

Kelvion



Goedhart® air coolers

Goedhart® FeZn air coolers

AIR COOLERS FOR COOLING & FREEZING APPLICATIONS







Kelvion – a tribute to Lord Kelvin

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

70 branches and
sales partners
worldwide

More than 4,000
employees
worldwide

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; You are with Goedhart in good hands in the field of refrigeration and freezing. This brochure provides information on FeZn series, a 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

Goedhart® air coolers and condensers

COMMERCIAL PRODUCTS

Cu/Al
Freons, CO₂, Coolants



CUSTOMIZED PRODUCTS

Cu/Al
Freons, CO₂, Coolants



StSt/AI
StSt/StSt
NH₃, CO₂, Coolants



FeZn
NH₃, CO₂, Coolants



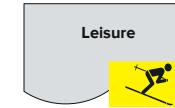
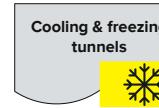
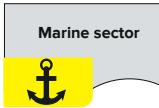
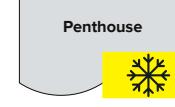
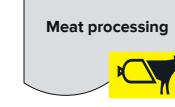
DESIGNED TO ORDER & OEM PRODUCTS

Cu/Al
StSt/AI
StSt/StSt
FeZn



APPLICATION DRIVEN DESIGNS

Cu/Al
StSt/AI
StSt/StSt
FeZn



AIR COOLED CONDENSERS & DRY COOLERS

Cu/Al
Freons, CO₂, Coolants



StSt/AI
NH₃, CO₂, Coolants



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 passes the product delivery, and we are always on hand to advise on any issues. Keep up to date with our products and latest news by visiting the website, www.kelvion.com



GOEDHART® FEZN SERIES

STANDARD CUSTOMIZED

For all FeZn 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:

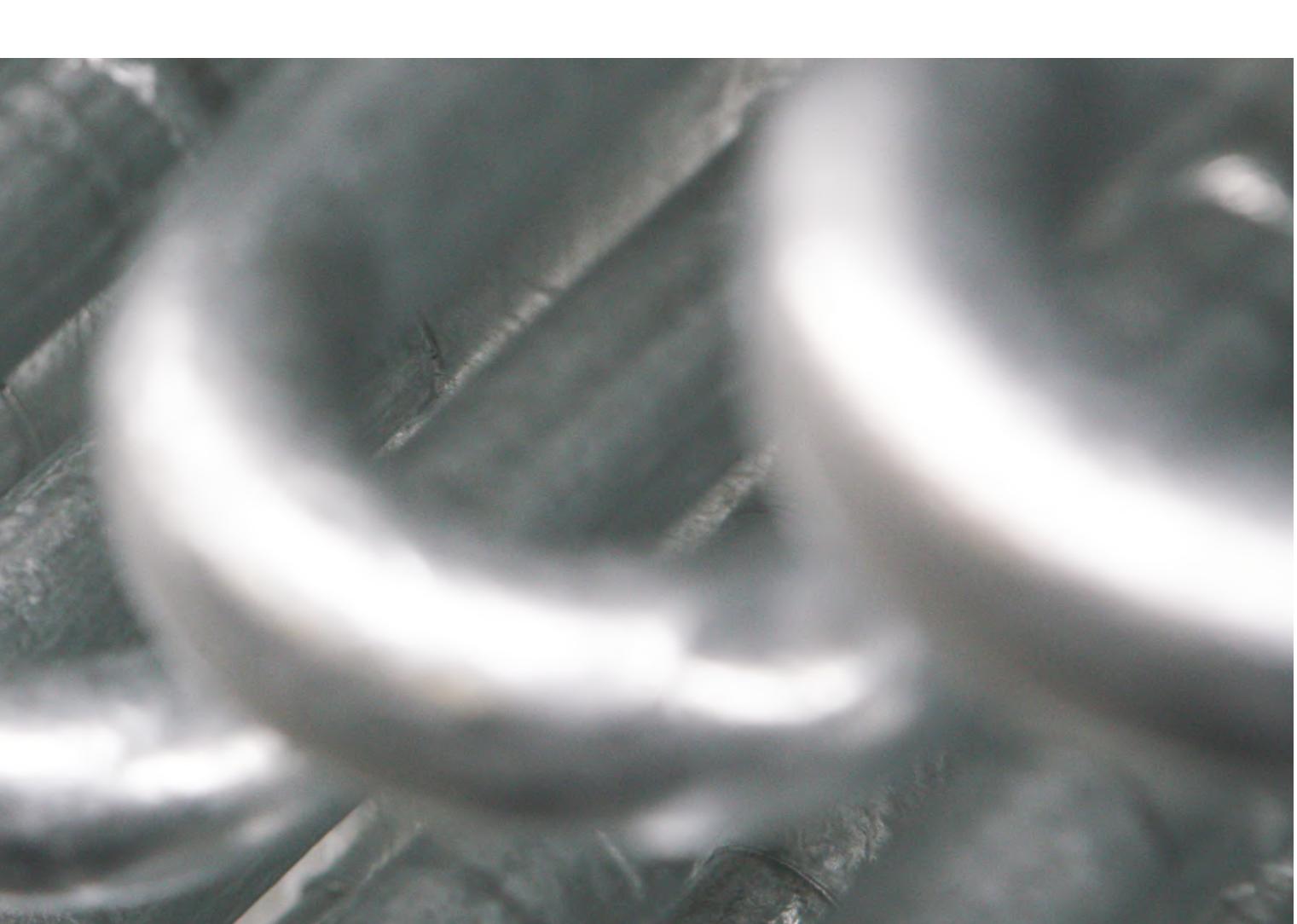
- dimensions
- Air direction
- blow-through or draw-through
- model: with feet of suspension profiles
- cooling system: natural (NH3 and CO2) and synthetic refrigerants
- materials: copper tubes/aluminium fins, Stainless steel tubes/aluminium fin, Stainless steel tubes and fins or steel tubes and fins / 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® VRe range in the stainless steel / aluminium 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 FEZN MODEL RANGES

Type		Tube configuration	Description	Cooling system
Goedhart® ZFB / ZFZ		60x60	Single blow-through / draw-through air cooler for industrial cooling and freezing applications Ceiling mounted	NH ₃ , CO ₂ , dx and pump system, coolants
Goedhart® ZGB / ZGZ		60x60	Single blow-through / draw-through air cooler for industrial cooling and freezing applications Ceiling & floor mounted	NH ₃ , CO ₂ , dx and pump system, coolants
Goedhart® DZS		60x60	Dual discharge air cooler for working room applications Ceiling & floor mounted (depends on size)	NH ₃ , CO ₂ , dx and pump system, coolants

