POWER GEN

Shaping the evolution of energy

LU·VE

About LUVE

The shape of cooling

Operating as LUVE since 1986 and building on earlier foundations in heat exchange technology, we've shaped the air heat exchanger sector to become one of the three largest manufacturers globally and second in Europe. Our headquarters in Uboldo (VA) , Italy, serves as the cornerstone of a legacy that now spans continents.

Our market-shaping solutions come to life through 20 manufacturing facilities supported by over 30 sales offices worldwide.

Innovation is embedded in the way we work. Alongside our manufacturing footprint, we operate a dedicated software house focused on product calculation tools and digitalisation, reinforcing our analytical, measurable approach to performance and efficiency.

LUVE Full Assistance

Your partner from concept to completion

We deliver complete solutions backed by comprehensive support throughout your entire project journey:

- **Strong pre-sales support** – Engineering expertise from day one
- **Comprehensive project management** – Seamless coordination from order to installation
- **On-site and remote supervision** – Expert guidance ensuring smooth deployment and fast troubleshooting
- **Performance validation** – Testing in our climatic chamber, Europe's first lab for high-power dry and adiabatic coolers
- **Lifetime technical assistance** – Continuous support throughout your plant's entire lifecycle

Proven by numbers:

4,000
qualified professionals committed to excellence (1,200 in Italy)

1,080,000 m²
total surface area where innovation takes shape

300,000 m²
covered production area

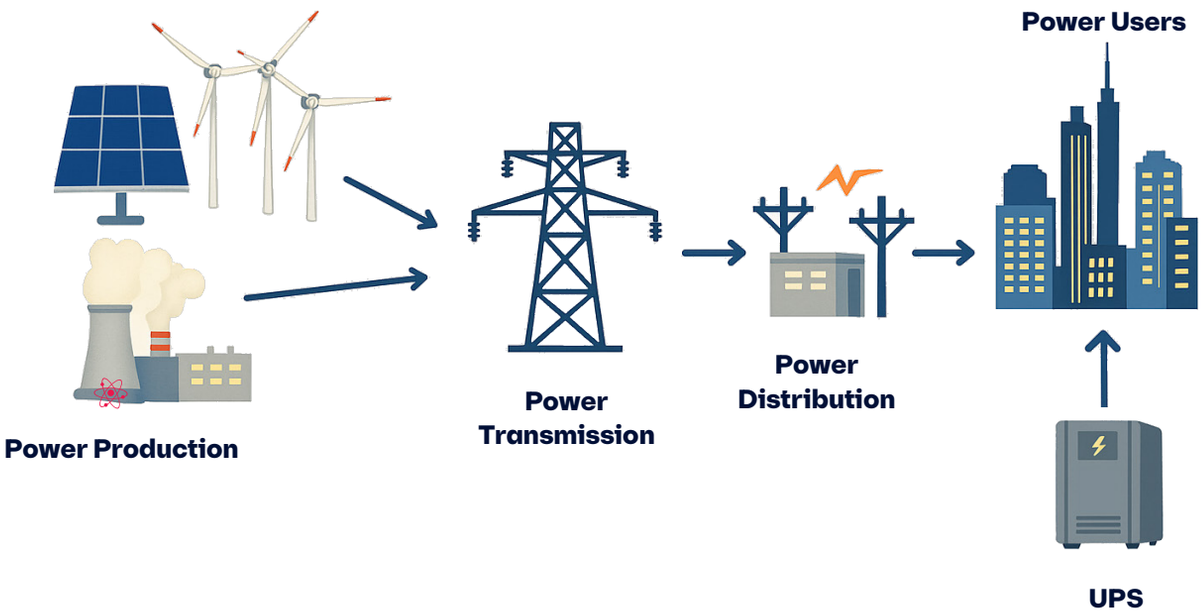
3,605 m²
Research & Development laboratories

83%
of products exported to 100 countries

€605.4 mln
turnover (2025)

132
product families designed to maximize performance

Powering the energy transition with cooling solutions



As the world undergoes a profound energy transition, we witness the exponential growth of global power demands. The power generation sector is the most affected by this rapid evolution and the need to find a new balance between energy efficiency and sustainability. Whether handling fossil-fuel power stations or renewable energy facilities, efficient thermal management remains key to achieve stable and responsible energy production.

