

Kelvion

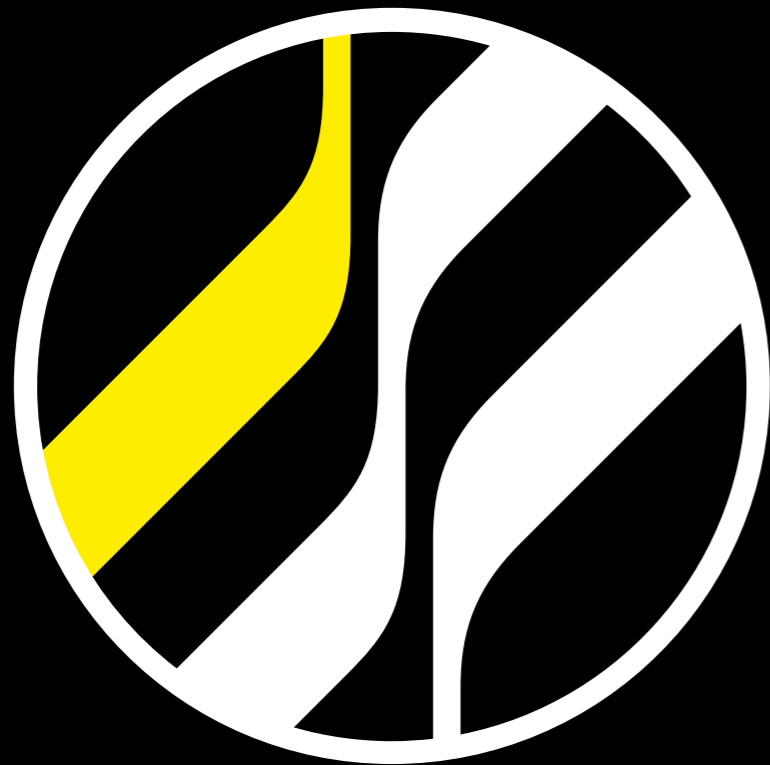


Product Line: Condensers & Gas Coolers

LEADING TECHNOLOGY FOR ALL APPLICATIONS



Kelvion



EXPERTS IN HEAT EXCHANGE – SINCE 1920

Welcome to Kelvion! Where Heat Exchange is our Business. We are one of the leading global manufacturers of heat exchangers and have been providing solutions for almost every industrial application imaginable since the 1920s, specializing in customized solutions suitable for extreme environmental conditions - as of 2015 under the name of Kelvion.

With one of the most extensive selections of heat exchangers in the world, we are a well-known partner in many industries, including transportation, energy, oil and gas, chemical, marine as well as food and beverage, data center and the HVAC and refrigeration technology sector. Our products include Compact Fin Heat Exchangers, Plate Heat Exchangers, Single Tube Heat Exchangers, Transformer Cooling Systems, Cooling Towers and Shell & Tube Heat Exchangers.

Our many years of experience and in-depth expertise have made us specialists in this field. Our heat exchangers are designed specifically to meet the needs of the respective machine or equipment system, ensuring outstanding energy efficiency and reliability in any market segment. This gives our customers a cutting-edge over their competitors while also reducing operating costs over the long term.

As your heat exchange partner, we understand that outstanding and reliable after-sales services are critical for you, our customer, and we work alongside with you in close partnership supporting you throughout the full life cycle of your plant and equipment to ensure lasting business success.

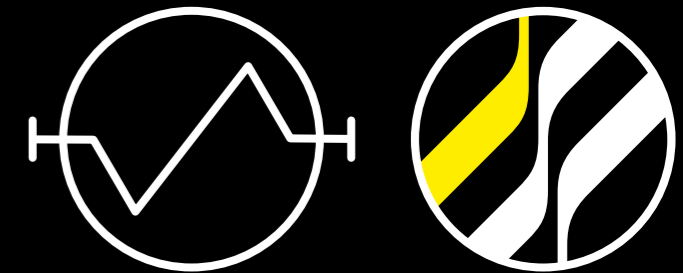
Kelvion – Experts in Heat Exchange.

KELVION – A TRIBUTE TO LORD KELVIN (1824 - 1907)

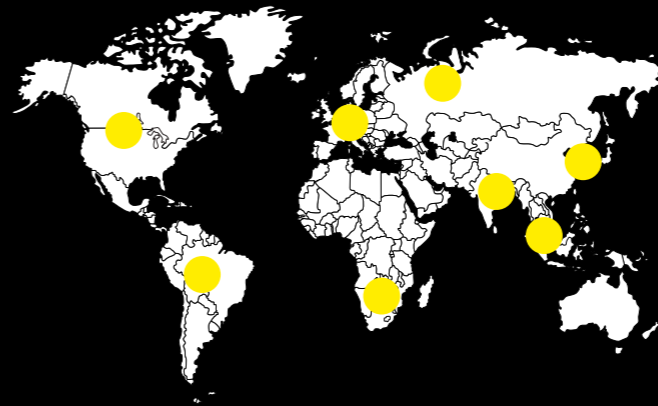


Lord Kelvin formulated the laws of thermodynamics and absolute units of temperature are stated in kelvin, in his honor.

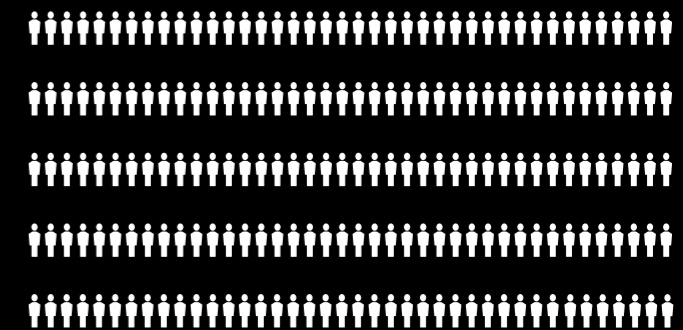
OUR LOGO – INSPIRED FROM THE SCHEMATIC FOR HEAT EXCHANGER



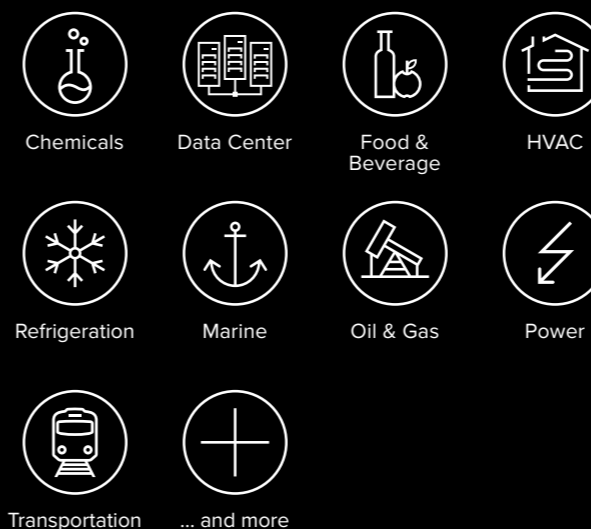
67 BRANCHES AND SALES PARTNERS WORLDWIDE