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 (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

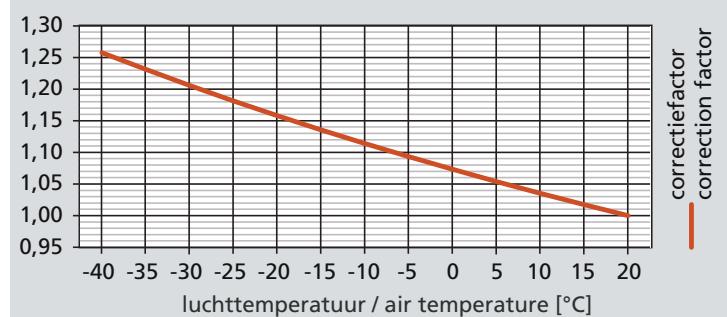
Protection class : IP44 / IP54

Color : RAL9005 (black)

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

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

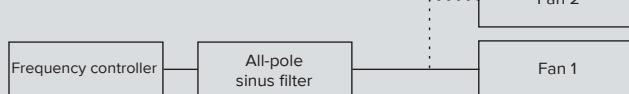
The maximum allowable working data in the table and on the name plate of the fans are to operate in an air temperature of +20 °C (air density of $\rho = 1,2 \text{ kg/m}^3$). For air temperatures lower than +20 °C, the current amperage can be calculated by using the diagram multiplication factor, suitable 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 ($L_{pA} @ 3m \pm 2 \text{ dB (A)}$) each air cooler is a calculated indication value according to the EN13487 standard parallel pipe. Kelvion uses the fan manufacturer's sound power level (L_{wA}) 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.

Frequency controller



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	Speed	Nominal power	FLC	Speed	Nominal power	FLC	Speed	Nominal power	FLC	Sound power level each fan $L_{wA} (+/-2\text{dB(A)})$
mm	V	min ⁻¹	Watt	A	min ⁻¹	Watt	A	min ⁻¹	Watt	A	min ⁻¹	Watt	A	min ⁻¹	Watt	A	dB(A)
4 pole (n=1500 min⁻¹ nom.)																	
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				
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				
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				

Fan diameter	Tension	Single phase - 50 Hz						Single phase - 60 Hz										
		Speed			Nominal power		FLC	Sound power level each fan $L_{wA} (+/-2\text{dB(A)})$			Speed			Nominal power		FLC	Sound power level each fan $L_{wA} (+/-2\text{dB(A)})$	
		mm	V	min ⁻¹	Watt	A	dB(A)	min ⁻¹	Watt	A	dB(A)	min ⁻¹	Watt	A	dB(A)			
4 pole (n=1500 min⁻¹ nom.)																		
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.)																		
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® ZFB/ZFZ AIR COOLERS

Cooling and Freezing

The range Goedhart® ZFB/ZFZ single discharge ceiling mounted are suitable for cooling and freezing applications. The fans are arranged for blow-through air configuration and draw-through (please state which is required when ordering).

Coil block

Tube configuration	: 60x60 mm straight
Fin spacing	: 6, 8, 10 and 12mm
Material	: 22 mm o.d. steel tubes
Treatment	: Steel fins

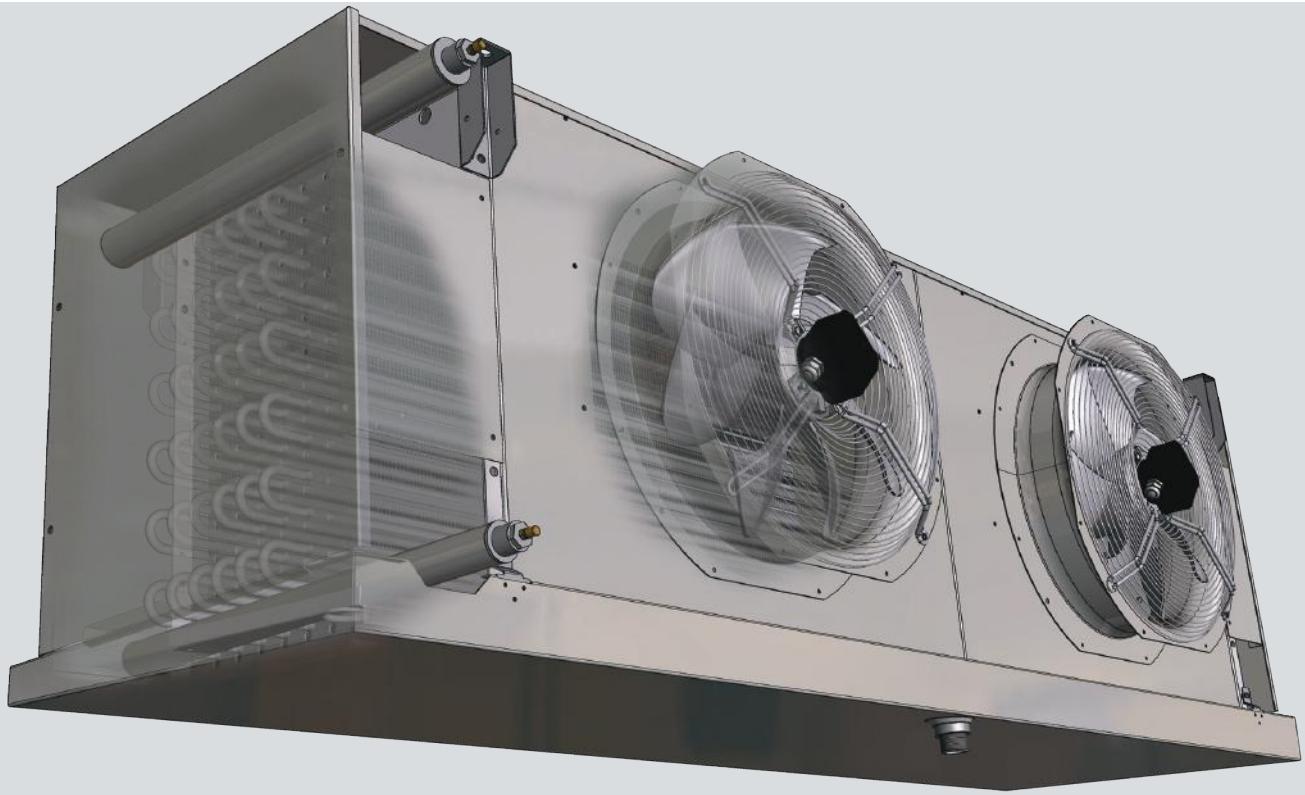
The Goedhart® ZFB / ZFZ coil block is standard build from steel end plates, tubes and fins and will be hot dipped galvanized totally. Standard refrigerant connections are positioned on the left hand side of the unit when looking with the direction of the airflow. All coolers are pressure tested to 40 bar (lower by cooling mediums) and are supplied with a light over pressure charge. Suitable for NH₃- pump circulation (ratio 2/4), CO₂, HFK's and coolants.

