperature

Tension	: 1x230V-50Hz (60Hz on request) : 3x400V-50Hz : 3x400V or 3x460V-60Hz
---------	---

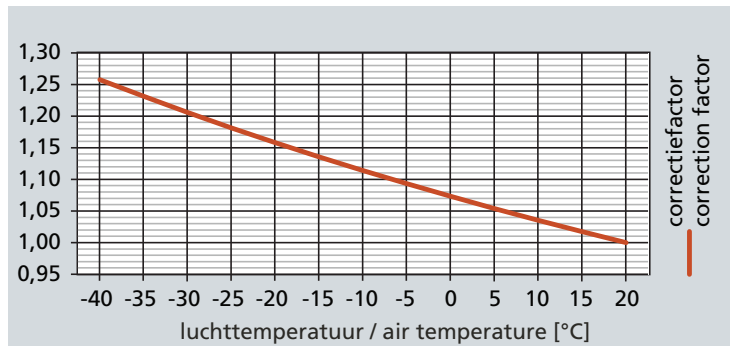
Protection class : IP44 / IP54

Color : RAL9005 (black)

Speed controlling	: 3 phase: 2 speeds by Δ -Y reconnection : frequency controller with all-pole sinus filter : 1 phase : phase-control : transformer
-------------------	--

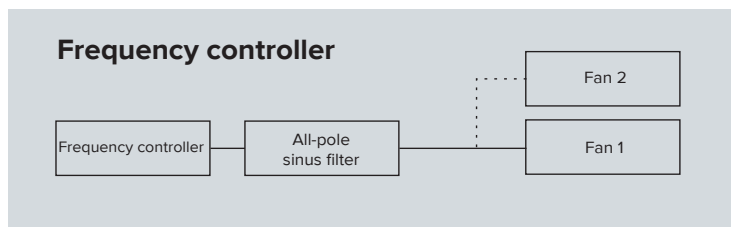
The motors are standard executed with a thermo contact and must be connected to prevent motor damages.

The maximum allowable working data in the table and on the name plate of the fans are to operate in an air temperature of +20 °C (air density of $\rho = 1,2 \text{ kg/m}^3$). For air temperatures lower than +20 °C, the current amperage can be calculated by using the diagram multiplication factor, suitable thermal overloads can then be selected. In our Goedhart GPC selection program also the values in the working point are indicated.



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. Kelvion 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.



DATA ON THE NAME PLATES

Fan diameter	Tension	Three phase - 50Hz								Three phase - 60Hz				
		Δ			Y			Δ	Y	Δ				
		Speed	Nominal power	FLC	Speed	Nominal power	FLC	Sound power level each fan LwA (+/-2dB(A))		Speed	Nominal power	FLC	Sound power level each fan LwA (+/-2dB(A))	
mm	V	min ⁻¹	Watt	A	min ⁻¹	Watt	A	dB(A)	dB(A)	min ⁻¹	Watt	A	dB(A)	
4 pole (n=1500 min⁻¹ nom.)														
350	3x400/690	1390	190	0,40	1170	140	0,23	73	69	1630	300	0,46	74	
400	3x400/690	1370	230	0,44	1110	170	0,27	75	70	1580	370	0,56	76	
450	3x400/690	1350	540	1,10	1020	360	0,66	75	70	1560	880	1,40	79	
500	3x400/690	1340	840	1,45	940	540	0,96	78	73	1480	1200	2,00	80	
560	3x400/690	1290	1150	2,10	890	680	1,20	82	74	1430	1550	2,70	85	
630	3x400/690	1360	1500	2,70	1100	1100	1,80	86	83	1640	2900	4,60	92	
630XF*	3x230/400				1455	2200	4,80		94					
6 pole (n=1000 min⁻¹ nom.)														
450	3x400/690	900	180	0,50	630	100	0,24	66	59	1020	280	0,60	69	
500	3x400/690	880	290	0,74	590	150	0,36	68	57	970	440	0,90	71	
500**	3x230/400				900	510	1,10		72	1050	820	1,30	75	
560	3x400/690	870	340	0,70	630	210	0,38	73	66	980	540	0,88	76	
630	3x400/690	900	620	1,25	720	440	0,72	74	69	1040	1000	1,55	76	
630**	3x230/400				880	1030	2,20		73	940	1440	2,81	76	
710	3x400/690	920	940	2,40	770	660	1,20	76	71	1070	1450	2,70	77	
800	3x400/690	815	1700	3,50	600	920	1,70	80	72	910	2500	4,20	81	

Fan diameter	Tension	Single phase - 50 Hz					Single phase - 60 Hz			
		Speed	Nominal power	FLC	Sound power level each fan LwA (+/-2dB(A))		Speed	Nominal power	FLC	Sound power level each fan LwA (+/-2dB(A))
		min ⁻¹	Watt	A	dB(A)		min ⁻¹	Watt	A	dB(A)
4 pole (n=1500 min⁻¹ nom.)										
350	1x230	1390	150	0,65	74		1520	230	1,00	72
450	1x230	1390	600	2,90	76		1430	820	3,50	75
500	1x230	1240	720	3,20	77		1260	1000	4,40	77
6 pole (n=1000 min⁻¹ nom.)										
400	1x230	950	130	0,60	67		1110	170	0,78	68
500	1x230	900	270	1,25	74		900	380	1,75	75

Mentioned data are for each fan according the supplier of the fans

* Special fan for Goedhart® BC50XF

** Fan for Goedhart® DV-Radion



GOEDHART® VCI AIR COOLERS

Cooling and Freezing

The extensive range Goedhart® VCI single discharge ceiling mounted industrial air coolers are suitable industrial cooling and freezing applications. The possible air direction is blow-through or draw-through (please specify when ordering).

Coil block

Tube distance	: 50x50 mm straight
Fin spacings	: 4, 6, 7, 8, 10 and 12mm.
Material	: 15mm o.d internally plain (p) or increased (i) copper tubes : aluminium HT-fins

The coil blocks have copper tubes mechanically expanded into fully collared aluminium fins. 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 40 bar (lower by cooling mediums) and are supplied with a light over pressure charge of dried air. Suitable for the most known refrigerants and coolants, with the exception of NH₃. For CO₂ as refrigerant we have a special LX-range available.