In LUVE, we've been driving this transformation for decades, developing reliable and customizable solutions that support the entire power generation value chain. Our products are used in large-scale conventional plants, solar and geothermal installations and emerging hybrid systems. We provide market-shaping solutions for every cooling challenge across the power generation spectrum, from concept through the entire operational lifecycle.

Our comprehensive approach delivers:

- Reduced auxiliary consumption for maximum efficiency
- Fully customizable solutions matching your specifications
- Heavy-duty engineering for demanding applications
- Proven reliability backed by our expertise
- Reduced total cost of ownership
- Factory-assembled and tested Plug&Play solutions
- Flexible modular design adapting to your needs

Complete solutions at every stage

Power Production. The process begins where primary energy sources - fossil fuels, nuclear, or renewables (solar, wind, biomass, geothermal) - convert into electric power. All production systems present different and delicate cooling needs. Our heat exchangers ensure efficient cooling of critical components: engines, generators, turbines and auxiliaries. This safeguards reliability and improves energy efficiency, supporting environmental goals.

Power Transmission. Electricity travels long distances to reach demand centers. This phase requires maximum efficiency and system stability through effective thermal control. Substations and converter stations rely on our reliable and efficient cooling systems to manage heat production.

Power Distribution. Electricity steps down to lower voltages for delivery to end users. Our solutions guarantee optimal cooling of transformers, inverters and rectifiers, supporting grid balance, performance and service continuity.

Power Users. Beyond the grid, industrial plants, commercial buildings and data centers rely on our dedicated heat exchangers for thermal management of machinery and electrically powered systems. These solutions optimize performance, deliver energy savings and ensure long-term equipment reliability. This includes emergency power solutions like Uninterruptible Power Supplies (UPS) and backup generators, vital to maintain continuity during grid disruptions. These systems protect sensitive components - inverters, batteries and power control units - through our advanced heat exchange technologies.

POWER PLANT and UPS

Engineering reliability when it matters most

Low and Medium Speed Engines

Large-scale power stations and cogeneration (CHP) plants rely on engines that run continuously. We deliver robust, high-capacity cooling systems engineered for non-stop performance and maximum reliability.

High Speed Engines

Decentralized plants and UPS systems employ engines that remain on standby until critical moments. Our compact and efficient cooling solutions ensure peak performance under stress when activation is vital.

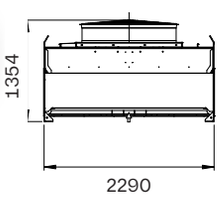
UPS Applications

Hospitals, data centers and transport hubs demand guaranteed power continuity. Our cooling solutions enable fast and reliable engine activation during outages, safeguarding critical operations when every second counts.

Nuclear Power Plants

Nuclear facilities require cooling systems that meet the highest standards of reliability and safety, withstanding earthquakes and extreme events. We deliver solutions designed to observe the most demanding specifications, proven by rigorous testing and certification.

Alfa FBL



Overall Length
2.1 - 13.4 m

Fan diameters
1,250 - 1,500 - 1,800 mm

Cooling Capacity
Customer's specifications

Fan motors
IEC or special standards

Number of fans
1 - 7

Certifications
ISO 9001 / PED regulations

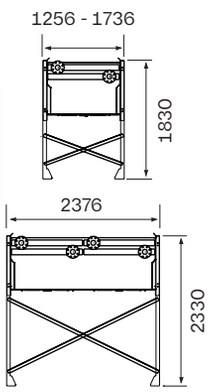
AUXILIARY CLOSED-LOOP COOLING

- Factory-tested Plug&Play units for immediate deployment
- IEC standard motors ensuring global spare part availability
- Robust construction eliminating service platform requirements
- Available with stainless steel tubes, tube plates and headers
- Energy efficient design minimizing total cost of ownership
- Double HT/LT circuit configuration available