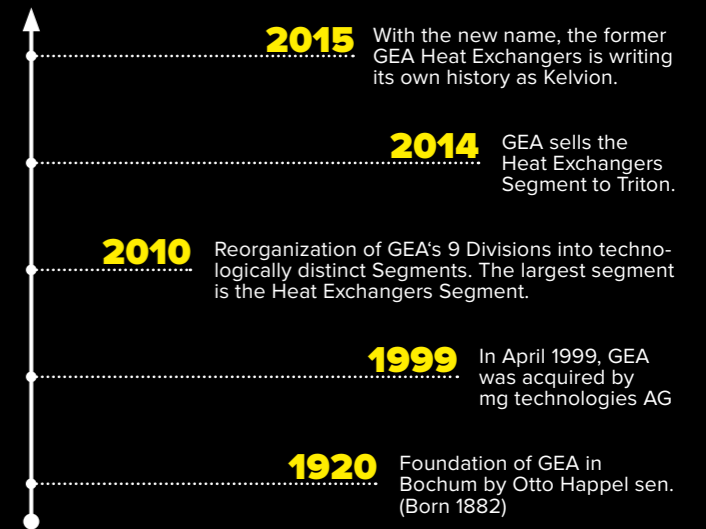
5,000 EMPLOYEES WORLDWIDE



YOUR MARKETS ARE OUR MARKETS



KELVION HAS A LONG HISTORY



APPLICATIONS



Data Centers



Distribution Centers



Supermarkets



Food Processing



Fruit & Vegetable Storage



HVAC

Condensers & Gas Coolers

LEADING TECHNOLOGY FOR ALL APPLICATIONS



Kelvion's extensive portfolio of condensers and gas coolers is the result of decades of research and expertise. Whatever the requirement, we can supply the right solutions to meet the most demanding operating conditions.

Based on modular designs, our condensers and gas coolers are available in a variety of fan sizes, multiple speeds and suppliers, coupled with a wide range of tube and fin profiles. This enables us to tailor our products to accurately suit the needs of our customers.

From standard commercial stock products to customized, made to order units, our products can be deployed in multiple applications.






WHY CHOOSE KELVION

- ▶ Your global solution provider
- ▶ Extensive research
- ▶ Continuous development
- ▶ Delivering certainty since 1920

FIN OPTIONS

NEW

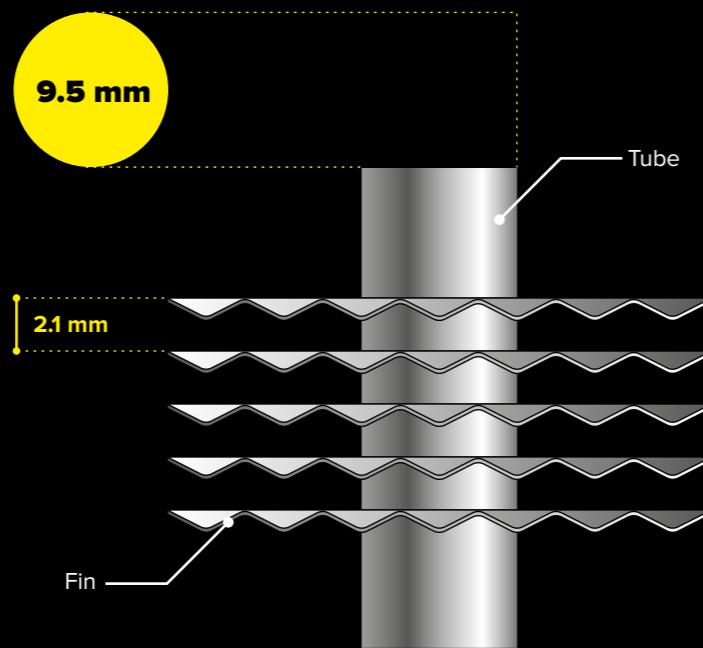
Coils can be configured in 5, 8, 9.5 and 12 mm in a variety of length, width and height variants. The many combinations make it possible to perfectly balance capacity, fluid pressure loss, internal volume and refrigerant charge.

-  ▶ Newly-developed tube-fin system: Optimized fin geometry via CFD analysis
-  ▶ Ideal for use with natural refrigerants such as CO₂ or propane
-  ▶ Up to 50% less refrigerant charge

L FIN



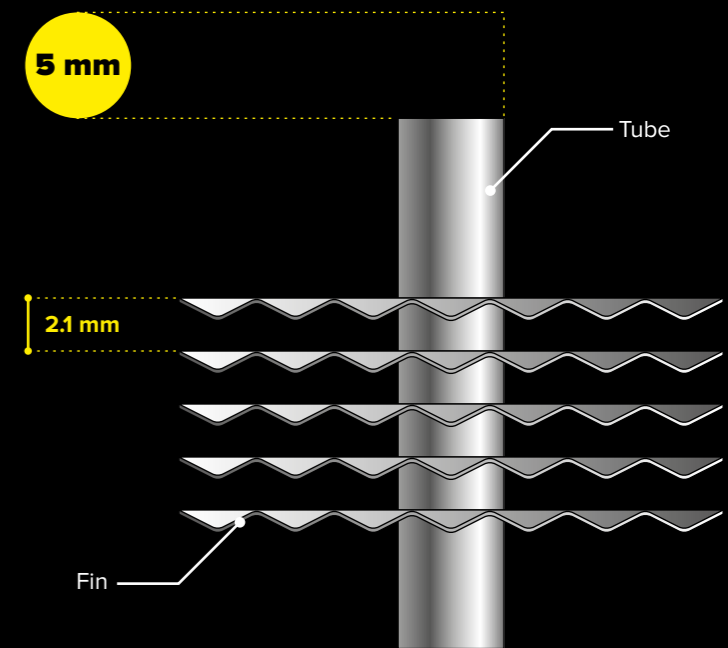
- ▶ Tubes with 9.5 mm diameter
- ▶ Designed to be used in condensers & dry coolers
- ▶ Heater holes are not incorporated
- ▶ Various fin advancements available to optimize for requirements
- ▶ Fin shown is our high efficiency Louvre, optimized for the highest capacity and best cost competitiveness