Casing

- Construction for ceiling mounting
- Casing material of galvanized sheet steel
- Standard white epoxy spray finishing
- Bend/header protection by end covers, easy removed for maintenance
- Standard refrigerant connections are positioned on the left hand side of the unit when looking with the direction of the airflow.
- Cleanable execution optional
- Hinged drip tray prepared
- Possible defrost by hot gas spiral or electric defrost elements will be fixed to the bottom side of the coil
- Stainless steel fasteners

Goedhart® VCI features

- For cooling and freezing applications
- Blow-through or draw-through execution possible
- Copper tubes and aluminium fins
- Available with internally plain or increased copper tubes
- Consisting of 902 models
- Capacity range from 4 to 269,0kW. (R404A dx, SC2)
- EC fan technology possible
- Fans not standard wired to a junction box (optional)
- Suitable for most refrigerants / coolants with exception of NH₃
- Goedhart® VCI is delivered on a wooden frame for easy mounting
- Many options and accessories available (see page 24)



1 2 3 4 5 6 7
VCI **B** **-p** **6** **3** **45** **7**

- 1 Range : Goedhart® VCI
- 2 Air direction : B=blow Z=draw
- 3 Execution tube : p = internal plain
: i = internal increased
- 4 Rows deep : 3, 4 ,6, 8, 10
- 5 Number of fans : 1 - 8
- 6 Fan diameter : 450, 560, 630 mm
- 7 Fin spacing : 4, 6, 7, 8, 10, 12 mm

GOEDHART® VCI-FAN DATA

Fan diameter	Tension	Δ			Y			Δ	Y	Δ			
		Speed	Nominal power	FLC	Speed	Nominal power	FLC	Sound power level each fan LwA (+/-2dB(A))	Speed	Nominal power	FLC	Sound power level each fan LwA (+/-2dB(A))	
mm	V	min ⁻¹	Watt	A	min ⁻¹	Watt	A	dB(A)	dB(A)	min ⁻¹	Watt	A	dB(A)
THREE PHASE - 50HZ													
450	3x400/690	1350	540	1,10	1020	360	0,66	75	70	1560	880	1,40	79
560	3x400/690	1290	1150	2,10	890	680	1,20	82	74	1430	1550	2,70	85
630	3x400/690	1360	1500	2,70	1100	1100	1,80	86	83	1640	2900	4,60	92
450	3x400/690	900	180	0,50	630	100	0,24	66	59	1020	280	0,60	69
560	3x400/690	870	340	0,70	630	210	0,38	73	66	980	540	0,88	76
630	3x400/690	900	620	1,25	720	440	0,72	74	69	1040	1000	1,55	76
SINGLE PHASE - 50HZ													
450	1x230	1390	600	2,90				76		1430	820	3,50	75
500	1x230	1240	720	3,20				77		1260	1000	4,40	77
500	1x230	900	270	1,25	74	900	380	1,75	75	1110	170	0,78	68
SINGLE PHASE - 60HZ													

Mentioned data are for each fan according the supplier of the fans



GOEDHART® VCe AIR COOLERS

Powerful quiet

The Goedhart® VCe models are highly effective, for example, for application in food and beverage distribution centers, logistics centers and production shop floors. As required by market demand, models in the Goedhart® VCe series feature few but large fans. With the newly designed modules the speed of the fans and the air velocity through the coil are reduced! Available with internally plain or increased copper tubes.

Coil block

Tube distance	: 50x50 mm straight
Fin spacings	: 4, 6, 7, 8, 10 and 12mm.
Material	: 15mm o.d internally plain (p) or increased (i) copper tubes
	: aluminium HT-fins

The coil blocks have copper tubes mechanically expanded into fully collared aluminium fins. 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 40 bar (lower by cooling mediums) and are supplied with a light over pressure charge of dried air. Suitable for most known refrigerants and coolants, with the exception of NH₃. For CO₂ as refrigerant we have a special LX-range available.

Casing

- Construction for ceiling mounting
- Casing material of galvanized sheet steel
- Standard white epoxy spray finishing
- Bend/header projection by end covers, easy removed for maintenance
- Hinged drip tray prepared
- Standard refrigerant connections are positioned on the left hand side of the unit when looking with the direction of the airflow
- Cleanable execution optional
- Possible defrost by hot gas spiral or electric defrost elements will be fixed to the bottom side of the coil
- Stainless steel fasteners

Goedhart® VCe features

- For cooling and freezing applications
- Blow-through or draw-through execution possible
- Copper tubes and aluminium fins
- Available with internally plain or increased copper tubes
- Consisting of 132 models
- Capacity range from 14,5 to 188,0kW (R404A dx, SC2)
- EC fan technology possible
- Highly effective air cooler due to new designed modules and fans.
- Up to 6 fans, fan diameter 500, 630, 710 and 800 mm
- Suitable for the most refrigerants / coolants with exception of NH₃
- ZPlus fan on Goedhart VCe with 710 and 800 mm models (most energy efficient fan on the market today)
- Goedhart® VCe is delivered on a wooden frame for easy mounting



1 VCe
 2 B
 3 -p
 4 6
 5 3
 6 45
 7 7

- 1 Range : Goedhart® VCe
- 2 Air direction : B=blow Z=draw
- 3 Execution tube : p = internal plain
: i = internal increased
- 4 Rows deep : 6, 8, 10
- 5 Number of fans : 1- 6
- 6 Fan diameter : 500, 630, 710, 800 mm
- 7 Fin spacing : 4, 6, 7, 8, 10, 12 mm

GOEDHART® VCE-FAN DATA

Fan diameter	Tension	Δ			Y			Δ	Y	Δ			
		Speed	Nominal power	FLC	Speed	Nominal power	FLC	Sound power level each fan LwA (+/-2dB(A))	Speed	Nominal power	FLC	Sound power level each fan LwA (+/-2dB(A))	
mm	V	min ⁻¹	Watt	A	min ⁻¹	Watt	A	dB(A)	dB(A)	min ⁻¹	Watt	A	dB(A)
THREE PHASE - 50HZ													
500	3x400/690	1340	840	1,45	940	540	0,96	78	73	1480	1200	2,00	80
630	3x400/690	1360	1500	2,70	1100	1100	1,80	86	83	1640	2900	4,60	92
500	3x400/690	880	290	0,74	590	150	0,36	68	57	970	440	0,90	71
630	3x400/690	900	620	1,25	720	440	0,72	74	69	1040	1000	1,55	76
710	3x400/690	920	940	2,40	770	660	1,20	76	71	1070	1450	2,70	77
800	3x400/690	815	1700	3,50	600	920	1,70	80	72	910	2500	4,20	81
SINGLE PHASE - 50HZ													
500	1x230	1240	720	3,20				77		1260	1000	4,40	77
500	1x230	900	270	1,25				74		900	380	1,75	75
SINGLE PHASE - 60HZ													

Mentioned data are for each fan according the supplier of the fans



GOEDHART® VNS AIR COOLERS

Potatoes, vegetables and fruits

The Goedhart® VNS range of ceiling mounted aircoolers are specially designed for use in chill rooms, working with an air temperature of $\pm 0^{\circ}\text{C}$. The aircoolers are especially suitable for vegetable and fruit storage, working with a small ΔT to prevent dehydration of the product. The height of the aircooler is low, so the maximum space in the chill room can be utilised.

