clauger

HVAC – REFRIGERATION SOLUTIONS AND SERVICES
MARINE & OFFSHORE

Who are we ?

A family-owned business that maintains its personal touch and core principles.

1971
Founded in

3 000
Employees

750 M€
Revenues

+4000
Clients

+369
Recruitments in France 2024

28
Global locations

+60
Local branches

+100
Presence in over 100 countries

key milestones in Clauger’s development story

2023

VALTRIA by CLAUGER

Acquisition of VALTRIA Group
Solutions for Clean concept Markets

2021

GEA Spain activities

Acquisition of GEA activities in Spain and creation of Clauger Grenco Iberica

2021

GEA Italy activities

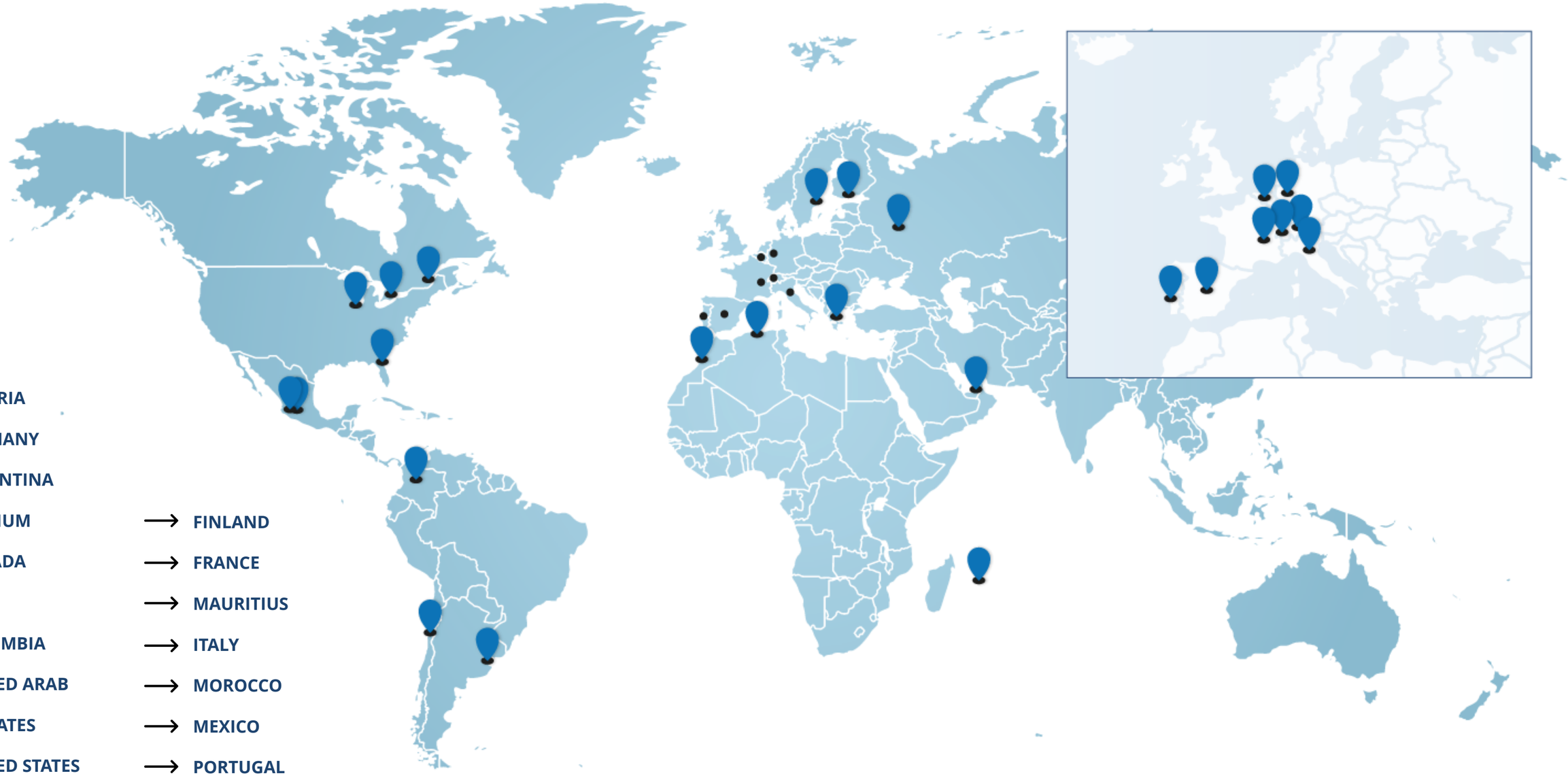
Acquisition of GEA activities in Italy and creation of Clauger Technofrigo