F FIN



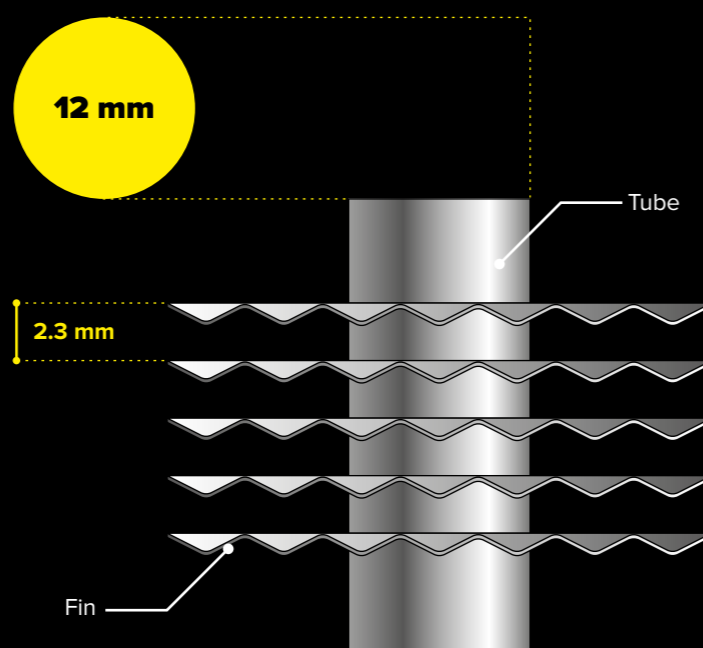
- ▶ Tubes with 5 mm diameter
- ▶ Designed to be used in condensers & gas coolers
- ▶ Heater holes are not incorporated
- ▶ Various fin advancements available to optimize for requirements
- ▶ Fin shown is our Slit fin. This is the highest efficiency configuration in our portfolio. A radical step to reduce material usage, sound level and power consumption



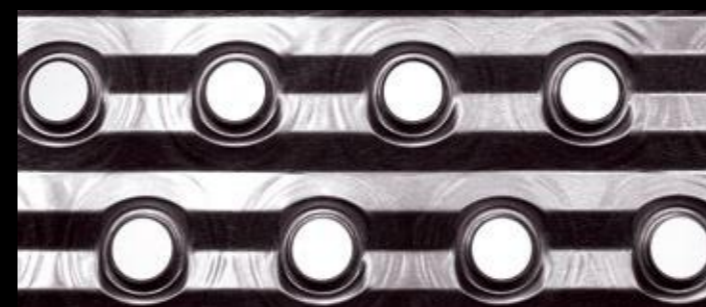
T FIN



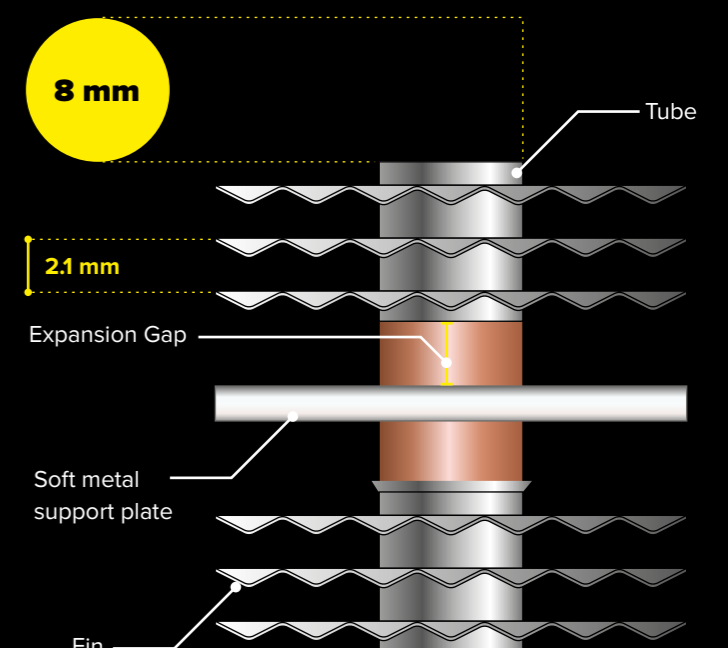
- ▶ Tubes with 12 mm diameter
- ▶ Designed to be used in condensers
- ▶ Heater holes are not incorporated
- ▶ Various fin advancements available to optimize for requirements
- ▶ Fin shown is our Turbulator, with cut window to increase heat transfer coefficients without significantly increasing airside pressure loss



G FIN











- ▶ Tubes with 8 mm diameter
- ▶ Designed to be used in gas coolers
- ▶ Heater holes are not incorporated
- ▶ Various fin advancements available to optimize for requirements
- ▶ Fin shown is our ripple. Offering much higher performance than a flat fin, also robust for high fouling environments and easy to clean

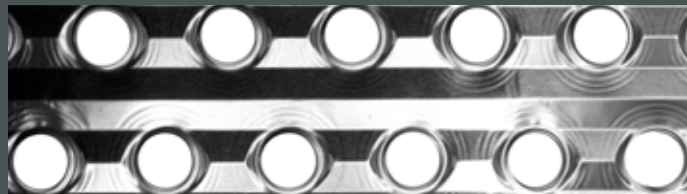


MATERIAL OPTIONS

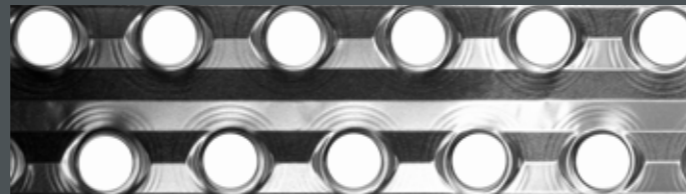
Condensers and gas coolers can be selected in different material configurations. The many combinations of fin types and materials suit many applications and in the most challenging environments.