Casing

- Construction for ceiling mounting
- Casing material of galvanized sheet steel (not painted)
- 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
- 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® ZFB / ZFZ features

- For cooling and freezing applications
- Steel tubes and fins, hot dipped galvanised
- Blow-through or draw-through execution possible
- Consisting of 406 models
- Capacity range from 3,1 to 87,0kW.(NH₃ Pump system, SC2)
- EC fan technology possible
- Fans not standard wired to a junction box (optional)
- Suitable for NH₃ pump system, CO₂, HFK's and coolants
- Goedhart® ZFB / ZFZ delivered on a wooden frame for easy mounting
- Optimized cooling circuits
- A wide variety of accessories and options available (page. 18)



Goedhart® ZF **B** **6** **3** **45** **7**

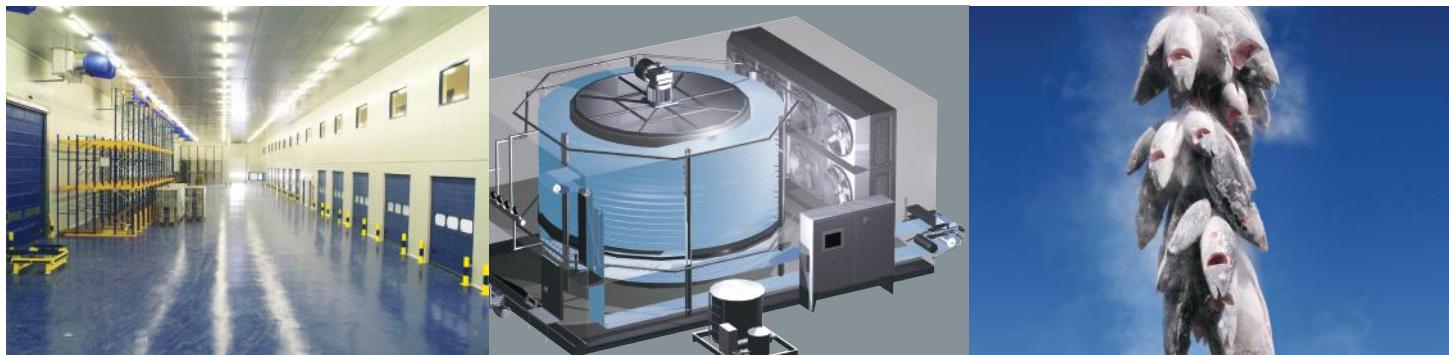
4 **5** **6**

- 1 Range : Goedhart® ZF
- 2 Air direction : B=blow Z=draw
- 3 Rows deep : 4,6,8,10
- 4 Number of fans : 1 - 4
- 5 Fan diameter : 450, 560, 630 mm
- 6 Fin spacing : 6, 8, 10, 12 mm

GOEDHART® ZF-FAN DATA

Fan diameter	Tension	Δ			Y			Δ	Y	Δ			
		Speed	Nominal power	FLC	Speed	Nominal power	FLC			Sound power level each fan L _{WA} (+/-2dB(A))	Speed	Nominal power	FLC
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	80			76		1430	820	3,50	75
500	1x230	1240	720	3,20	81,5			77		1260	1000	4,40	77
500	1x230	900	270	1,25	71,5			74		900	380	1,75	75
SINGLE PHASE - 60HZ													

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



GOEDHART® ZGB/ZGZ AIR COOLERS

Cooling and Freezing

The range Goedhart® ZGB/ZGZ single discharge floor or ceiling mounted are suitable for cooling and freezing applications. The fans are arranged for blow-through air configuration and draw-through (please state which is required when ordering).

Coil block

Tube configuration	: 60x60 mm straight
Fin spacing	: 6, 8, 10 and 12mm
Material	: 22 mm o.d. steel tubes
Treatment	: Steel fins