2021

50 years of Clauger

Clauger celebrates its 50ht anniversary

Our Global Locations



- ALGERIA
- GERMANY
- ARGENTINA
- BELGIUM
- CANADA
- CHILI
- COLOMBIA
- UNITED ARAB EMIRATES
- UNITED STATES
- SPAIN
- FINLAND
- FRANCE
- MAURITIUS
- ITALY
- MOROCCO
- MEXICO
- PORTUGAL
- RUSSIA

Our Manufacturing workshops

clauger

20

Global Manufacturing Workshops

2,500

Products Manufactured Globally

336

Cooling Cells made in 2023 (France)

60

AHU made in 2023 (France)

130

Air Units made in 2023 (France)

+ 50

Skids manufactured in Italy last 2 Years

Clauger Marine – Organisation

Nantes, France

- Technical and Design Management
- Global Sales Management
- Quality department

Brignais, France

- Head Quarter
- Global design & engineering
- Manufacturing

Service Marine - Brest & Marseille, France

- Maintenance & Repair
- Service engineers
- Ship check
- Through Life Support
- Retrofit
- Spare parts

Factory in Bologna, Italy

- Design & manufacturing
- Chiller
- Ref Store
- Commissioning

Service Marine for Cruise Lines

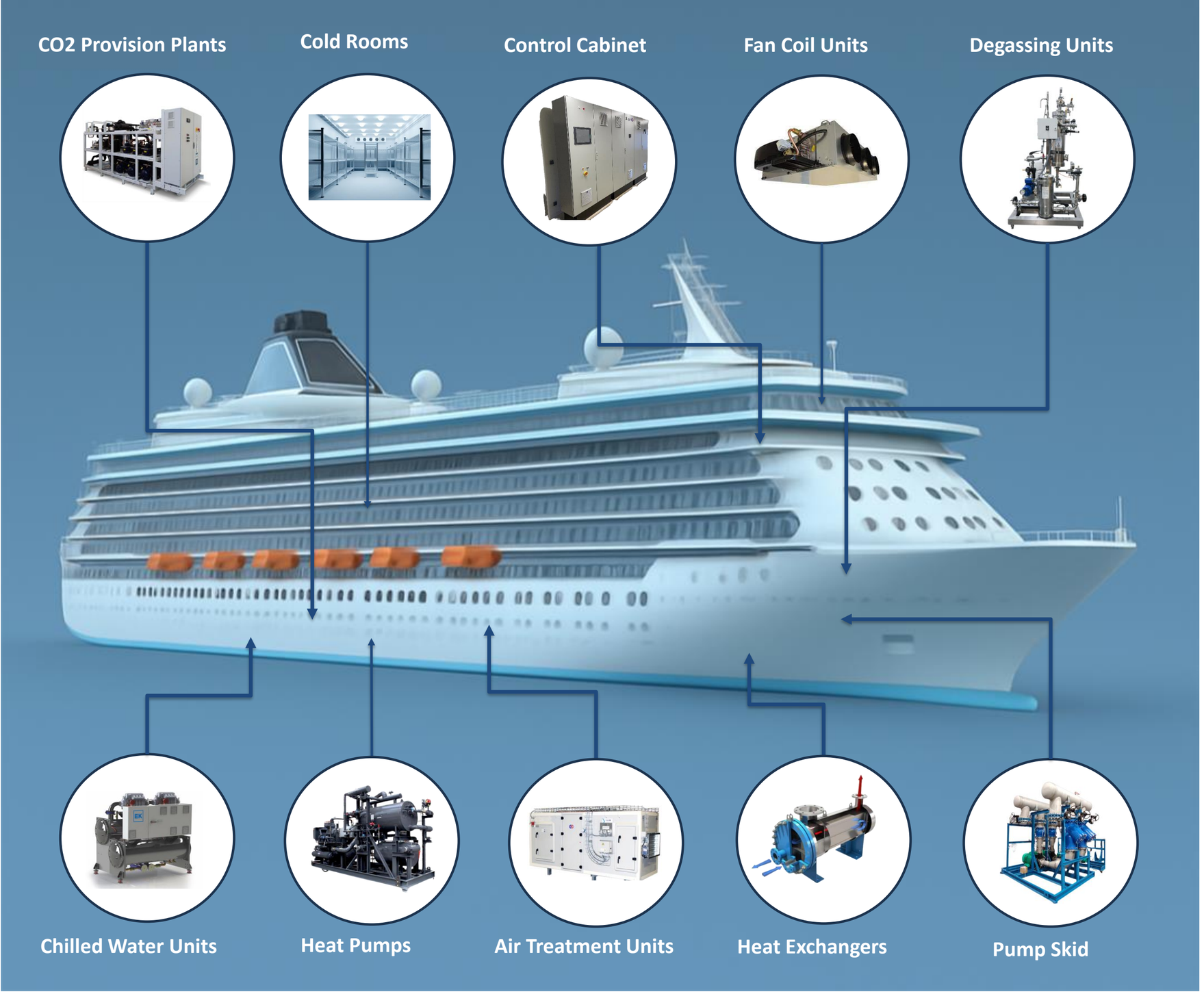
- Maintenance
- Service Engineers
- Ship Check
- Retrofit
- Spare Parts