MATERIALS			
NAME	TUBE MATERIAL	FIN MATERIAL	APPLICATION
Cu/Al	Copper	Aluminium	 
Cu/AlMg	Copper	Aluminium Magnesium	
Cu/AV	Copper	Aluminium Two Pack Epoxy Coated	 
Cu/Cu	Copper	Copper	
Cu/AlBg	Copper	Aluminium Blygold (PoluAl) Coated	 

ALUMINIUM



ALUMINIUM MAGNESIUM



ALUMINIUM EPOXY COATED



ALUMINIUM BLYGOLD



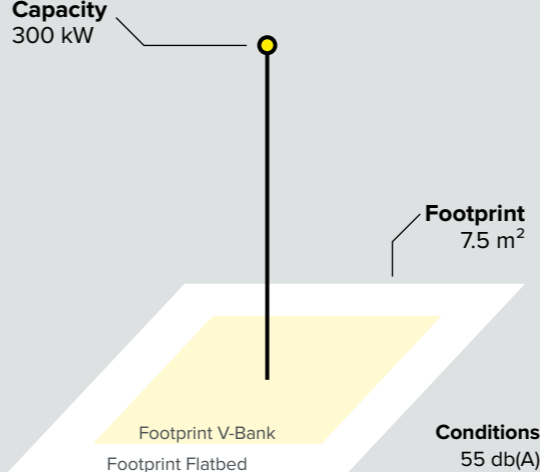
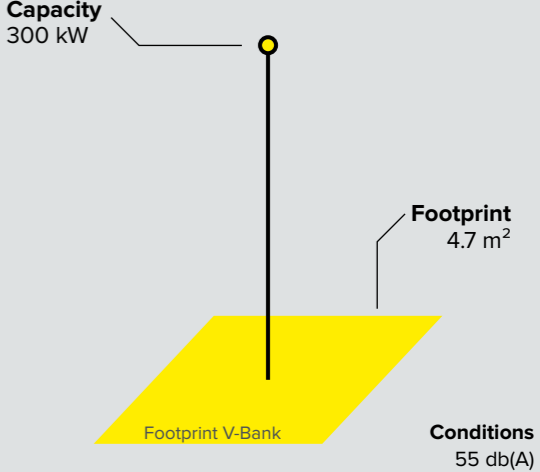
COPPER



FLATBED & V-BANK

By offering a broad range of flatbed and V-bank condensers and gas coolers, Kelvion is able to tailor products accurately to meet application demands. Whether you're looking for a lower carbon footprint, quieter operation, improved capacity density or have restricted space, you will find the perfect fit.



	FLATBED	V-BANK
AVAILABLE AS	Condenser Gas Cooler Dry Cooler	Condenser Gas Cooler Dry Cooler
FAN TECHNOLOGY	AC Fan Technology EC Fan Technology	AC Fan Technology EC Fan Technology
MAX N° OF FANS	20	20
FIN TYPES	L = 9.5 mm Tube T = 12 mm Tube F = 5 mm Tube G = 8 mm Tube	L = 9.5 mm Tube T = 12 mm Tube F = 5 mm Tube G = 8 mm Tube
ADIABATIC OPTION	●○○	●●●
	<ul style="list-style-type: none"> ▶ Good price-performance ratio ▶ Multiple configuration possibilities ▶ Vertically or horizontally installation 	<ul style="list-style-type: none"> ▶ When space is restricted ▶ Higher capacity density ▶ Better fit for adiabatic systems
CAPACITY IN RELATION TO FOOTPRINT (EXAMPLE)	<p>Capacity 300 kW</p>  <p>Footprint Flatbed 7.5 m²</p> <p>Footprint V-Bank 4.7 m²</p> <p>Conditions 55 db(A) Δt 15K</p>	<p>Capacity 300 kW</p>  <p>Footprint Flatbed 7.5 m²</p> <p>Footprint V-Bank 4.7 m²</p> <p>Conditions 55 db(A) Δt 15K</p>

VERSATILITY MEETS MARKET NEED FOR QUIETER, GREENER PRODUCTS

Commitment to continuous research and development is behind Kelvion's enhanced condenser, dry cooler and gas cooler portfolio. This extensive range, including thousands of models and variety of fan sizes, is matched by its flexibility to suit many applications and in the most challenging environments.

Kelvion condensers are based upon modular designs. We offer various fan sizes, multiple speeds and power supplies, coupled with an extensive range of tube and fin profiles, to enable products to be tailored accurately to meet the application demands. The wide range of fan choices ensures that the optimal balance between air volume and capacity, operational noise levels and power consumption to meet market price levels are achieved. The tube and fins can be supplied in various materials, depending on the internal or external corrosion properties.

With the V-Profile, Kelvion has taken versatility a step further. It has been developed to meet a growing market need for a lower carbon footprint, quieter operation and improved capacity density. The V-Profile is available as a dry cooler, condenser or gas cooler, all with copper or stainless steel tubes and with optional smart controls.



Coils can be configured in 5, 8, 10 and 12 mm in a variety of length, width and height variants. The many combinations of fin type, coil rows and module lengths make it possible to perfectly balance capacity, fluid pressure loss, sound level, power consumption, internal volume and refrigerant charge.

With its high thermal capacity, robust framework and low noise levels, plus innovative energy-efficient fan sets, the V-Profile is suited to applications ranging from warehouses and cold rooms to food preparation and storage.

Additionally, V-profile units can be fitted with an adiabatic pad or spray cooling system to reduce the air inlet temperature with evaporate water. Both pad and spray technologies help to make the units more efficient and provide a better shut off safety at high temperatures.