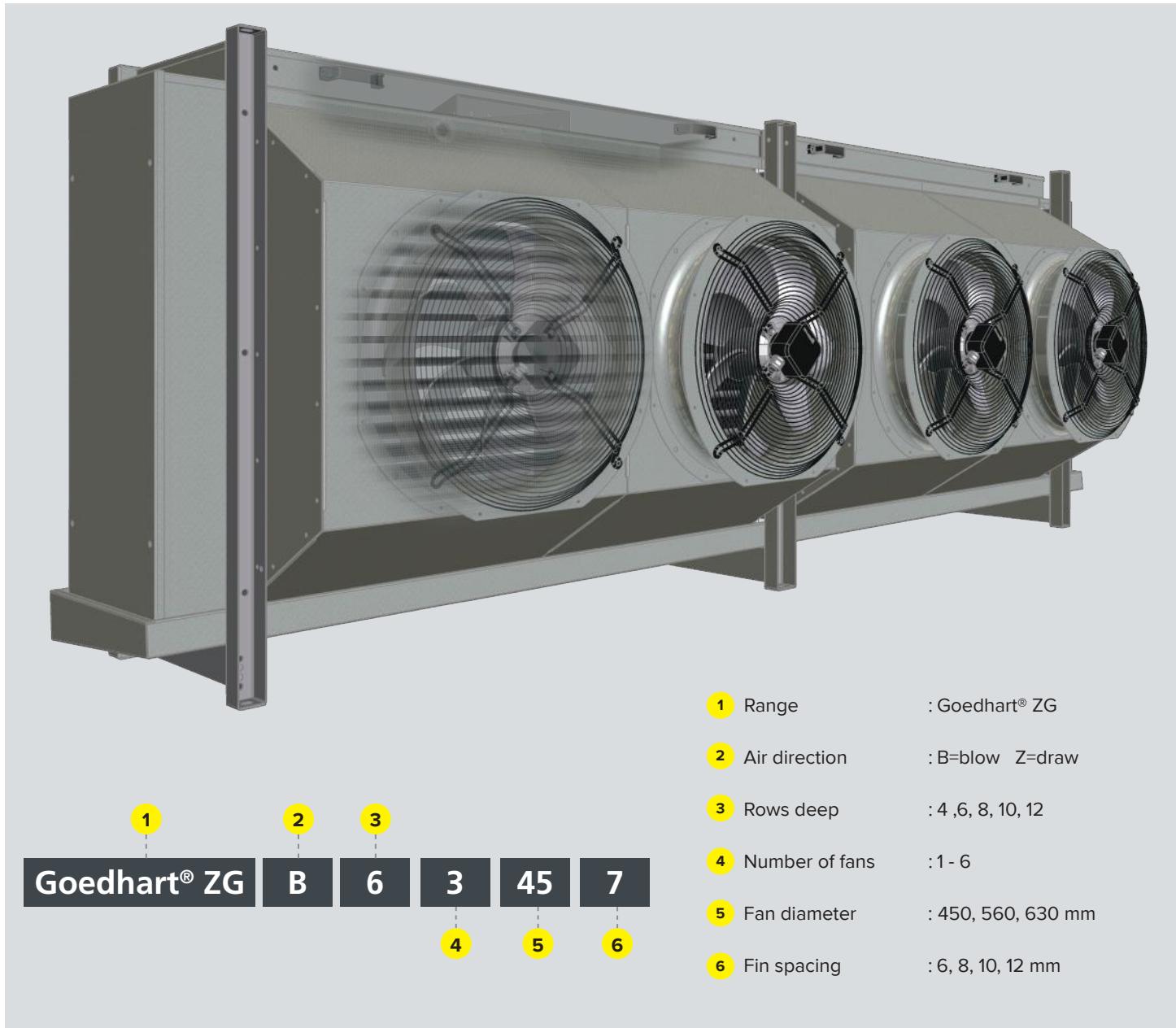
The Goedhart® ZGB / ZGZ coil block is standard build from steel end plates, tubes and fins and will be hot dipped galvanized totally. Standard refrigerant connections are positioned on the left hand side of the unit when looking with the direction of the airflow. All coolers are pressure tested to 40 bar (lower by cooling mediums) and are supplied with a light over pressure charge. Suitable for NH₃- pump circulation (ratio 2/4), CO₂, HFK's and coolants.

Casing

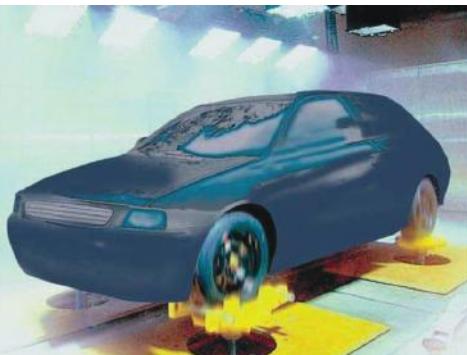
- Construction for ceiling and floor mounting
- Casing material of galvanized sheet steel (not painted)
- Bend/header protection by end covers, easy removed for maintenance
- Standard refrigerant connections are positioned on the left hand side of the unit when looking with the direction of the airflow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

Goedhart® ZGB / ZGZ features

- For cooling and freezing applications
- Executed with legs (for floor or ceiling mounting)
- Blow-through or draw-through execution possible
- Consisting of 552 models
- Capacity range from 4,1 to 181,0kW. (NH₃ pump system, SC2)
- EC fan technology possible
- Fans not standard wired to a junction box (optional)
- Suitable for NH₃ pump system, CO₂, HFK's and coolants
- Separate inner and outer drip tray
- Optimized cooling circuits
- A wide variety of accessories and options available (page 18)



GOEDHART® ZG-FAN DATA													
Fan diameter	Tension	Δ				Y				Δ			
		Speed	Nominal power	FLC	Speed	Nominal power	FLC	Sound power level each fan L _{WA} (+/-2dB(A))	Speed	Nominal power	FLC	Sound power level each fan L _{WA} (+/-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	80			76		1430	820	3,50	75
500	1x230	1240	720	3,20	81,5			77		1260	1000	4,40	77
500	1x230	900	270	1,25	71,5			74		900	380	1,75	75
Mentioned data are for each fan according the supplier of the fans													



GOEDHART® DZS AIR COOLERS

Spread air diffusion

The range Goedhart® DZS dual discharge 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 blow-through.

Coil block

Tube configuration	: 60x60 mm straight
Fin spacing	: 6, 8, 10, 12 and 15mm
Material	: 22 mm o.d. steel tubes
Treatment	: Steel fins
	: Hot dipped galvanized

The Goedhart® DZS coil block is standard build from steel end plates, tubes and fins and will be hot dipped galvanized totally. Standard refrigerant connections are positioned on the left hand side of the unit when looking with the direction of the airflow. All coolers are pressure tested to 40 bar (lower by cooling mediums) and are supplied with a light over pressure charge. Suitable for NH₃- pumpcirculation (ratio 2/4), CO₂, HFK's and coolants.

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.

Casing

The casing will be delivered in 2 executions

Goedhart® DZS I:

only suitable for mounting to the ceiling. It is concerning the smaller types of the DZS range. The limitation of this range is chosen to ensure ease of handling during installation. Executed with hinged drip trays.

Goedhart® DZS II:

is provided with feet and is suitable for both floor and ceiling mounting. It is concerning the bigger types of the DZS range. The feet construction is specially designed to reduce transmission of cold to a minimum. Hinged drip trays are not possible.