Vigo, Spain

- Design and manufacturing
- NH3 chiller
- Ref Store
- Maintenance and repair
- Spare Parts

USA & Canada

- HVAC
- Design and Engineering
- Maintenance & Repair
- Retrofit
- Through Life support
- Spare Parts



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HVAC & Refrigeration specialist

New Build activities

- Sustainable HVAC & refrigeration
- Innovative, custom solutions
- Digital tools for energy efficiency

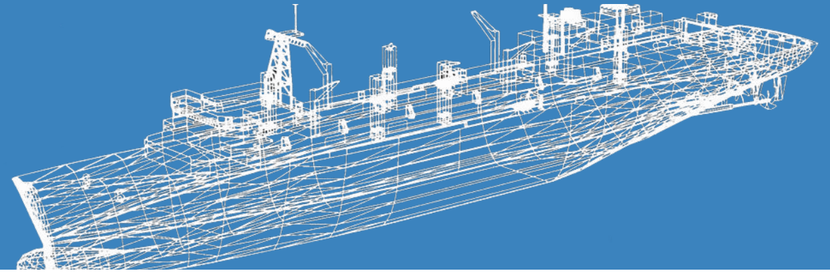
Services

- Health checks
- Energy diagnostics
- Regulatory compliance retrofit
- 24/7 life-cycle support
- Mechanical overhauls
- Control system upgrade

From early steps in HVAC design to turnkey solutions and services

- From Basic to Detailed Design, 3D modeling and digital twin
- Equipment production, procurement and supply
- Installation, commissioning and start-up
- Training
- Remote monitoring of main HVAC equipment
- Maintenance and repair, spare parts delivery

Ad HOC solutions



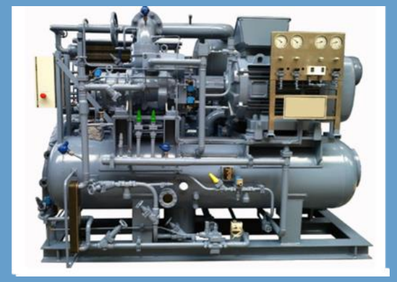
chilled water plant

- Magnetic bearing units
- From 300 kW and above
- Partnering with OEM for supply and maintenance

CO2 Provision Plant

- Large range in medium and low temperature
- Solutions for new build and retrofit projects