FLATBED PORTFOLIO



1 PRODUCT SERIES

R Refrigeration Condenser
N NH₃ Condenser
G CO₂ Gas Cooler

2 UNIT FORM

F Flatbed **V** V-Bank

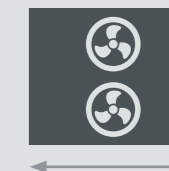
3 MODULE WIDTH

D Nominal
S Nominal
M Narrow
N Medium
P Wide



4 MODULE LENGTH

L 550 mm
Q 1000 mm
A 1200 mm
B 1500 mm
C 1800 mm
D 2100 mm



5 FAN ROWS



6 FANS PER ROW



7 FIN TYPE

F, L, T, G

8 COIL ROWS

2, 3, 4, 5, 6

9 ORIENTATION

H Horizontal **V** Vertical

10 FAN DIAMETER

035 350 mm **080** 800 mm
050 500 mm **090** 900 mm
063 630 mm **091** 910 mm

11 FAN TYPE

N AC Normal **B** EC Axiblade
E/M EBM EC **A/C** EBM Axitop
H High power **S** EC Single Phase
P Ziehl EC

12 SPEED OPTIONS

4, 6, 8, 12, EC

13 MOTOR WIRING

D Delta **S** Star

DESIGN CODE

1 **2** **3** **4** **5** **6** **7** **8** **9** **10** **11** **12** **13**

R **F** - **P** **A** **2** **04** **T** **2** **H** - **080** **N** **06** **D**

F FOR FLEXIBILITY TO SUIT MANY APPLICATIONS AND IN THE MOST CHALLENGING ENVIRONMENTS

RF/GF D

Our smallest heat exchanger: increasingly popular with refrigeration and air conditioning condenser applications. It has been updated to incorporate the latest Kelvion coil technology innovation of Micro-Tube. This 5mm coil innovation is the result of extensive R&D work, optimizing the geometry and surface enhancement to provide better fin surface utilisation than ever before.



NUMBER OF FANS:



FAN DIAMETERS:



350

FIN TYPES:



F

RF-D CONDENSER

REFRIGERANT: **HFC**

CAPACITY: **3.9 kW - 32 kW**

GF-D GAS COOLER

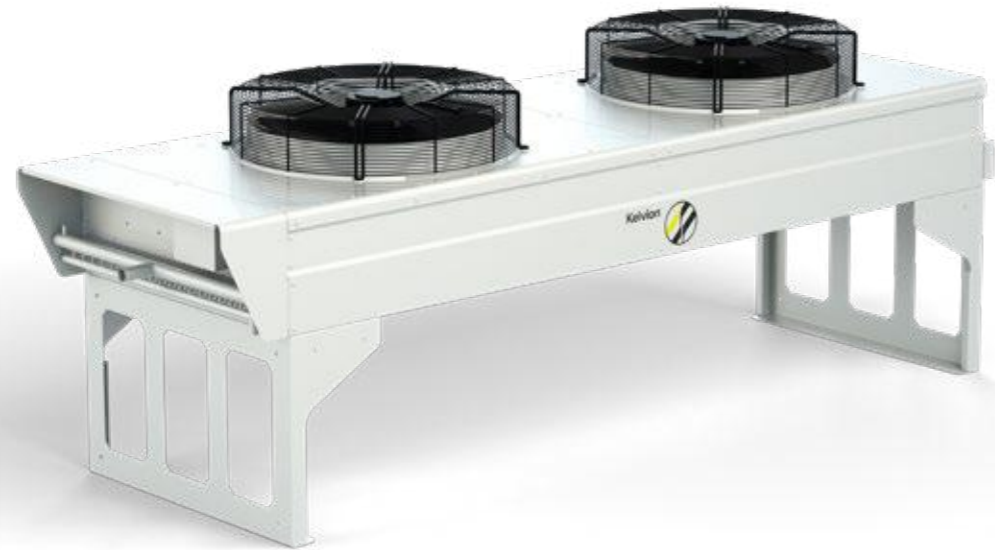
REFRIGERANT: **CO₂**

CAPACITY: **1.8 kW - 39 kW**

Flatbed Portfolio

RF / GF S

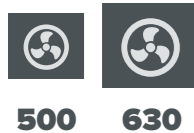
Kelvion has taken the popular RF-SJ, and re-engineered it with a 5mm coil. This will enable those already enjoying the compact solution for commercial refrigeration to get additional benefits of an even higher efficiency coil. This product has been optimized for the capacity range between the RF-D and the larger R/GF condenser.



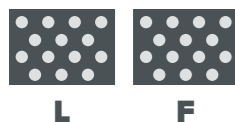
NUMBER OF FANS:



FAN DIAMETERS:



FIN TYPES:



RF-S CONDENSER

REFRIGERANT: **HFC**
CAPACITY: **6.4 kW - 183 kW**

GF-S GAS COOLER

REFRIGERANT: **CO₂**
CAPACITY: **9.5 kW - 174 kW**

Flatbed Portfolio

RF / NF / GF

The Flatbed range has been developed specifically to reflect the latest market requirements. Reduced footprint, lower noise level, improved capacity density and the greatest flexibility through configurable options to suit all requirements.



NUMBER OF FANS:



FAN DIAMETERS:



FIN TYPES:



* L fin not available for Gas Coolers

RF CONDENSER

REFRIGERANT: **HFC**
CAPACITY: **24 kW - 1409 kW**

NF NH₃-CONDENSER

REFRIGERANT: **NH₃**
CAPACITY: **11 kW - 1130 kW**

GF GAS COOLER

REFRIGERANT: **CO₂**
CAPACITY: **30.6 kW - 1424 kW**

V-BANK PORTFOLIO



1 PRODUCT SERIES

R	Refrigeration	Condenser
N	NH ₃	Condenser
G	CO ₂	Gas Cooler

2 UNIT FORM

F	Flatbed	V	V-Bank
			

3 MODULE HEIGHT

M	Small	1669 mm
T	Medium	2521 mm
L	Large	2929 mm



4 MODULE LENGTH

A	1200 mm
B	1500 mm
C	1800 mm
F	1300 mm only available with M module
K	1600 mm only available with M module

5 FAN ROWS



6 FANS PER ROW



7 FIN TYPE

F, L, T, G

8 COIL ROWS

2, 3, 4, 5

9 FAN DIAMETER

080	800 mm
090	900 mm
091	910 mm

10 FAN TYPE

N	AC Normal	B	EC Axiblade
E/M	EBM EC	A/C	EBM Axitop
H	High power	S	EC Single Phase
P	Ziehl EC		

DESIGN CODE

1	2	3	4	5	6	7	8	9	10	11	12	13	
R	V	-	T	B	2	06	F	2	-	091	N	06	D

11 SPEED OPTIONS

6, 8, 12, EC

12 MOTOR WIRING

D	Delta	S	Star
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V FOR **VERSATILITY** TO MEET NEED FOR **QUIETER, GREENER** **CONDENSERS AND** **COOLERS**

RV / NV / GV **M**

M-height configuration is suitable for many applications: The single row of fans and narrow V angle make it ideal for installation requiring a high capacity density – small footprint.