- Casing material of galvanized sheet steel (not painted)
- Bend/header protection by end covers, easy removed for maintenance
- Possible defrost by hot gas spiral or electric defrost elements will be fixed to the bottom side of the coil
- Stainless steel fasteners

Goedhart® DZS features

- For cooling and working room applications
- Low coil height
- Consisting of 294 models
- Capacity range from 2,2 to 159,0kW (NH₃ pump system)
- EC fan technology possible
- Optimized cooling circuits
- A wide variety of accessories and options available (page 18)



Goedhart® DZS | 6 | 3 | 45 | 7

1 2 3 4 5

- 1 Range : Goedhart® DZS
- 2 Rows deep : 4, 6, 8, 10
- 3 Number of fans : 1 - 6
- 4 Fan diameter : 400, 450, 560, 630 mm
- 5 Fin spacing : 6, 8, 10, 12, 15 mm

GOEDHART® DZS-FAN DATA

Fan diameter mm	Tension V	Δ				Y				Δ				Y				Δ			
		Speed min ⁻¹	Nominal power Watt	FLC	Speed min ⁻¹	Nominal power Watt	FLC	Sound power level each fan L _{WA} (+/-2dB(A))	dB(A)	dB(A)	Speed min ⁻¹	Nominal power Watt	FLC	Sound power level each fan L _{WA} (+/-2dB(A))	dB(A)	dB(A)	Speed min ⁻¹	Nominal power Watt	FLC	Sound power level each fan L _{WA} (+/-2dB(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	80			76		1430	820	3,50	75								
500	1x230	1240	720	3,20	81,5			77		1260	1000	4,40	77								
500	1x230	900	270	1,25	71,5			74		900	380	1,75	75								

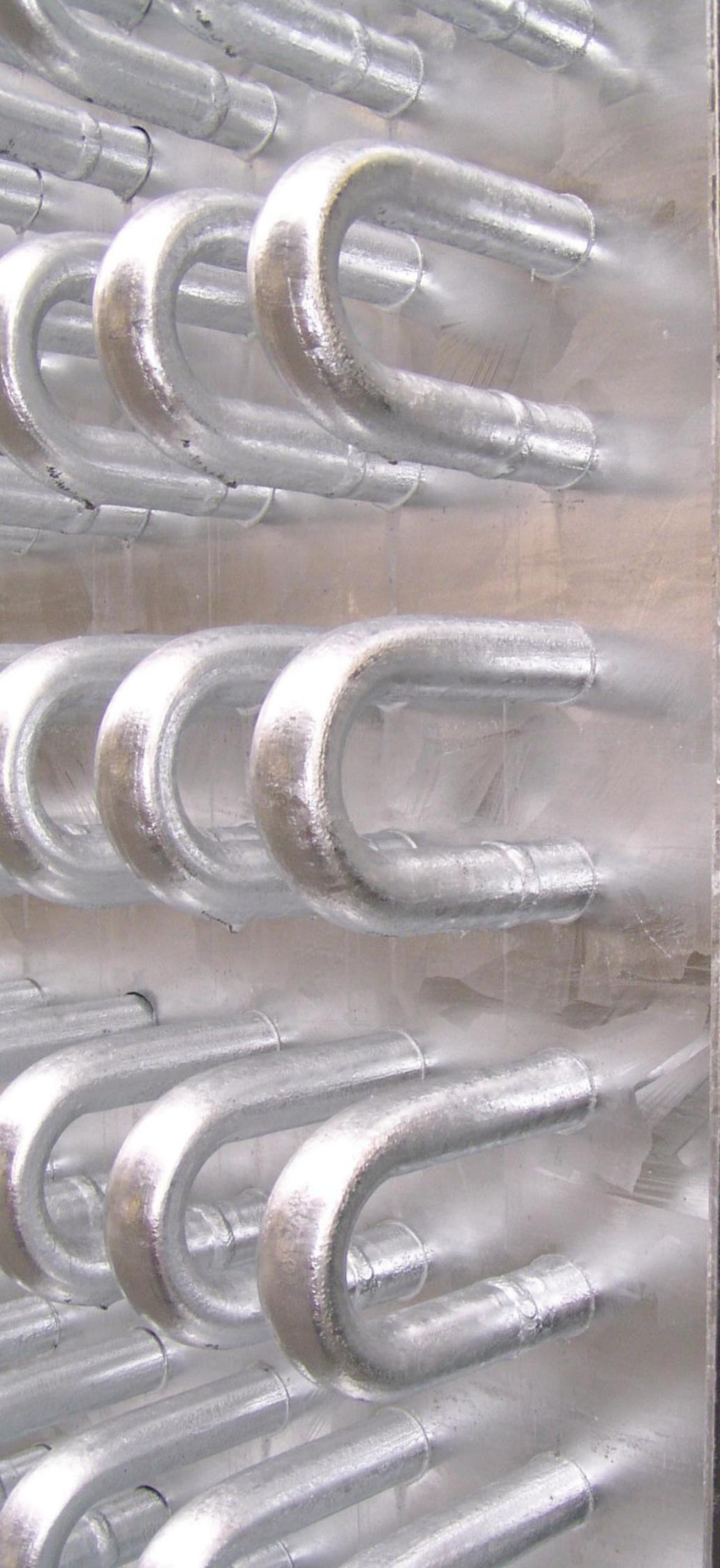
Mentioned data are for each fan according the supplier of the fans

Accessories and options for Goedhart® air coolers

FLEXIBLE SOLUTIONS FOR YOUR APPLICATIONS

	Accessoires		
	Goedhart® ZFB / ZFZ	Goedhart® ZGB / ZGZ	Goedhart® DZS
Blow-through	X	X	X
Draw-through	X	X	X
Hotgas defrost	X	X	X
Water defrost	X	X	X
Integrated secundair defrost circuit	X	X	
Anti-condensation heating drip tray	X	X	X
Fan heating	X	X	X
Hinged fans	X	X	X
Hinged drip tray	X	X	X
Insulated drip tray	X	X	X
Insulated fan plate			X
Polyester drip tray	X	X	X
Plastic air throw streamer*	X	X	
Sock connection*	X	X	
Sock connection with air straightner*	X	X	
Guide vane on fan*	X	X	
Defrost sock *	X	X	
Diffusor	X	X	
Diffusor with air operated damper	X	X	
	Options		
Electrical defrost	X	X	X
Insulation disks	X	X	X
Feet for floor mounting		X	X
Suction hoods over the fan	X	X	
Suction hood fin side *	X	X	
Fans 60Hz	X	X	X
Fans EC	X	X	X
Fans 1x230V	X		X
Coolants	X	X	X
Pump system	X	X	X
CO ₂	X	X	X
Other casing material	X	X	X
Other fin spacings	X	X	X
Fins Almg	X	X	X
Fins Goldlack	X	X	X

*=Only draw-through air coolers (Goedhart® ZFZ and Goedhart® ZGZ)



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.