Over 20 years of proven expertise from 1,000+ successful projects

OUR SOLUTIONS

Alfa Reverse BR



Overall Length
2.2 - 11.2 m

Fan diameters
910 mm

Cooling Capacity
100 kW up to 4.4 MW

Fan motors
High efficiency AC, EC and IEC package

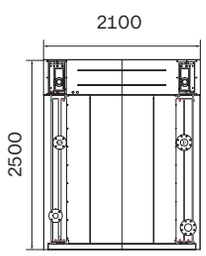
Number of fans
1 - 12

Certifications
ISO 9001 / PED regulations

HIGH TEMPERATURE PROCESS FLUID

- Reverse forced-draught air-cooled radiators
- Motor positioned on cool air inlet side ensuring safe, long-lasting operation
- Heavy-duty design with superior corrosion resistance
- R-Fin patented LUVE design for reinforced fins ensure easy cleaning, with removable bottom panels for coil washing
- Reduced operating noise
- Double HT/LT circuit configuration available
- Straightforward installation and maintenance

Alfa Genset DCH



Overall Length
1.5 - 3.5 m

Fan diameters
1,250 - 1,440 mm

Cooling Capacity
Customer's specifications

Fan motors
IEC

Number of fans
1 - 2

Certifications
ISO 9001 / PED regulations

GEN-SET RADIATOR UNITS

- High-performance fan impellers engineered to overcome pressure drops from container enclosures, closed grilles or louvers
- Heavy-duty construction ensuring extended product life
- Compact design optimized for container installation
- Dry cooling system delivering zero water consumption and eliminating bacteriological concerns
- Superior corrosion resistance for harsh environments
- Double HT/LT circuit configuration available
- Factory-tested Plug&Play solution

TRANSMISSION – DISTRIBUTION

HVDC Systems

High Voltage Direct Current systems rely on our cooling solutions for converters and control electronics, ensuring stable long-distance power transmission.

Synchronous Compensators

Our heat exchangers maintain thermal balance in these critical systems, stabilizing grid voltage and frequency under high-load conditions.

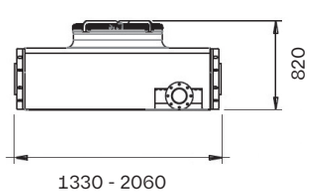
Rectifiers and Frequency Converters (Drives)

These power flow regulators generate considerable heat. We manage thermal challenges to prevent performance loss and ensure continuous operation.

TRAFO

Transformer cooling protects insulation, extends service life and ensures grid efficiency, particularly crucial in environments with fluctuating load profiles.

Alfa Trafo BO



Overall Length
1.6 - 6.27 m

Fan diameters
800 - 1,000 mm

kW **Cooling Capacity**
50 kW up to 600 kW

Fan motors
High efficiency AC, EC and IEC package

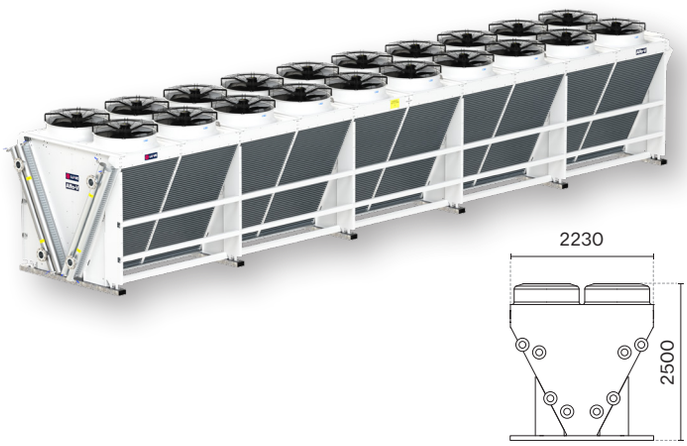
Number of fans
1 - 4

Certifications
ISO 9001 / PED regulations

DIRECT COOLING OF DIELECTRIC OIL

- OFAF configuration engineered for mineral and natural ester oils
- Cu tubes with cylindrical headers or Al tubes with removable header boxes (stainless steel available as option)
- Internal cleaning through oil flushing process
- Suitable for both on-board and remote installation
- Heavy-duty design with superior corrosion resistance
- Easy cleaning via hinged fans, stainless steel filters and industrial power fins
- Customizable connections for straightforward transformer integration
- Low-noise axial fans for quiet operation
- Oil circulating pump available on request