Coil block

Tube distance	: 50x50 mm straight
Fin spacings	: 7 mm
Material	: 15mm o.d internally plain copper tubes : aluminium HT-fins

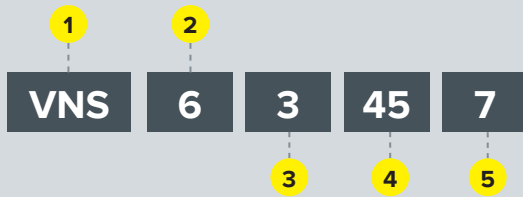
Goedhart® VNS coil blocks have copper tubes mechanically expanded into fully collared aluminium fins. A good thermal contact is achieved by expansion of the tubes into the fin collars, that are also utilised as spacers to provide a constant distance between the fins. All coolers are pressure tested to 40 bar (lower by cooling mediums) and are supplied with a light over pressure charge of dried air. Suitable for most known refrigerants and coolants, with the exception of NH_3 . For CO_2 as refrigerant we have a special LX-range available.

Casing

- Construction for ceiling mounting
- Casing material of galvanized sheet steel
- Standard white epoxy spray finishing
- Bend/header projection by end covers, easy removed for maintenance
- Standard refrigerant connections are positioned on the left hand side of the unit when looking with the direction of the airflow
- Possible defrost by hot gas spiral or electric defrost elements will be fixed to the bottom side of the coil
- Hinged drip tray prepared
- Stainless steel fasteners

Goedhart® VNS features

- Especially for agricultural applications
- Copper tubes and aluminium fins
- Consisting of 16 models
- Capacity range from 6,4 to 62,5 kW (R404A dx, SC2)
- EC fan technology possible
- Suitable for most refrigerants / coolants with exception of NH_3
- Up to 8 fans, fan diameter 350, 400, 450 and 500 mm
- Goedhart® VNS is delivered on a wooden frame for easy mounting

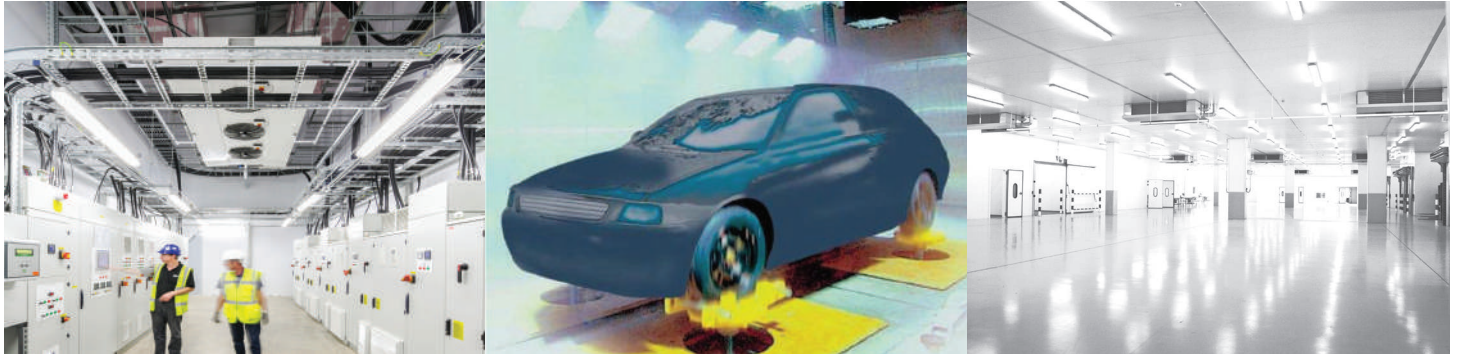


- 1 Range : Goedhart® VNS
- 2 Rows deep : 6
- 3 Number of fans : 1 - 8
- 4 Fan diameter : 350, 400, 450, 500 mm
- 5 Fin spacing : 7 mm

GOEDHART® VNS-FAN DATA

Fan diameter	Tension	Δ			Y			Δ	Y	Δ			
		Speed	Nominal power	FLC	Speed	Nominal power	FLC	Sound power level each fan LwA (+/-2dB(A))	Speed	Nominal power	FLC	Sound power level each fan LwA (+/-2dB(A))	
mm	V	min ⁻¹	Watt	A	min ⁻¹	Watt	A	dB(A)	dB(A)	min ⁻¹	Watt	A	dB(A)
THREE PHASE - 50HZ													
350	3x400/690	1390	190	0,40	1170	140	0,23	73	69	1630	300	0,46	74
400	3x400/690	1370	230	0,44	1110	170	0,27	75	70	1580	370	0,56	76
450	3x400/690	1350	540	1,10	1020	360	0,66	75	70	1560	880	1,40	79
500	3x400/690	1340	840	1,45	940	540	0,96	78	73	1480	1200	2,00	80
450	3x400/690	900	180	0,50	630	100	0,24	66	59	1020	280	0,60	69
500	3x400/690	880	290	0,74	590	150	0,36	68	57	970	440	0,90	71
SINGLE PHASE - 50HZ													
350	1x230	1390	150	0,65				74		1520	230	1,00	72
450	1x230	1390	600	2,90				76		1430	820	3,50	75
500	1x230	1240	720	3,20				77		1260	1000	4,40	77
400	1x230	950	130	0,60				67		1110	170	0,78	68
500	1x230	900	270	1,25				74		900	380	1,75	75

Mentioned data are for each fan according the supplier of the fans



GOEDHART® DVS AIR COOLERS

Spreaded air diffusion

The Goedhart® DVS range of dual discharge ceiling mounted air coolers are especially suitable for cooling and working room applications. The height of the aircooler is low, so the maximum space in the chill room can be utilised. The air direction is dual discharge blow-through or draw-through and the air coolers are available with internally plain or increased copper tubes (please state when ordering). The fans are mounted to the outside of the air cooler. The fans are as standard not wired on a junction box to the connection side. Wiring is available against an extra price.

Coil block

Tube distance	: 50x50 mm straight
Fin spacings	: 4, 7 and 10mm
Material	: 15mm o.d internally plain (p) or increased (i) copper tubes : aluminium HT-fins

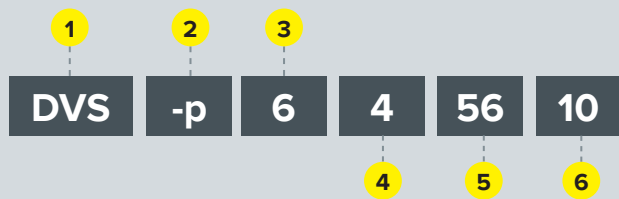
Goedhart® DVS coil blocks have copper tubes mechanically expanded into fully collared aluminium fins. A good thermal contact is achieved by expansion of the tubes into the fin collars, that are also utilised as spacers to provide a constant distance between the fins. All coolers are pressure tested to 40 bar (lower by cooling mediums) and are supplied with a light over pressure charge of dried air. Suitable for most known refrigerants and coolants, with the exception of NH₃. For CO₂ as refrigerant we have a special LX-range available.