M



T



L

NUMBER OF FANS:



1

4

FAN DIAMETERS:



800

900

910

FIN TYPES:



L*

T

F

G

* L fin not available for Gas Coolers

RV-M CONDENSER

REFRIGERANT: **HFC**

CAPACITY: **7.4 kW - 520 kW**

NV-M NH₃-CONDENSER

REFRIGERANT: **NH₃**

CAPACITY: **14 kW - 527 kW**

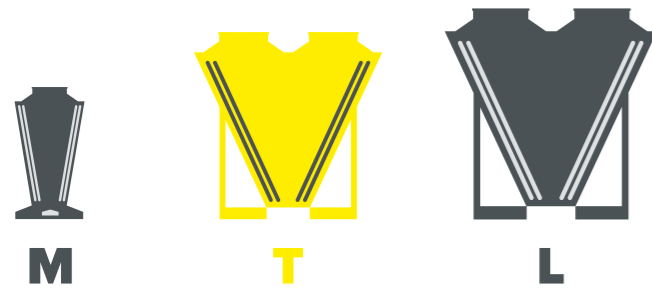
GV-M GAS COOLER

REFRIGERANT: **CO₂**

CAPACITY: **31 kW - 1424 kW**

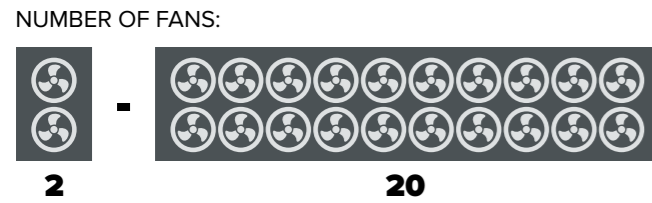
RV / NV / GV T

T and L-profile extends the versatility of the V Profile range: With its high thermal capacity, robust framework and low noise levels, plus innovative energy-efficient fan sets, the V-Profile is suited to applications ranging from warehouses and cold rooms to food preparation and storage.



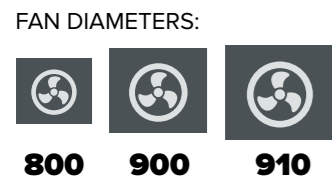
RV-T CONDENSER

REFRIGERANT: **HFC**
CAPACITY: **13.2 kW - 2150 kW**



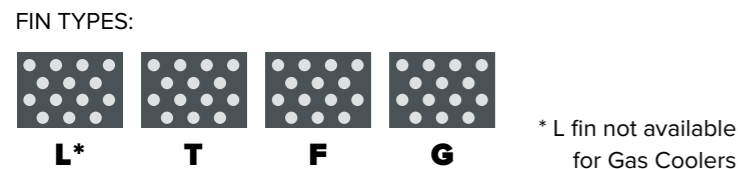
NV-T NH₃-CONDENSER

REFRIGERANT: **NH₃**
CAPACITY: **23.5 kW - 2286 kW**

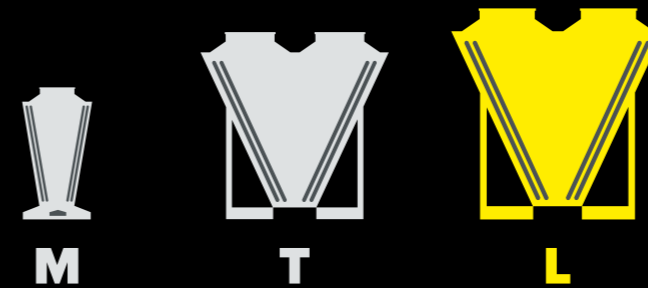


GV-T GAS COOLER

REFRIGERANT: **CO₂**
CAPACITY: **12.5 kW - 2035 kW**

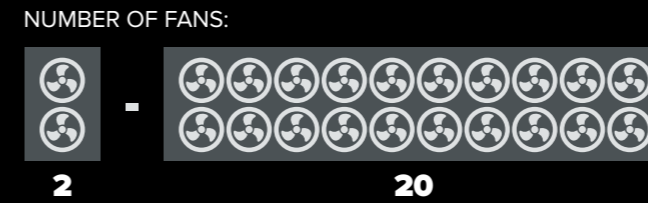


RV / NV / GV L



RV-L CONDENSER

REFRIGERANT: **HFC**
CAPACITY: **17.2 kW - 2805 kW**



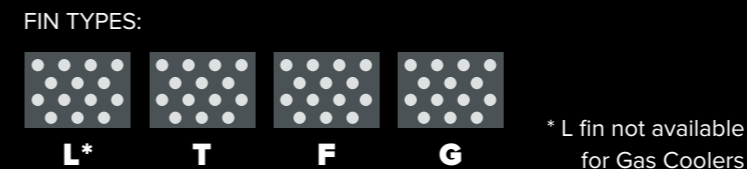
NV-L NH₃-CONDENSER

REFRIGERANT: **NH₃**
CAPACITY: **26.2 kW - 2348 kW**



GV-L GAS COOLER

REFRIGERANT: **CO₂**
CAPACITY: **16.3 kW - 2655 kW**



PRODUCT OVERVIEW

FLATBED

SERIES	Refrigerant	Number of Fans	Fan ø	Fan Rows	EC Fan	Supply	Pole	Fin Material	Fin Type	Tube material	Capacity
			mm								kW
RF-D	HFC	1-3	350	1	option	1 ph	4, 6	Al	F	Cu	3.9 - 32
GF-D	CO ₂	1-3	350	1	option	1 ph	4, 6	Al	F	Cu	1.8 - 39
RF-S	HFC	1-4	500 630	1	option	1 & 3ph	4, 6, 8	Cu, Al, Av, AlMg, Bg	L, F	Cu	6.4 - 183
GF-S	CO ₂	1-4	500 630	1	option	1 & 3ph	4, 6, 8	Cu, Al, Av, AlMg, Bg	L, F	Cu	9.5 - 174
RF	HFC	1-20	800, 900, 910	1 or 2	option	1 & 3ph	6, 8, 12	Cu, Al, Av, AlMg, Bg	L, T, F, G	Cu, St/St	24 - 1409
NF	NH ₃	1-20	800, 900, 910	1 or 2	option	1 & 3ph	6, 8, 12	Cu, Al, Av, AlMg, Bg	L, T, F, G	St/St	11 - 1130
GF	CO ₂	1-20	800, 900, 910	1 or 2	option	1 & 3ph	6, 8, 12	Cu, Al, Av, AlMg, Bg	T, F, G	Cu, St/St	31 - 1424