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.

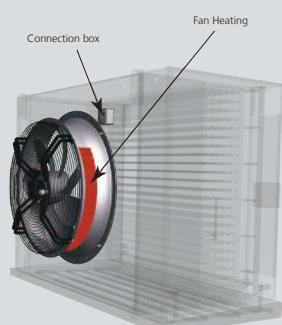
FAN HEATING

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

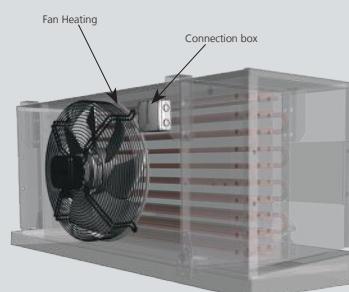
Delivery

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



Execution other fan diameters

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



Execution 400 mm fan

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 closes the fan hole and supports the defrost process of the coil block.

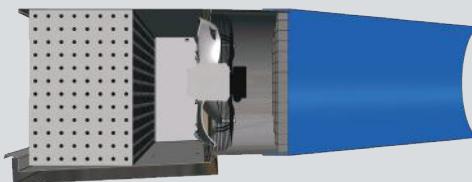
Execution

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.

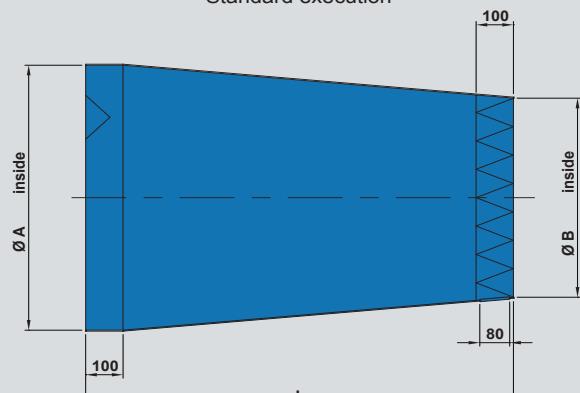
Advantage

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 ZFZ / ZGZ					
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	



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.

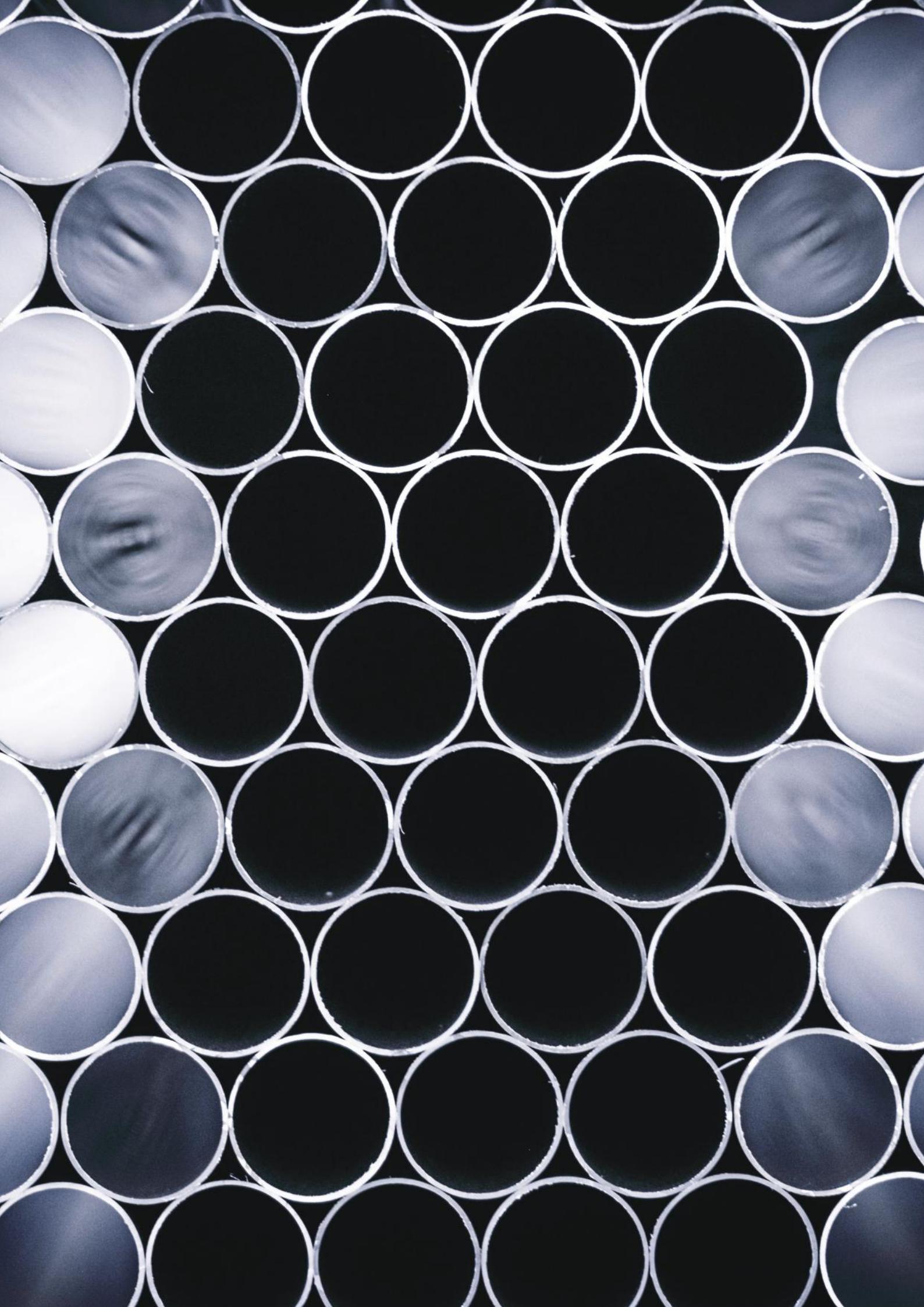
Goedhart® ZFZ / ZGZ	
fan diameter	Connection
mm	mm
450	500
500	550
560	637
630	637



Attention!!