Alfa V VDD



Overall Length
2.1 - 13.4 m

Fan diameters
910 - 1,000 mm

Cooling Capacity
100 kW up to 1.8 MW

Fan motors
High efficiency AC, EC and IEC package

Number of fans
4 - 22

Certifications
Eurovent / ISO 9001 / PED regulations

HEAVY DUTY

- V-shape design engineered for demanding industrial applications with water and glycol cooling
- Corrosion resistance up to class C5-VH
- Available with stainless steel casing and tubes
- Silent performance with Eurovent-certified reliability
- Industrial R-fins designed for easy cleaning
- Simple installation and minimal maintenance
- Extensive options list for maximum flexibility
- Optimal capacity to footprint ratio
- Designed for 40'-45' HC container and truck transport

Check ongoing validity of certificate:www.eurovent-certification.com
EUROVENT CERTIFIED PERFORMANCE
www.eurovent-certification.com

Alfa Solar SR

Overall Length
2.1 - 13.4 m

Fan diameters
910 - 950 - 1,250 - 1,500 mm

Cooling Capacity
Customer's specifications

Fan motors
High efficiency EC or IEC

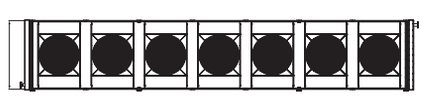
Number of fans
1 - 14

Certifications
ISO 9001 / PED regulations

Narrow coil only 910-950 mm fan

Dual fan row with wide coil models and 910-950 mm fan.

Single fan row with wide 1,250 -1,500 mm fans



RELIABILITY INSTALLED

- Heavy-duty coil and casing materials ensuring extended operational life
- Available with stainless steel casing and tubes
- Double HT/LT circuit configuration available
- Plain profile fins minimize fouling and simplify cleaning
- Low operating noise
- Compact and container-optimized design allows side-by-side dual unit installation

H_2 and CARBON CAPTURE APPLICATIONS

Shaping the future of clean energy infrastructure

The energy transition demands innovative cooling solutions for emerging technologies. We're at the forefront, delivering efficient air-cooled systems for green hydrogen production and carbon capture, two sectors critical to achieve global sustainability goals.

Hydrogen Production

Electrolysis systems require precise thermal stability to produce green hydrogen efficiently. Our dry coolers ensure reliable cooling of electrolyzers, enabling continuous operation and maximizing energy efficiency. This proven technology supports the hydrogen economy's growth, helping industries transition to clean fuel alternatives while maintaining operational excellence.

Carbon Capture

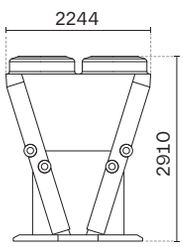
Both direct air capture and industrial CO_2 recovery demand precise thermal control. We deliver custom cooling systems engineered specifically for these applications, whether integrated into post-combustion processes or direct capture facilities. Our solutions help power generation and heavy industry achieve their decarbonization targets through reliable, efficient thermal management.

These technologies represent our legacy of innovation meeting tomorrow's challenges. Decades of expertise position us to support the infrastructure that will power a sustainable future.

Alfa V VDD

See product details at page 7

Alfa V Mega VXX3



Overall Length
2.1 - 13.4 m

Fan diameters
910 - 1,000 mm

Cooling Capacity
200 kW up to 2 MW

Fan motors
High efficiency AC or EC

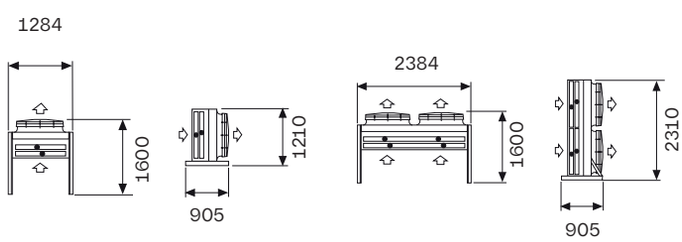
Number of fans
4 - 22

Certifications
Eurovent / ISO 9001 / PED regulations

HIGH CAPACITY, SMALL FOOTPRINT

- V-shape modular design delivering an optimal capacity-to-footprint ratio
- Heavy-duty construction with high corrosion resistance (C4-H)
- Stainless steel tubes available on request, for demanding environments
- Energy-efficient operation ensuring a low total cost of ownership
- Reliable performance validated by Eurovent certification
- Straightforward installation and low maintenance requirement