NH3 Installations



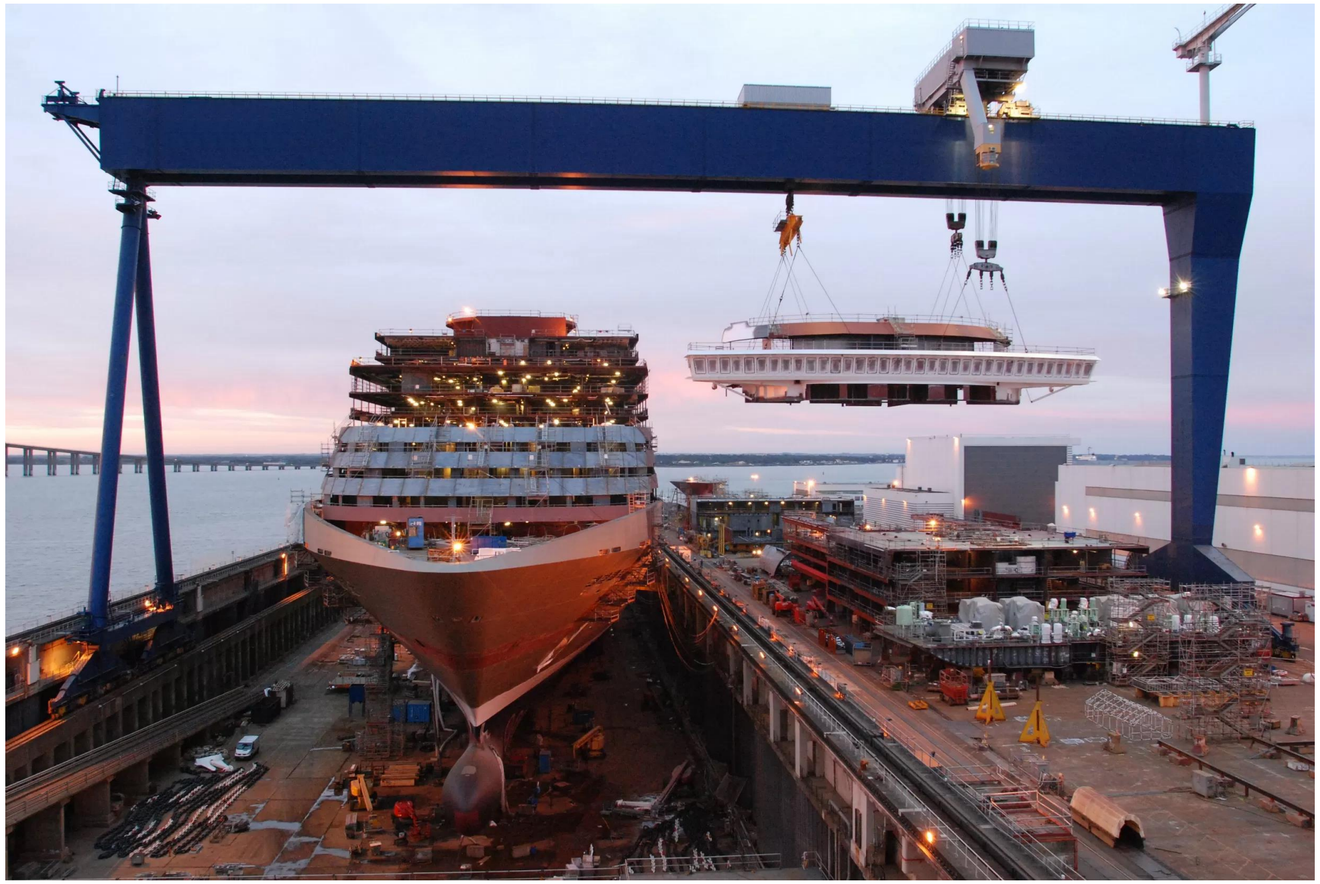
- Specific units for fishing vessels (tuna, longliners, trawlers, food transport,…)
- Freezing-preservation systems -20 to -60°c
- Tunnels
- Holds

HFC/HFO

- Semi-hermetical compressors
- Low and medium temp.

Installation and commissioning services

- Project Manager
- Site work supervision
- Ducting and piping works
- Equipment installation
- Connection and cabling
- Air flow measurement and pressure testing
- Control system testing
- Global system commissioning
- Approval certificate



Automation and controls

design capability

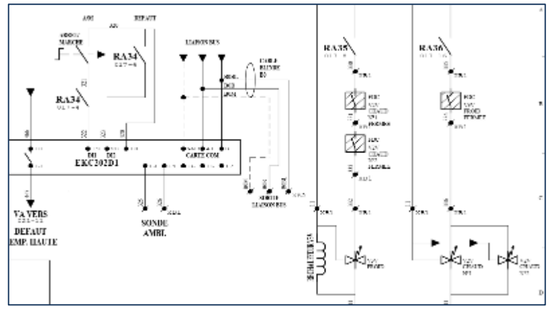
- Dedicated project engineer
- Realization of electrical diagrams and wiring plans
- 2&3D drawings control panels and electrical cabinets
- Documentation
- Design according standards and Rules
- In-house software development

Manufacturing

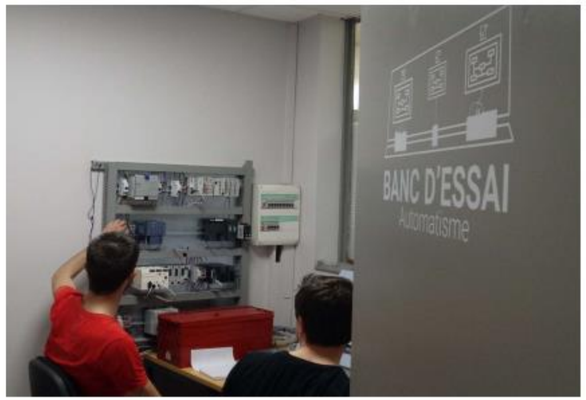
- Assembly, component integration and cabling of panels
- Inspection and check
- Testing following customer procedures and requirements
- Halogen free cables