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



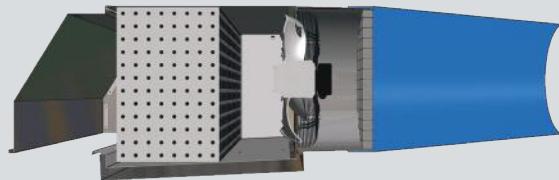


SUCTION HOOD

(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.

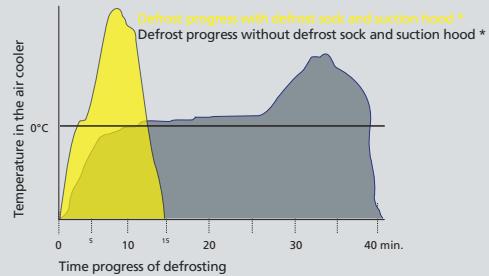
- The suction hood is equal to the casing Material of the air cooler.
- Suction hood is supplied separately and is easy to assemble



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

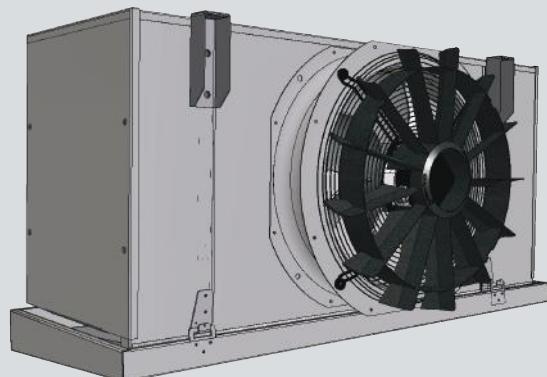
PLASTIC AIR THROW STREAMER

(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

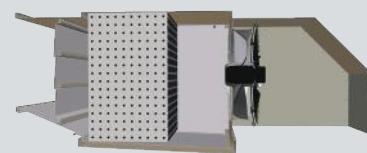


SUCTION HOOD OVER THE FANS

(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.

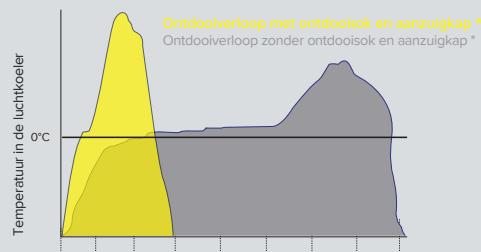
- The material of the suction hood is equal to the casing material of the air cooler.
- Suction hood is supplied separately and is easy to assemble



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 DIFFUSOR WITH AIR OPERATED DAMPER

(Blow-through air coolers)

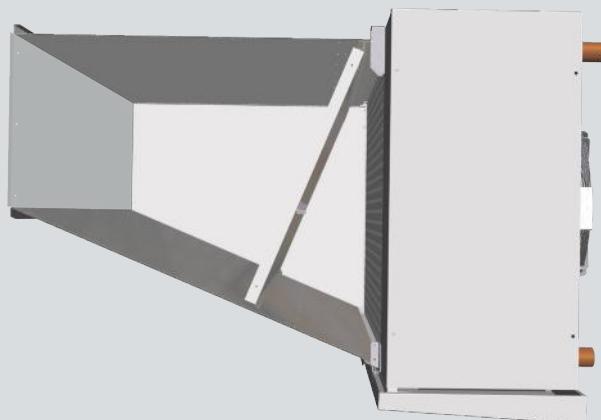
The air diffuser with air operated damper may be used at blow-through air coolers and optimizes defrosting in particular freezing applications. In the cooling phase and activated fans, the air operated damper is blown open. In the defrost phase, when the fans are turned off, the air operated damper closes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





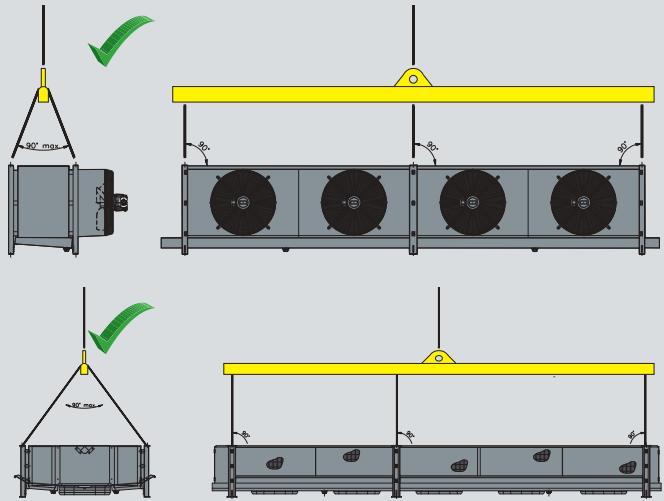
LIFTING INSTRUCTIONS

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.