Giant F



Overall Length
2.9 - 13.3 m

Fan diameters
800 - 950 mm

Cooling Capacity
30 kW up to 1.4 MW

Fan motors
High efficiency AC or EC

Number of fans
1 - 16

Certifications
Eurovent / ISO 9001 / PED regulations

WIDE RANGE, FLEXIBLE DESIGN

- Modular design adaptable to diverse installation requirements
- Available in single or dual fan row configurations
- Heavy-duty construction with high corrosion resistance (C4-H)
- Low operating noise suitable for residential and noise-sensitive applications
- Energy-efficient design supporting reduced operating costs
- Straightforward installation and low maintenance requirements

ORC, Waste-to-Energy and industrial processes

Shaping efficiency where energy is recovered

ORC Applications

We design cooling solutions for Organic Rankine Cycle (ORC) systems that generate electricity from low-temperature thermal sources. Our technology supports applications such as biomass combustion, industrial heat recovery, binary geothermal plants and solar thermal systems, turning residual heat into usable power and improving overall plant efficiency without additional fuel consumption.

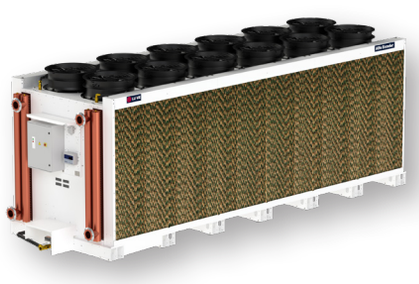
Waste-to-Energy

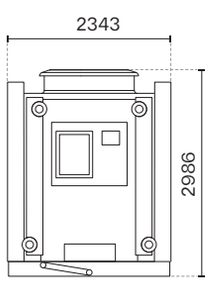
In waste-to-energy plants, where municipal or industrial waste becomes a fuel source, we supply cooling systems engineered to manage thermal loads with precision. By stabilising critical temperatures, we help ensure consistent energy conversion, higher efficiency and controlled environmental impact.

Process Liquid Cooling

For industrial systems requiring accurate process liquid cooling, we provide solutions that secure temperature control, operational stability and energy optimisation. Our designs are shaped to perform reliably in continuous operation, supporting both productivity and long-term sustainability.

Alfa Ecooler





Overall Length
2.2 - 12.8 m

Fan diameters
800 - 910 - 1,250 mm

Cooling Capacity
up to 3.5 MW

Fan motors
High efficiency AC or EC

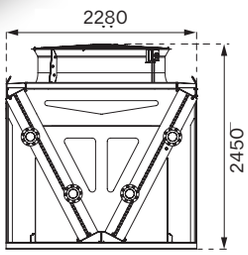
Number of fans
Single row: 1 - 7
Dual row: 4 - 20

Certifications
ISO 9001 / PED regulations

ECO-FRIENDLY ADIABATIC COOLER

- Minimized water and power consumption for responsible resource use
- Optional water recirculation system enhancing sustainability
- Favourable capacity-to-footprint ratio for optimized installation
- Oval-section tubes improving thermal performance
- Maintenance door available for easy internal access
- Feed/discharge actuated valve for controlled operation

Alfa V VLD



Overall Length
2.7 – 13.4 m

Fan diameters
1,500 mm

Cooling Capacity
100 kW up to 2 MW

Fan motors
IEC

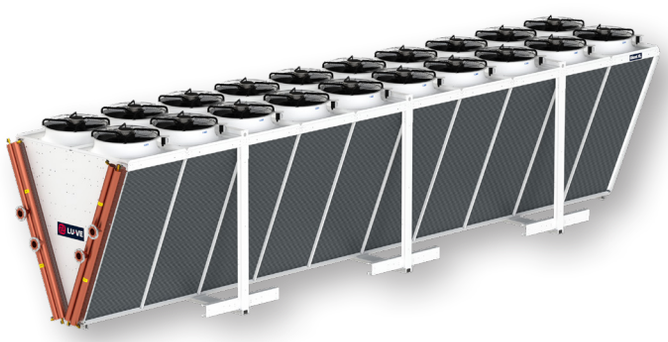
Number of fans
1 - 6

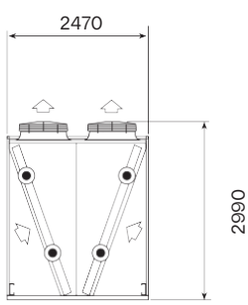
Certifications
ISO 9001 / PED regulations