Casing

- Construction for ceiling mounting
- Casing material of galvanized sheet steel
- Standard white epoxy spray finishing
- Bend/header protection by end covers, easy removed for maintenance
- Hinged drip tray (only construction without feet)
- Possible defrost by hot gas spiral or electric defrost elements will be fixed to the bottom side of the coil
- Stainless steel fasteners

Goedhart® DVS features

- Especially for working room applications
- Copper tubes and aluminium fins
- Consisting of 480 models
- Available with internally plain or increased copper tubes
- Capacity range from 1,0 to 150,0kW (R404A dx, SC2)
- EC fan technology possible
- The fans are mounted to the outside of the air cooler. easy for maintenance
- The fans are as standard not wired on a junction box (optional)
- Suitable for most refrigerants / coolants with exception of NH₃
- Goedhart® DVS is delivered on a wooden frame for easy mounting
- Many options and accessories available (see page 24)



- 1 Serie : Goedhart® DVS
- 2 Execution tube : p = internal plain
: i = internal increased
- 3 Rows deep : 3, 4, 6, 8, 10
- 4 Number of fans : 1 - 6
- 5 Fan diameter : 450, 500, 560, 630 mm
- 6 Fin spacing : 4, 7 en 10 mm

GOEDHART® DVS-FAN DATA

Fan diameter	Tension	Δ			Y			Δ	Y	Δ			
		Speed	Nominal power	FLC	Speed	Nominal power	FLC	Sound power level each fan LWA (+/-2dB(A))	Speed	Nominal power	FLC	Sound power level each fan LWA (+/-2dB(A))	
mm	V	min ⁻¹	Watt	A	min ⁻¹	Watt	A	dB(A)	dB(A)	min ⁻¹	Watt	A	dB(A)
THREE PHASE - 50HZ													
450	3x400/690	1350	540	1,10	1020	360	0,66	75	70	1560	880	1,40	79
500	3x400/690	1340	840	1,45	940	540	0,96	78	73	1480	1200	2,00	80
560	3x400/690	1290	1150	2,10	890	680	1,20	82	74	1430	1550	2,70	85
630	3x400/690	1360	1500	2,70	1100	1100	1,80	86	83	1640	2900	4,60	92
450	3x400/690	900	180	0,50	630	100	0,24	66	59	1020	280	0,60	69
500	3x400/690	880	290	0,74	590	150	0,36	68	57	970	440	0,90	71
560	3x400/690	870	340	0,70	630	210	0,38	73	66	980	540	0,88	76
630	3x400/690	900	620	1,25	720	440	0,72	74	69	1040	1000	1,55	76
SINGLE PHASE - 50HZ													
450	1x230	1390	600	2,90				76		1430	820	3,50	75
500	1x230	1240	720	3,20				77		1260	1000	4,40	77
500	1x230	900	270	1,25				74		900	380	1,75	75
SINGLE PHASE - 60HZ													

Mentioned data are for each fan according the supplier of the fans



GOEDHART® DV-RADION AIR COOLERS

New generation dual discharge air coolers

The Goedhart® DV-Radion (DVR) is a new generation range of dual discharge ceiling mounted air coolers with radial fans and are especially suitable for cooling and working room applications. A radial fan makes it possible to draw the air from below, after which the fan blows out the air right away in the right direction of the coil blocks. Energy required for the 90° twist of the air direction is no longer needed! Due to a low overall height of the air cooler the chilling room can be optimally used. The air direction is dual discharge blow-through. The radial fans are ERP2015 and available in AC (3x230/400V) and EC (1x230V or 3x400V).

Coil block

Tube distance	: 50x50 mm straight
Fin spacings	: 4, 7 and 10mm
Material	: 15mm o.d internally plain (p) or increased (i) copper tubes
	: aluminium HT-fins

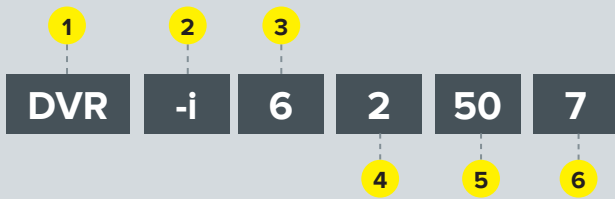
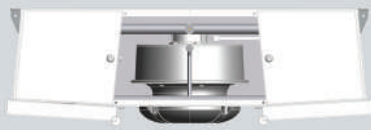
Goedhart® DVR coil blocks have copper tubes mechanically expanded into fully collared aluminium fins. A good thermal contact is achieved by expansion of the tubes into the fin collars, that are also utilised as spacers to provide a constant distance between the fins. All coolers are pressure tested to 40 bar (lower by cooling mediums) and are supplied with a light over pressure charge of dried air. Suitable for most known refrigerants and coolants, with the exception of NH₃. For CO₂ as refrigerant we have a special LX-range available.

Casing

- Improved layout and design
- Construction is suitable for ceiling mounting, no obstruction in the air flow
- Casing material of galvanized sheet steel
- Standard white epoxy spray finishing
- Bend/header protection by end covers, easy removed for maintenance
- Hinged drip trays as standard
- Possible defrost by hot gas spiral or electric defrost elements will be fixed to the bottom side of the coil
- Stainless steel fasteners

Goedhart® DV-Radion features

- Especially for working room applications
- Reduced installation height
- Radial fans give an optimum air distribution, lower energy consumption and less noise
- A reduction of the defrost time, because of better air distribution
- Capacity range from 8,0 to 65,0kW (R404A dx, SC2)
- EC fan technology possible
- Easy to clean and maintain by removable fan plate and hinged inner and outer drip trays
- Fans standard wired to a junction box
- Suitable for most refrigerants / coolants with exception of NH₃
- Goedhart® DVR is delivered on a wooden frame for easy mounting
- Many options and accessories available (see page 24)



- 1 Serie : Goedhart® DVR
- 2 Execution tube : p = internal plain
: i = internal increased
- 3 Rows deep : 4, 6, 8
- 4 Number of fans : 1 - 4
- 5 Fan diameter : 500, 630 mm
- 6 Fin spacing : 4, and 7mm