Installation and commissioning

- Onboard installation services
- Connecting operation
- Electrical & automation test
- Equipment commissioning
- Training



Automation and controls



- Instrumentation
- Controls & PLC
- Machine Monitoring System
- Electrical panel and power
- Fire & Gas system

Passenger ships – Boosting Energy Efficiency in Short-Cycle Operations

Why conduct an energy assessment?

- Reduce costs in high-frequency routes
- Optimize HVAC during port stops
- Meet environmental standards
- Prevent overloading of auxiliary systems

Our Approach

1.Route and Load Briefing
- Align with onboard team on thermal loads and schedule constraints
- Define key issues and systems to evaluate

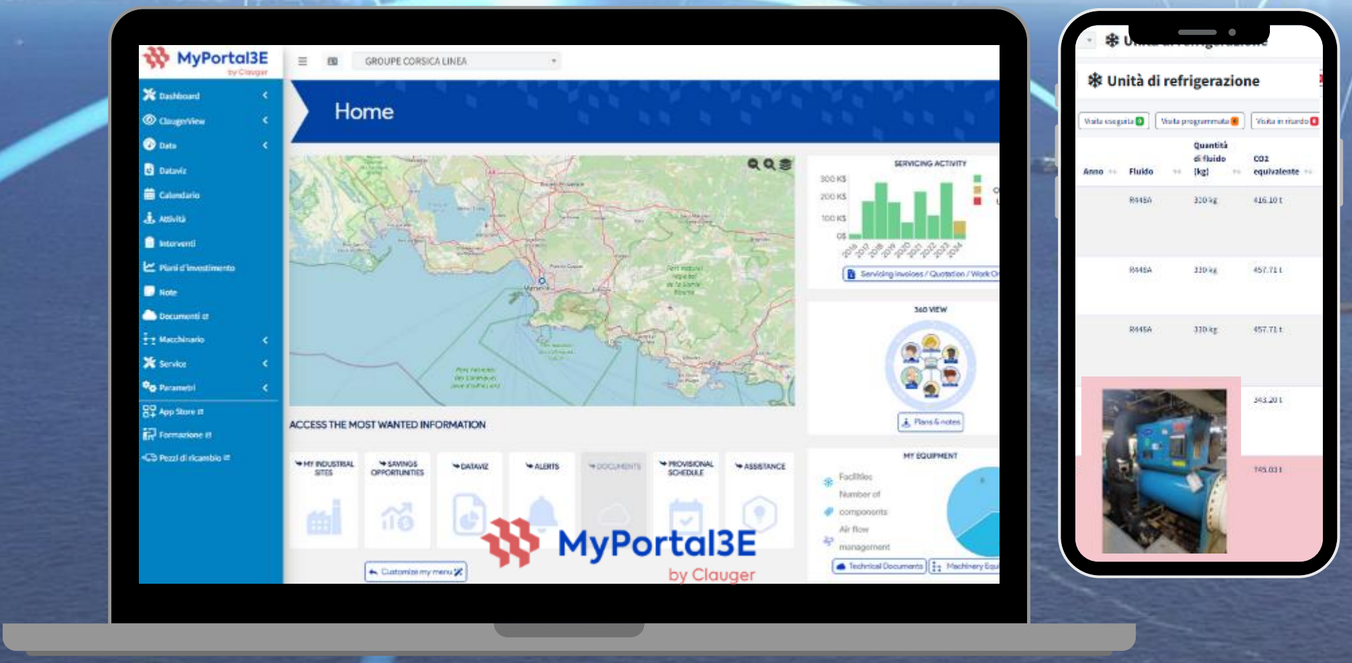
2.Onboard System Check (Docked)
- Review ventilation, provision cooling, and engine room systems
- Identify energy use during idle and standby phases

3.Live Data Monitoring
- Fast-install sensors during stopovers
- Collect performance data during sailing and docking
- Centralized via MyPortal 3E for insights and follow-up

4.Strategic Energy Analysis
- Optimize HVAC cycles, fan controls, and automation
- Ensure compliance and suggest cost-saving upgrades

MyPortal3E & 5.0 Transition

Through our e-Service contract, we remotely analyze via MyPortal3E your installations to ensure and maintain their proper functioning.