MOST SEVERE ENVIRONMENTS

- Heavy-duty coil and high-corrosion-resistance materials
- Stainless steel casing and tubes available for enhanced durability
- Industrial R-fins available, engineered for robust performance and easy cleaning
- Factory-tested Plug&Play configuration for immediate deployment
- Excellent capacity-to-footprint ratio
- Optimized sound characteristics for controlled acoustic impact
- Energy-efficient operation ensuring a low total cost of ownership
- IEC industrial fan technology reducing the number of fans required and lowering maintenance and operating costs
- Designed for transport in 40' and 45' HC containers

Giant XL





Overall Length
4.6 – 12.8 m

Fan diameters
900 mm

Cooling Capacity
282 kW up to 2.3 MW

Fan motors
High efficiency AC or EC

Number of fans
8 - 22

Certifications
Eurovent / ISO 9001 / PED regulations

HIGH CAPACITY IN LIMITED SPACE

- High-efficiency Turbofins minimizing energy consumption
- Low-noise operation for controlled acoustic impact
- Reliable performance validated by Eurovent certification
- V-type modular design ensuring an optimal capacity-to-footprint ratio

Check ongoing validity of certificate:www.eurovent-certification.com
EUROVENT CERTIFIED PERFORMANCE
www.eurovent-certification.com

Fin Material

Protection shaped for every environment

Different environments expose heat exchangers to different levels of corrosion. We offer a range of fin materials and treatments shaped to ensure long-lasting performance across all conditions. Depending on the application, solutions include thicker fins, aluminium–magnesium alloys, copper fins and advanced surface treatments engineered for the most severe environments.

R-fin

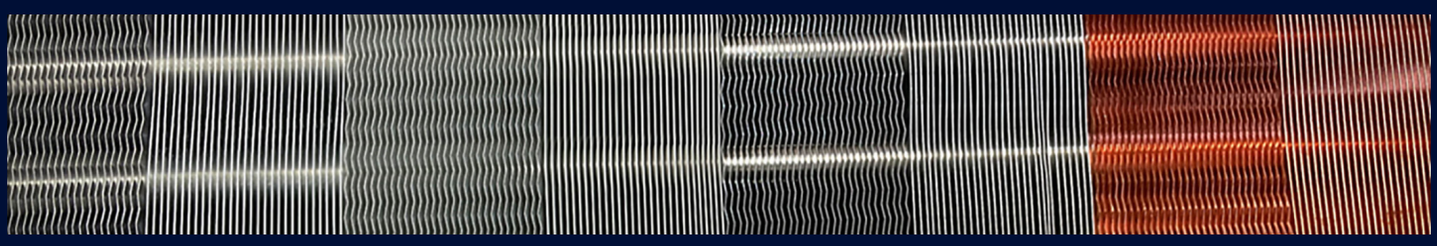
R-fin is our patented solution developed to deliver reinforced mechanical strength and superior corrosion resistance in any setting, from urban exposure to heavy industrial conditions. It applies to both coated and uncoated fins, ensuring reliable performance even under demanding operating cycles.

Designed to last, R-fin contributes to reduced maintenance, increased durability and stable efficiency throughout the entire lifecycle of the unit.