V-BANK

SERIES	Refrigerant	Number of Fans	Fan ø	Fan Rows	EC Fan	Supply	Pole	Fin Material	Fin Type	Tube material	Capacity
			mm								kW
RV	HFC	1-4	800, 900, 910	1	option	1 & 3ph	6, 8, 12	Cu, Al, Av, AlMg, Bg	L, T, F, G	Cu, St/St	7.4 - 520
NV	NH ₃	1-4	800, 900, 910	1	option	1 & 3ph	6, 8, 12	Cu, Al, Av, AlMg, Bg	L, T, F, G	St/St	13.5 - 527
GV	CO ₂	1-4	800, 900, 910	1	option	1 & 3ph	6, 8, 12	Cu, Al, Av, AlMg, Bg	T, F, G	Cu, St/St	7 - 490
RV-T	HFC	2-20	800, 900, 910	2	option	1 & 3ph	6, 8, 12	Cu, Al, Av, AlMg, Bg	L, T, F, G	Cu, St/St	13.2 - 2150
NV-T	NH ₃	2-20	800, 900, 910	2	option	1 & 3ph	6, 8, 12	Cu, Al, Av, AlMg, Bg	L, T, F, G	St/St	23.5 - 2286
GV-T	CO ₂	2-20	800, 900, 910	2	option	1 & 3ph	6, 8, 12	Cu, Al, Av, AlMg, Bg	T, F, G	Cu, St/St	12.5 - 2035
RV-L	HFC	2-20	800, 900, 910	2	option	1 & 3ph	6, 8, 12	Cu, Al, Av, AlMg, Bg	L, T, F, G	Cu, St/St	17.2 - 2805
NV-L	NH ₃	2-20	800, 900, 910	2	option	1 & 3ph	6, 8, 12	Cu, Al, Av, AlMg, Bg	L, T, F, G	St/St	26.2 - 2348
GV-L	CO ₂	2-20	800, 900, 910	2	option	1 & 3ph	6, 8, 12	Cu, Al, Av, AlMg, Bg	T, F, G	Cu, St/St	16.3 - 2655

Kelvion Select RT

SELECTION SOFTWARE

- ▶ Kelvion's latest user-friendly, web-based and mobile RT application
- ▶ Select the right components from our extensive product range
- ▶ Receive all information, technical specifications and calculation results
- ▶ Technical data available as pdf-file or as shared Kelvion code
- ▶ Available in several languages and suitable for all operating conditions

www.kelvion.com

OPTIONS & ACCESSORIES

- ▶ Control Box & Isolators
- ▶ Sub cooling / Multi sections
- ▶ Alternative Fin Material
- ▶ Special Paint
- ▶ Mounted Receivers
- ▶ Customised Housing

Options & Accessories

ADIABATIC SYSTEM

Kelvion can look back to a 30-year experience with adiabatic systems. This technology can offer major benefits to your system and is perfectly adapted to our versatile V-Bank range.

During our extensive testing in our own R&D facilities, we verified several spray systems to get the best possible results with regard to water distribution, water mass flow and droplet formation.

We also tested different pad systems from numerous suppliers in our labs to judge independently the claims made when used with our design.

The result is a tailored adiabatic pad system with a new water distribution system for outstanding performance, as well as an update to our existing spray system to offer improved performance and water efficiency. Both options will offer you a uniform, reliable cooling effect with a tested, verified air pressure drop.

ADIABATIC SPRAY SYSTEM

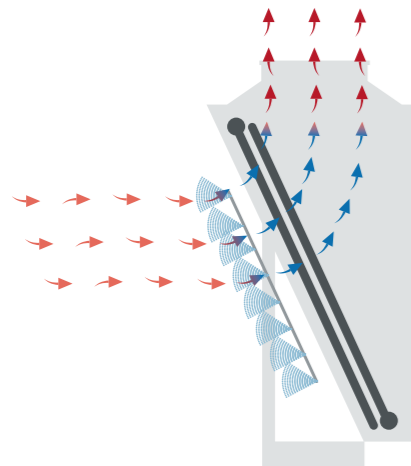


- ▶ The new spray nozzles use less water and produce smaller droplets. The result is 39% less water consumption with the same temperature cooling effect.
- ▶ The System is designed to evaporate 95% of the water in the air and not on the coil. This reduces coil fouling and potential corrosion.
- ▶ New pump box design improves maintenance
- ▶ With options for booster pumps and actuated flow valves, the system minimizes water consumption, varying with your needs.

ADIABATIC PAD SYSTEM

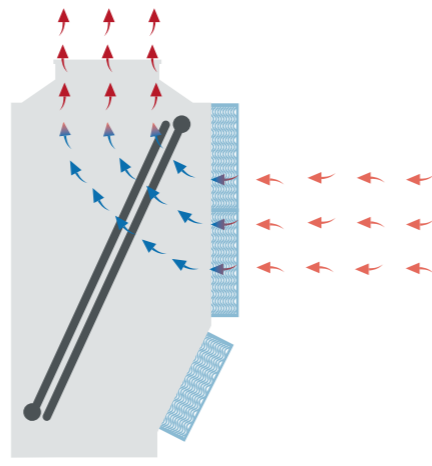


- ▶ Our newly-developed water distribution system on top of the pad combines standard systems, to make better use of the respective advantages.
- ▶ The system facilitates even air cooling with reduced water loss.
- ▶ Easy removal and installation of pads for periodic inspection and cleaning when required
- ▶ Optional meshes in front of the pad protect against dirt and debris depending on need. Easy to clean and extends the pad's service life.
- ▶ Bespoke solutions for every need: pre-mounted or mounted on site.



The evaporating energy of water is used to cool the incoming air.

This cooling effect can be used individually for your system.