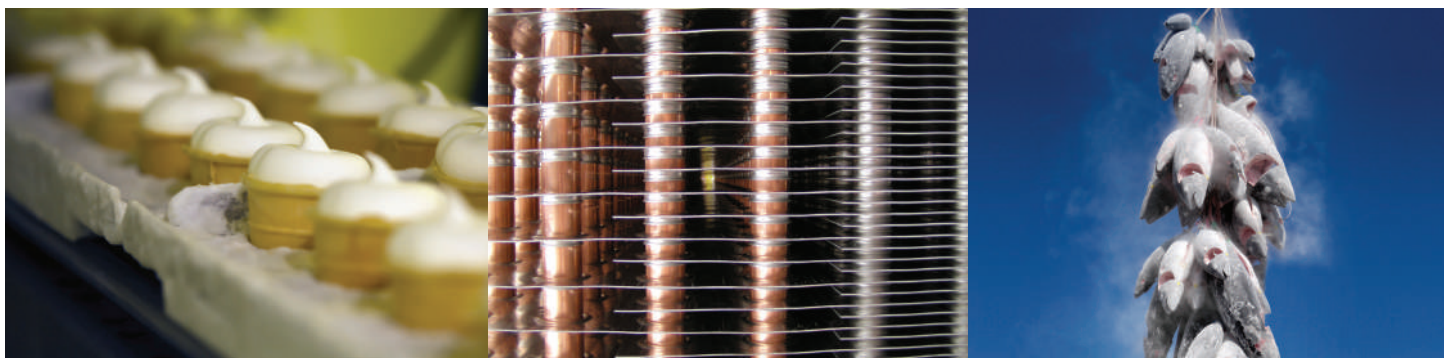
GOEDHART® DV-Radion-FAN DATA - AC

Fan diameter	Power supply	Δ			Y			Δ	Y	Δ			
		Speed	Nominal power	FLC	Speed	Nominal power	FLC	Sound power level each fan LwA (+/-2dB(A))	Speed	Nominal power	FLC	Sound power level each fan LwA (+/-2dB(A))	
mm	V	min ⁻¹	Watt	A	min ⁻¹	Watt	A	dB(A)	dB(A)	min ⁻¹	Watt	A	dB(A)
THREE PHASE - 50HZ										THREE PHASE - 60HZ			
500	3x230/400				900	510	1,10		72	1050	820	1,30	75
630	3x230/400				880	1030	2,20		73	940	1440	2,81	76

GOEDHART® DV-Radion-FAN DATA - EC

Fan diameter	Power supply range	Frequency	Speed	Nominal power	FLC	Sound power level each fan LwA (+/-2dB(A))
mm	V	Hz	min ⁻¹	Watt	A	dB(A)
3X400V-50HZ						
500	380 .. 480	50 / 60	1350	1320	2,10	74
630	380 .. 480	50 / 60	900	950	1,50	71
1X230V-50HZ						
500	200 .. 277	50 / 60	1100	750	3,30	70
630	200 .. 270	50 / 60	830	750	3,30	72

Mentioned data are for each fan according the supplier of the fans



GOEDHART® BC50 / BC50XF AIR COOLERS

Blast freezing

The Goedhart® BC50/BC50XF blast freezers are a range of floor mounted air coolers specially designed for quick freezing of food products with a best performance due to special tubes. The Goedhart® BC50/BC50XF is a high-quality Goedhart aircooler with a lot of possible optional extras.

The Goedhart® BC50/BC50XF air coolers are very suitable for the use in 'large scale kitchens' (ready-to-serve meals). Besides this it can be used for quick freezing of bakery products, meat, fish, poultry, milk products and the production of ice cream. The working temperature is usually between -10°C and -30°C. The air cooler design is optimized for the use in confined spaces.

The process of quick freezing is very important to minimize the weight loss and conserving the qualities of the food product. The nutritional value is maintained, as well as the original taste. The fans on our Goedhart® BC50/BC50XF air coolers have respectively standard 50 and 100 Pa external pressure available to enable the quick freezing process.

Coil block

Tube distance	: 50x50 mm straight
Fin spacings	: 7, 10 and 12mm
Material	: 15mm o.d internally plain (p) or increased (i) copper tubes : aluminium HT-fins

Goedhart® BC50 coil blocks have copper tubes mechanically expanded into fully collared aluminium fins. 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 40 bar (lower by cooling mediums) and are supplied with a light over pressure charge of dried air. Suitable for almost all known refrigerants and coolants, with the exception of NH₃. For CO₂ as refrigerant we have a special LX-range available.

Casing

- Construction for floor / ceiling mounting
- Casing material of galvanized sheet steel
- Neutral finishing (not painted)
- Standard refrigerant connections are positioned on the left hand side of the unit when looking with the direction of the airflow
- Possible defrost by hot gas spiral or electric defrost elements will be fixed to the bottom side of the coil
- Stainless steel fasteners

Goedhart® BC50 / BC50XF features

- Blastfreezer
- Suitable for floor or ceiling mounting
- Copper tubes and aluminium fins
- Available with internally plain or increased copper tubes
- Blow-through or draw-through execution possible
- Consisting of 24 models
- Capacity range from 14,3 to 105,5kW (R404A dx, SC3)
- Suitable for most refrigerants / coolants with exception of NH₃
- Many options and accessories available (see page 24)



- 1** Range : Goedhart® BC50
- 2** External pressure : = 50 Pa XF = 100 Pa
- 3** Execution tube : p = internal plain
: i = internal increased
- 4** Rows deep : 6 , 8
- 5** Number of fans : 2, 4, 6
- 6** Fan diameter : 630, 630XF mm
- 7** Fin spacing : 7, 10 en 12 mm

1
2
3
4
5
6
7

BC50 **XF** **p** **6** **3** **45** **7**

GOEDHART® BC50 & BC50XF-FAN DATA

Fan diameter	Tension	Δ			Y			Δ	Y	Δ			
		Speed	Nominal power	FLC	Speed	Nominal power	FLC	Sound power level each fan LwA (+/-2dB(A))	Speed	Nominal power	FLC	Sound power level each fan LwA (+/-2dB(A))	
mm	V	min ⁻¹	Watt	A	min ⁻¹	Watt	A	dB(A)	dB(A)	min ⁻¹	Watt	A	dB(A)
THREE PHASE - 50HZ													
630	3x400/690	1360	1500	2,70	1100	1100	1,80	86	83	1640	2900	4,60	92
630XF*	3x230/400				1455	2200	4,80		94				
THREE PHASE - 60HZ													
630	3x400/690	900	620	1,25	720	440	0,72	74	69	1040	1000	1,55	76