Fin selection guideline table

Material	Aluminum (Al)				Aluminum (Alprv)		Aluminum-Magnesium (AlMg)				Copper (Cu)		Al, AlMg, Cu	
Treatment			Spray coating		Pre-coated				Spray coating				E-coat	
R-fin	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Urban	+													
Medium industrial	+	++												
Heavy Industrial	+	++	+++	+++	+++	+++								
Desert (sandy)	+	++					++	+++						
Coastal (Low-salinity)							+	++	+++	+++			++++	++++
Coastal (Moderate-salinity)								+	++	++	+	+	+++	+++
Mechanical resistance		R		R		R		R		R		R		R
Protected coil frame parts			Fins		Fins				Fins				Fins, tubes, manifolds, frame	
Coating material			Polyuretane		Polyester				Polyuretane				Epoxy+ UV Top-coat	
Coating thickness (µm)			25		7				25				15 ÷ 30	
Heat transfer vs basic Al (%)			-3		-4		-3		-7				-1	
Coating temperature range (°C)			-50 ÷ +180		-40/+150				-50/+180				-40/+160	
ASTM B117-97 (h)			4000		1000				4000				15000	
ISO 12944													C5-H	
UV resistance			Yes	Yes		Yes			Yes	Yes			Yes	Yes

R = Reinforced



A sample coil with different base materilas and coatings with alternarted standard and R-fin sections

Casing protection

For demanding environments

Steel alloys with high intrinsic corrosion resistance are our choice as the foundation of durable and reliable products. To further enhance protection, these base materials are often supplied as hot-dip galvanized steel in accordance with EN 10346 or EN 1461. This process forms an initial barrier against corrosion, ensuring resistance suitable for C4-H environments as defined by EN ISO 12944-2, even before additional surface treatments are applied.

To address different environmental conditions, we offer a full range of casing surface treatments based on powder and liquid coating technologies. These coatings are selected and applied according to ISO 12944:2018, which defines corrosion protection categories from C4-H up to CX for offshore applications.

Powder coatings can be applied in one or two layers. A single layer is typically used for aesthetic purposes and provides protection up to C4-H class. When applied in two layers, powder coatings can reach higher corrosion resistance levels, up to C5-VH depending on the system configuration.

For more aggressive environments, we supply liquid coating systems applied in multiple layers (from two to four) designed to offer long-lasting protection in severe industrial or marine conditions. With the appropriate number of layers, these coatings can meet the highest corrosion classes, including C5-H, C5-VH and CX, ensuring performance in the harshest operating scenarios.

To maintain consistent protection throughout the product lifecycle, we have defined detailed touch-up and repair procedures for both powder and liquid coatings. These ensure that any damage occurring during assembly, transport or maintenance can be properly addressed without affecting corrosion resistance.

Alfa V VDD unit with C5-VH painting ready for container shipping

Coating type	No. layers	Corrosion Class
Powder coating	1	C4-H (coating used for aesthetic reasons)
	2	C4-VH / C5-H or C5-VH
Liquid coating	2 or 3	C5-H or C5-VH
	3 or 4	CX

2-Year Guarantee

Our products are made with high-quality materials and undergo rigorous final testing. For this reason, we offer a two-year warranty against manufacturing defects - a commitment to the reliability and long-term performance our customers expect.

Fan Motors

Shaping airflow performance with precision



We integrate a complete range of fan motors designed to match each product configuration and operating requirement. Fan diameters and types vary by model, and all options comply with ErP regulation. Electrical accessories are available according to fan type to support reliable and consistent control.

EC Fan Motors

EC motors feature integrated electronic commutation speed control for high efficiency and compact design. These external rotor motors operate with maintenance-free bearings and run independently of mains frequency (50 or 60 Hz), delivering precise airflow regulation.

AC Fan Motors

AC external rotor motors with maintenance-free bearings provide a solid fixed-speed solution. They are widely used in power generation applications for their dependable operation and straightforward integration.

IEC Fan Motors

IEC motors are built according to international standards and available in multiple power supply configurations (voltage and frequency). These internal rotor motors feature impellers tailored to each application and come pre-wired to lockable safety switches. Their robust construction and compatibility with external speed control systems such as VFDs make them suited for demanding operating conditions.