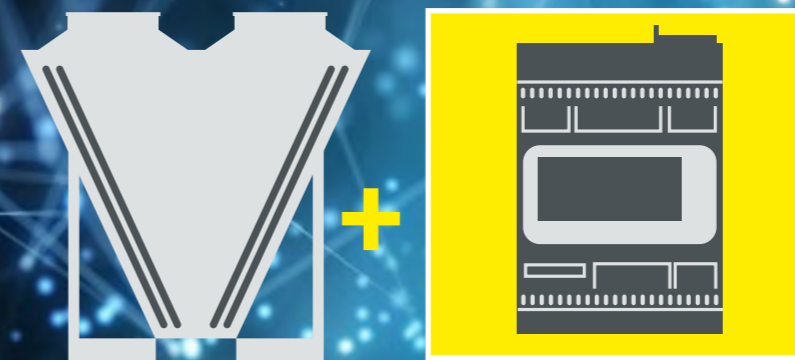
CONTROL OPTIONS

OPTION	DESCRIPTION
Full Modbus and BACnet capability	Building management system (BMS) integration
Speed Control (AC and EC)	Modbus, analog, inverter or triac
Staged Control (AC fan sets)	Motor switchgear with or without controller.
Junction Box	Single or twin according to unit model
Unwired	Installer wires directly to fan terminal boxes

Control Options

KELVION CONTROLS

Kelvion Controls offers the possibility of increasing the service life of the product by ensuring it is suitably maintained before irreparable damage may occur. Scheduled maintenance is not always sufficient for the heat exchanger. Some locations require more visits than others, often governed by seasonal changes. Kelvion Controls with its full BACnet and Modbus building management system integration ensures continuous full visibility of cooler status. Advanced control and monitoring solutions enable on demand maintenance by optimizing not only heat exchanger performance but also service budgets.



- ▶ ACTIVE Maintenance
- ▶ Live fan data
- ▶ Remote interrogation
- ▶ Self-Service Management
- ▶ System Alarm out features
- ▶ Live Monitoring
- ▶ Improved Adiabatic System



OUR SERVICE IN THREE WORDS: **PEACE OF MIND**



**START-UP SERVICES &
ONSITE SERVICES**



**SPARE PARTS &
SPARE PARTS SOLUTIONS**



**UPGRADES &
REPLACEMENTS**



**REPAIRS, OVERHAULS &
MAINTENANCE**



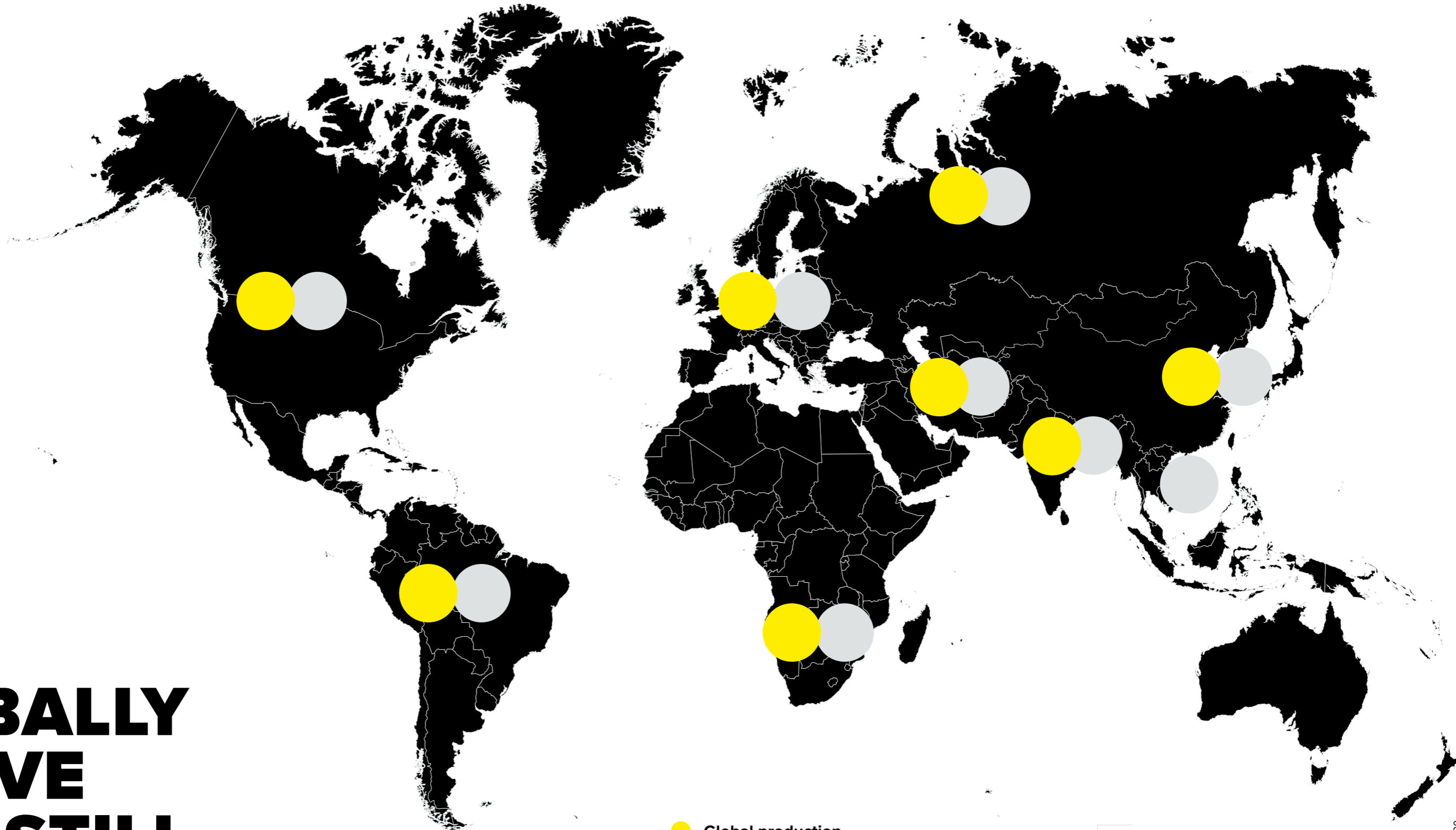
**MONITORING, CONSULTING &
TRAINING**

ALL BRAND SERVICE

Besides being experts in our own products and our former brands, we also have the expertise to service other brands.

PERFORMANCE AGREEMENTS

We offer individually tailored service solutions for the services in our extensive portfolio. They maximize your return on investment, ensure continual performance excellence and make budgeting simpler.



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.

www.kelvion.com