Mentioned data are for each fan according the supplier of the fans

* Special fan for Goedhart® BC50XF

Kelvion

Accessories and options for Goedhart® air coolers

FLEXIBLE SOLUTIONS FOR YOUR APPLICATIONS

Accessories						
	Goedhart® VCI	Goedhart® VCe	Goedhart® VNS	Goedhart® DVS	Goedhart® DV-Radion	Goedhart® BC50
Blow-through	X	X	X	X	X	X
Draw-through	X	X				
Internally plain tube	X	X	X	X	X	X
Internally increased tube	X	X		X	X	X
Electrical defrost	X	X	X	X	X	X
Hotgas defrost	X	X	X	X	X	X
Water defrost	X	X	X	X		X
Integrated secundair defrost circuit	X	X			X	X
anti-condensation heating driptray	X	X	X	X	X	X
Fan heating	X	X	X	X		X
UVC Disinfection system					X	
Hinged fans	X	X		X		
Hinged drip tray	X	X		X	X	
Insulated driptray	X	X		X	X	X
Insulated fan plates				X	X	
Polyester drip tray	X	X		X	X	X
Plastic air throw streamer*	X	X				
Sock connection*	X	X				
Sock connection with air straightner*	X	X				
Defrost sock *	X	X				
Diffusor	X	X				X
Diffusor with air operated damper	X	X				X
Options						
Insulation disks	X	X	X	X	X	X
Feet for floor mounting	X	X	X	X		Standard
Suction hood over fan	X	X				
Suction hood fin side *	X	X				
Duct connection					X	
Fans 60Hz	X	X	X	X	X	X
Fans EC	X	X	X	X	X	X
Fans 1x230V	X		X	X	X	X
Coolants	X	X	X	X	X	X
Pump system	X	X	X	X	X	X
CO ₂	X	X	X	X	X	X
Other casing material	X	X	X	X	X	X
Other fin spacings	X	X	X	X	X	X
Fins Almg	X	X	X	X	X	X
Fins Goldlack	X	X	X	X	X	X

*=Only draw-through air coolers (Goedhart® VCI-Z and Goedhart® VCe-Z)

DEFROST SYSTEMS

For room temperatures where ice-build up can be expected and where the coil can not be defrosted by the room air, an defrost system is available.

Electrical defrost

On request Goedhart® Flexible air coolers Cu/Al can be provided with electrical 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 heating elements are fitted in the coil block within aluminium tubes, which forms a highly conductive medium between the heaters and the fins. In the drip tray heater elements are fitted to the underside of the aluminium inner tray. The elements are rated for 220/240 V and are connected (IP55) for 380/415 V (with neutral) supply. The heater elements in the coil block are removable from the bend side, whilst the tray heater elements can be removed once the outer tray has been removed.

The exact number of elements and electrical power for light and heavy defrost each air cooler, you can find in our Goedhart selection program.

Heating section

The air cooler can be carried out with a heating section with electric heating elements to heat up again dehumidified air. The heating section is compared to the air flow placed after the coil block. The heating elements can be placed with holders against the coil block or completely integrated in the casing.

Hot gas defrost

The coil block is as standard suited for hot gas defrost (hot gas supply through the suction header). Against an extra price the drip tray can be provided with a copper hot gas spiral. This is enclosed in aluminium profiles that are rigidly secured to the under side of the aluminium inner drip tray. As a result, a very good heat transfer is realized. As with electric defrost a distinction is made with light defrost (room temperature around 0 ° C) and heavy defrost.

Water defrost

On top of the coil block a removable water defrost tray is mounted. The height of the water defrost tray is 80 mm, which increases the total height of the air cooler. The standard discharge head of the water in the water defrost tray is 25 mm, the maximum speed in the water supply line is 5m / sec. For an optimal functioning of the water defrost, the temperature of the defrost water must be between + 15 ° C and at + 30 ° C. The water defrost tray is executed with handles, easy for disassemble and cleaning.

FAN HEATING

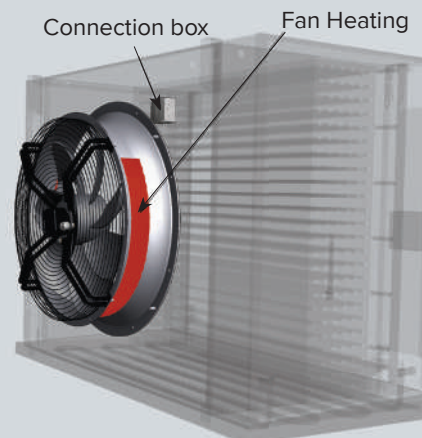
The fan fan heating prevents ice build-up between the fan impeller and fan bellmouth during the defrost cycle. This prevent damaging of the fan.

We advise to use fan heating as option on your air cooler when the room temperature <-10 °C

Delivery

- Is mounted and connected to a junction box
- Can also be retrofitted

fan diameter	Power at 230V
mm	kW
450	0,31
500	0,31
560	0,48
630	0,48
710	0,63
800	0,63



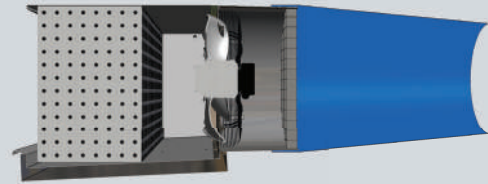


DEFROST SOCKS

(Draw-through air coolers)

The defrost socks may be used at draw-through air coolers and optimizes defrosting in particular freezing applications.

In the cooling phase and activated fans, the defrost sock is inflated. In the defrost phase, when the fans are turned off, the defrost sock close the the fan hole and supports the defrost process of the coil block.



Execution

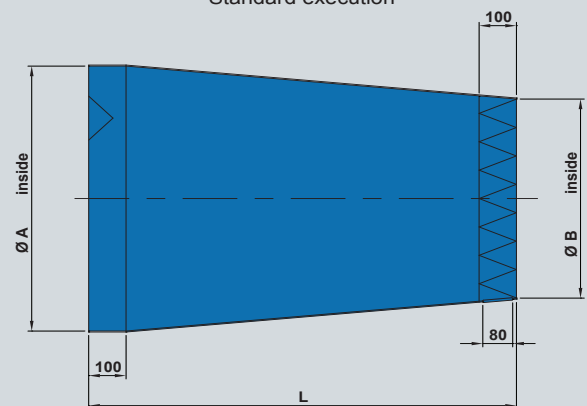
Suitable for food industry, 100% polyester endless fiber, washable at 40 °C, suitable for temperatures -60 to 110 ° C, very flexible, Fire resistance E (EN13501-1: 2003), double stitched, tear resistant.

Advantage

The defrost sock prevent draw in the air cooler during the defrost process. The heat remains in the air cooler and ensures that the defrosting time is considerably shortened.