Fan Motor Options

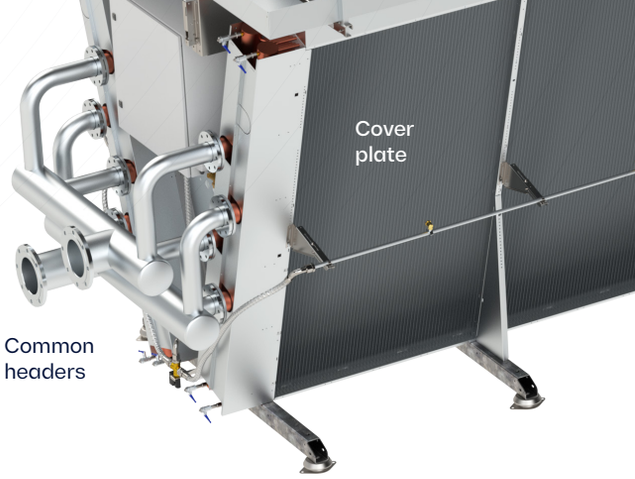
- Special power supply
- High-temperature fan motor
- ATEX fan motor
- Special fan motors (NEMA, UL, CSA, etc.)
- H-class insulation
- Forced-draught fans (FD)

Whisperer plus®

REDUCED NOISE AND POWER CONSUMPTION

Our 2nd generation silencer for LUVE dry coolers delivers measurable improvements:

- Up to -6 dB(A) sound level reduction
- Up to -19% energy consumption
- Reduced footprint
- Minimized warm air recirculation



Accessories

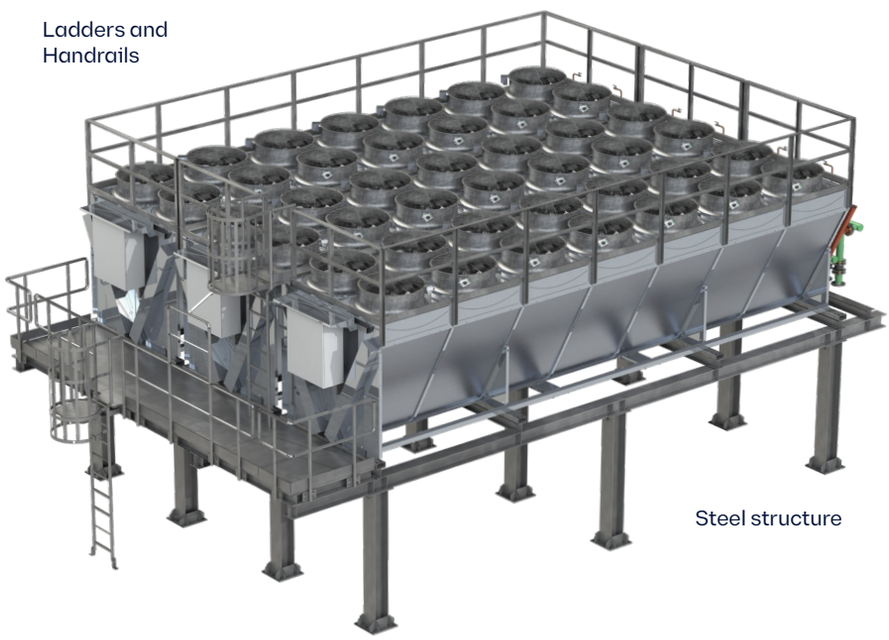
Extended scope of supply shaped around your plant

As a specialized and flexible partner, we extend our offering beyond dry coolers to provide a complete range of accessories and support structures tailored to plant requirements. We supply steel frames, ladders and handrails for safe and accessible maintenance areas, along with accessories designed for straightforward installation and long-term operational reliability.

To support maintenance and cleaning operations, we offer hinged fan shrouds that give direct access to internal components. These solutions improve safety and reduce service time, keeping routine activities simple and efficient.

Available accessories

- Ladders and Handrails
- Steel structure
- Cover plate
- Common headers
- Smart control systems
- Hinged fan shrouds



Smart Control Systems

Our advanced regulation module for EC fan dry coolers

- Adaptable to project and site requirements
- PLC-based controller
- Touchscreen interface
- Floating activation set point based on running conditions
- Delta-Temperature control
- Anti-condensation protection via external 3-way valve
- Optimized 7-zone fan control for process cooling
- 3-way valve control: 0–10 V, 2–10 V or 4–20 mA
- 3-way valve feedback signal

The shape of cooling

LU·VE

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