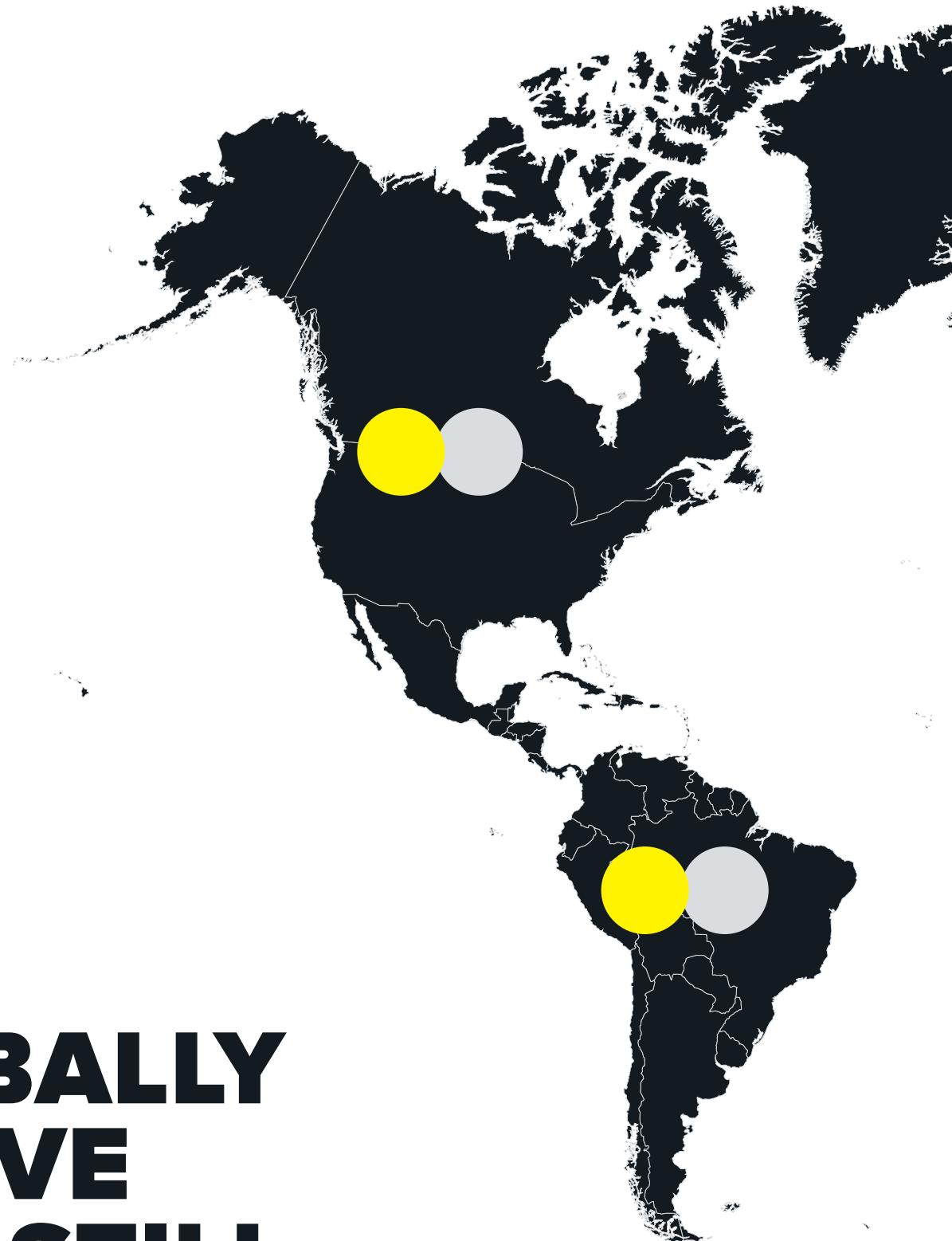
These instructions must always be followed in order to guarantee safety and to prevent any damage occurring to our product.

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).

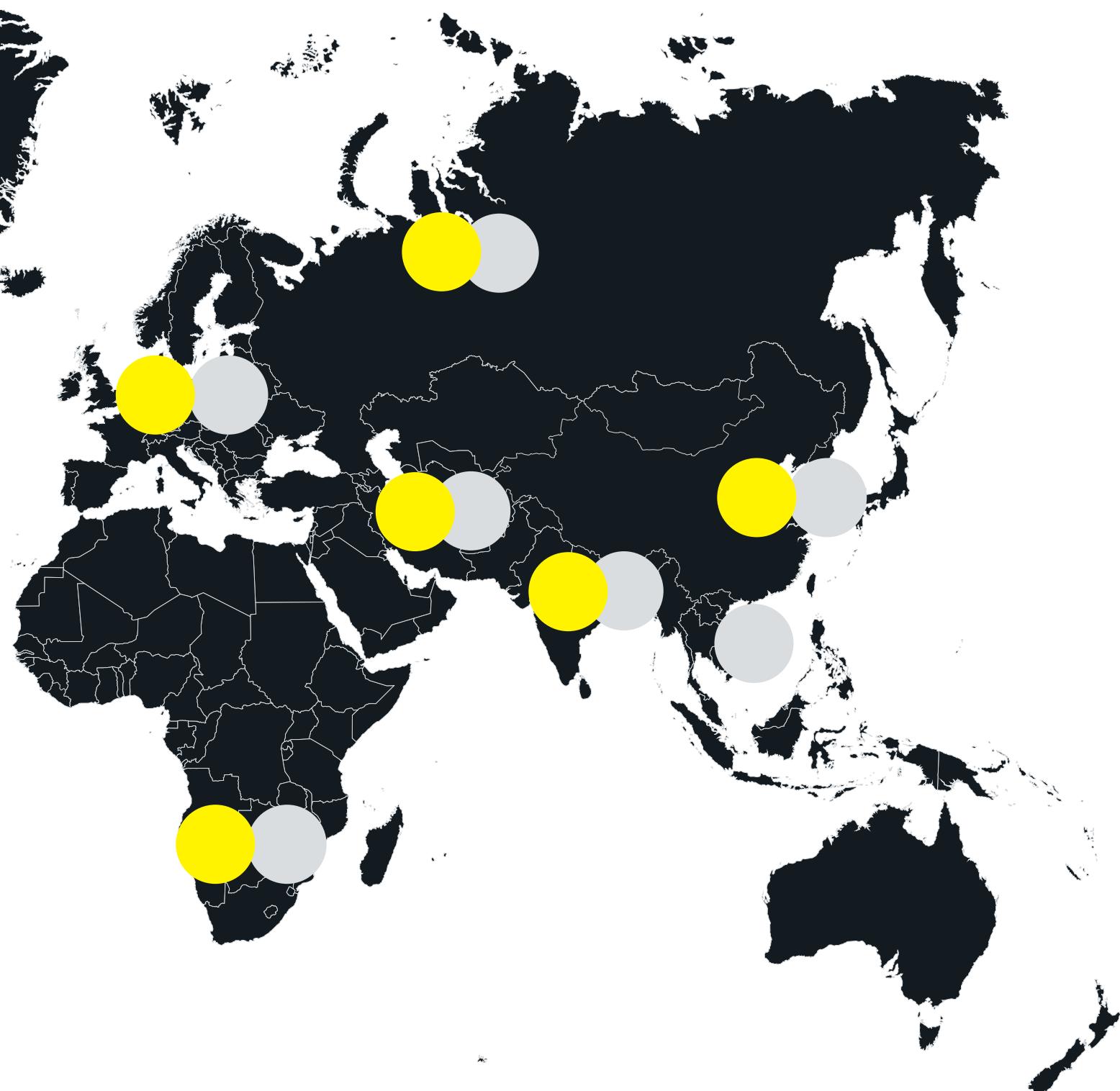






GLOBALLY ACTIVE AND STILL CLOSE BY

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.



 **Global production footprint**

 **Global sales and service**



Just scan this QR code with your smartphone or visit our website at: www.kelvion.com – there you will find a highly competent contact in your immediate vicinity.

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