Goedhart VCI-Z / VCe-Z				
fan diameter	Connection	A	B	L
mm	mm	mm	mm	mm
450	500	515	380	760
500	550	565	425	835
560	650	665	480	925
630	637	650	540	1030
710	716	720	595	1135
800	817	820	680	1285

Standard execution



PREPARED FOR TEXTILE HOSES

With textile/PVC air hoses, the air flow can be optimized

- Applications in work and production
- Sensitive refrigerated products (eg flowers, cheese ripening)

Advantages

By using air hoses a very even distribution of air at low air speed is possible.

- Lower absenteeism through draft-free workplaces
- Optimal climate for sensitive products
- No condensation, because of the breathable fabric no dew point exceedance occurs.

Goedhart® VCI-Z / VCe-Z	
fan diameter	Connection
mm	mm
450	500
500	550
560	637
630	637



Attention!!

When selecting the air cooler, you need to take pressure loss into account.

SUCTION HOOD

(Draw-through air coolers)

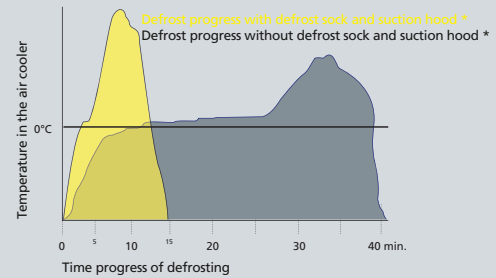
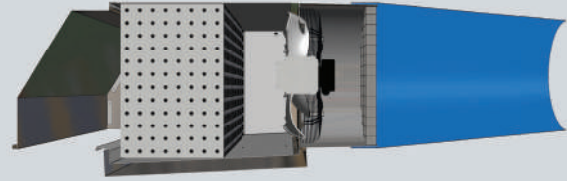
The suction hood is applied when used for freezing applications from -18°C . It supports the alternate defrost for the air cooler in the freezing room. The suction hood is carried out with 13 mm insulation.

- The suction hood is equal to the casing Material of the air cooler.
- Suction hood is supplied separately and is easy to assemble

Advantages (in combination with a defrost sock)

The defrost sock and suction hood prevent draw in the air cooler during defrosting. The heat remains on this way in the cooler and that means:

- Shorten the defrosting time by over 50%
- Significant energy savings
- No frost formation on the ceiling of the room and to the products with minimum vapor formation



NOTE:

Due to extra external pressure, the air volume and the capacity of the air cooler changes:

- When using a defrost sock the air volume is reduced with -10% and the capacity with -5%
- When using a defrost sock and suction hood the air volume is reduced with -20% and the capacity with -10%
- Per fan is 1 defrost sock is needed. Defrost socks are delivered assembled

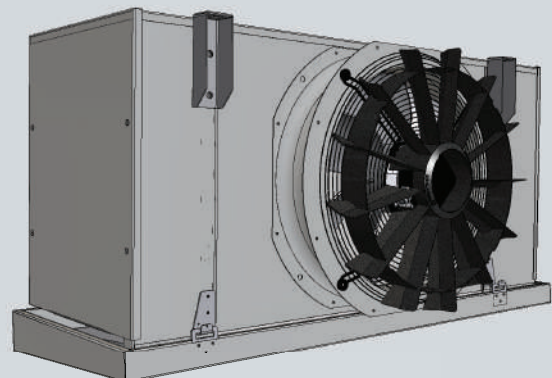
PLASTIC AIR THROW STREAMER

(Draw-through air coolers)

The Ziehl Abegg fan on a draw-through FeZn air cooler can be executed with a plastic air throw streamer for an improved air throw. Available on fan diameters 450, 500, 560 and 630 mm.

Advantage

The air throw streamer gives a improved air throw
Also suitable on air coolers with stainless steel casing





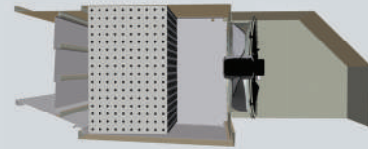


SUCTION HOOD OVER THE FANS

(Blow-through air coolers)

The suction hood over the fans is applied when used for freezing applications from -18°C . It supports the alternate defrost for the air cooler in the freezing room. It is possible to execute the suction with 13 mm insulation.

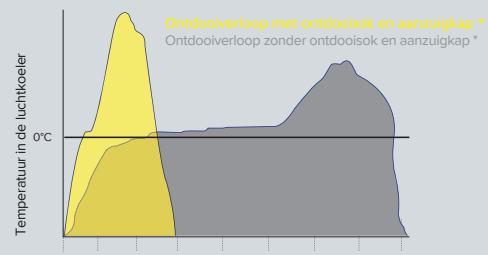
- The material of the suction hood is equal to the casing material of the air cooler.
- Suction hood is supplied separately and is easy to assemble



Advantages (in combination with a diffuser with damper)

The diffuser with damper and suction hood prevent draw in the air cooler during defrosting. The heat remains on this way in the cooler and that means:

- Shorten the defrosting time by over 50%
- Significant energy savings
- No frost formation on the ceiling of the room and to the products with minimum vapor formation



NOTE!

Due to extra external pressure, the air volume and the capacity of the air cooler changes:

- When using a diffuser with damper the air volume is reduced with -10% and the capacity with -5%
- When using a diffuser with damper and suction hood over the fans the air volume is reduced with -20% and the capacity with -10%

AIR DIFFUSER WITH AIR OPERATED DAMPER

(Blow-through air coolers)

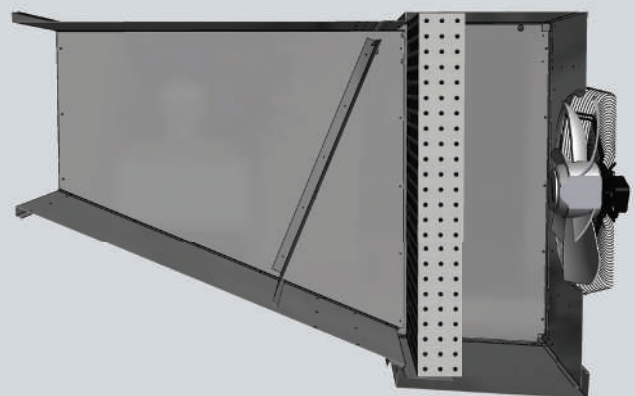
The air diffuser with air operated damper may be used at blow-through air coolers and optimizes defrosting in particular freezing applications. In the cooling phase and activated fans, the air operated damper is blown open. In the defrost phase, when the fans are turned off, the air operated damper close the the fin side of the coil block and supports the defrost process of the coil block.

Execution

The damper is air operated and has few mechanical parts. The damper is delivered in open position to prevent damage during transport.

Advantage

The air diffuser with air operated damper prevent draw in the air cooler during the defrost process. The heat remains in the air cooler and ensures that the defrosting time is considerably shortened. In addition, the diffuser provides improved air throw.



UVC DISINFECTION SYSTEM

UVC disinfection in food production means round-the-clock hygiene. The UVC treatment of coil block fin surface destroys bacteria before they colonize your products and ensures consistent quality over the whole working day. UVC fin surface treatment on the Goedhart DVR and PAC air coolers enables to take residual free measures against bacteria right where they arise. Due to UVC radiation a slight discoloration is possible on spray painted surfaces.

- ▶ Available on Goedhart DVR air coolers
- ▶ UVC against bacteria, yeasts, viruses and mold
- ▶ Round-the-clock hygiene of the coil block surface
- ▶ Low energy costs through efficient ballasts
- ▶ Without chemicals and residue-free
- ▶ Shatterproof lamps according to HACCP and IFS standard
- ▶ Operating temperature 0 - 40°C
- ▶ UVC treatment ensures you a hygienic surface
- ▶ IP67 protected



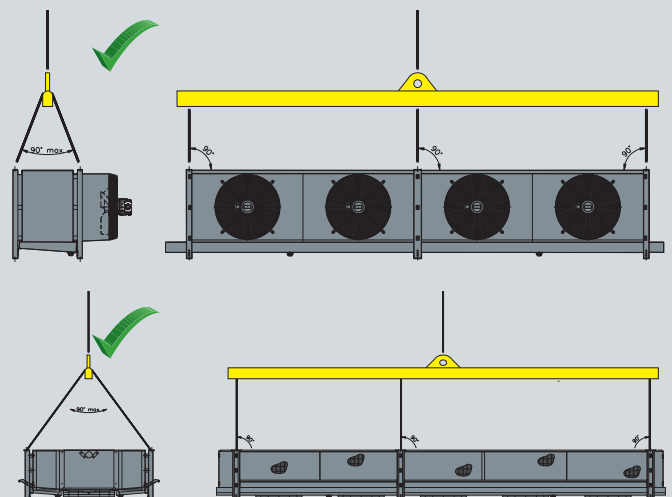
LIFTING INSTRUCTIONS

Lifting instructions are supplied with every product. Lifting and moving heat exchangers must be carried out by skilled personnel. Safety must always be assured. Contact us if in doubt about any lifting or moving instruction.

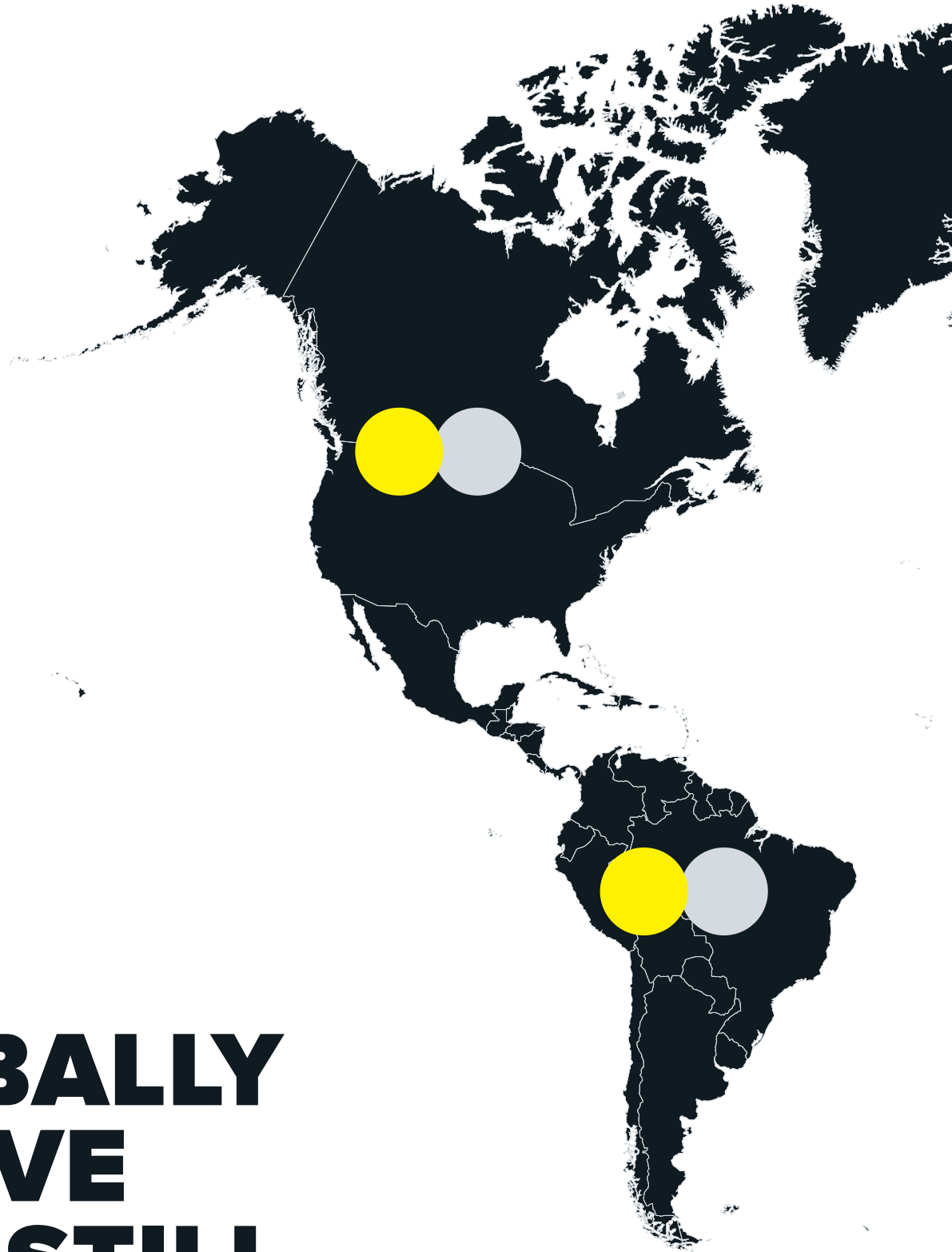
These instructions must always be followed in order to guarantee safety and to prevent any damage occurring to our product.

Heat exchangers mounted on a wooden frame can be unloaded by a forklift truck. When doing so, stacked heat exchangers may only be lifted off one at a time. A crane can also be used for unloading by positioning slings under the wooden frame.

Heat exchangers with transport legs must be unloaded using a crane with a balancer (see lifting instructions).







GLOBALLY ACTIVE AND STILL CLOSE BY

No matter where your market is, regardless of country, we are never far away. We are always happy to answer any questions you may have and meet your requirements. Even the largest, most successful project begins with an initial, profitable conversation. We look forward to hearing from you.