DATA + MyPortal3E by Clauger

1 MAINTENANCE
Reliability of the installation and extending the lifespan of equipment

2 E-SERVICE
Commitment to monitor and maintain the performance of the installation over time, avoiding deviations through data analysis

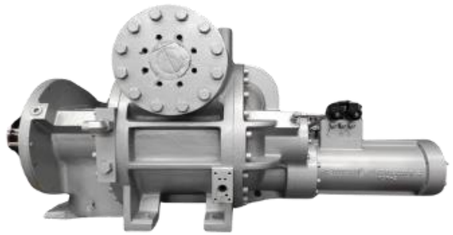
3 ENERGY OPTIMIZATION
Engaging in a continuous improvement process by proposing improvement plans in a ROI logic and committing to energy savings.

This approach also allows us to identify improvement plans to enhance your energy performance.

Through-life support activities

Maintenance contracts
Tailored to your activity, maintenance skills and levels on your site, your needs, regulatory requirements, and equipment and installations to consider.

Mechanical Overhaul of Compressors
Mechanical Overhaul & Expertise of compressors of all brands and technologies (screw, piston, turbo)



Aftermarket Parts Supplier

Plate Heat Exchanger Maintenance (PHE)
Ensuring the availability and performance of your plate heat exchanger fleet via regular maintenance and cleaning.

Trained service engineers
Our service engineers followed the Engie – Danfoss Turbocor Training

Equipment Reconditioning

All product types

- Evaporators
- Condensers
- Compressors
- Chillers

- Complete production
- Individual parts
- Hydraulic equipment
- Electrical equipment

SWAP

REMANUFACTURING

SWAP

CONSIGNMENT SALES

RENTALS & LEASING

DISMANTLING

GREEN Label

Service & Engagement

- **E-Service**
  Maintenance tools and service agreements tailored to your operational needs.
- **Spare parts**
- **Mechanical overhaul**
  Maintenance, repair and overhaul expertise for all compressor brands and technologies
- **Regulatory**
  Technical and energy audits to meet regulatory standards.
- **Energy performance**
  PAOE – identify actionable improvements to generate short-term energy savings
- **PHE – Plate heat exchangers**
  Reconditioning, audits, energy diagnostics and integrity testing
- **Equipment Refurbishment**
- **Machine health**
  Helping clients implement predictive monitoring for their mechanical systems.

180
Energy Performance Contracts

170
e-Service Commitment Contracts

462
Technicians

Discover our value chain

offer

Complete presentation of our 360 offer

Skill development

Clauger supports you in strengthening your teams' skills and capabilities.

Industrial Refrigeration - Air Treatment - Regulatory - Process - Energy Optimization - Electrical...

+2,400
Interns annually

20
Expert trainers

+600
Year-round internships

3
Virtual trainings

NEW

TIFI

Technical training for **Industrial Refrigeration Technician** – *Made in Clauger*

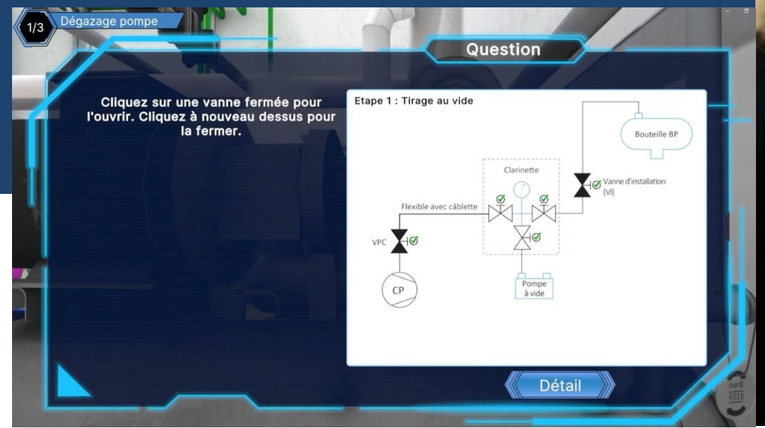
- A high-tech technical platform
- Highly practical case studies
- Modular and scalable training

State-recognized diploma course in France

Serious game

NEW

- Interactive training
- Engaging, gamified learning
- Hands-on preparation
- Immersive role-playing



Value chain offer

SOME REFERENCES

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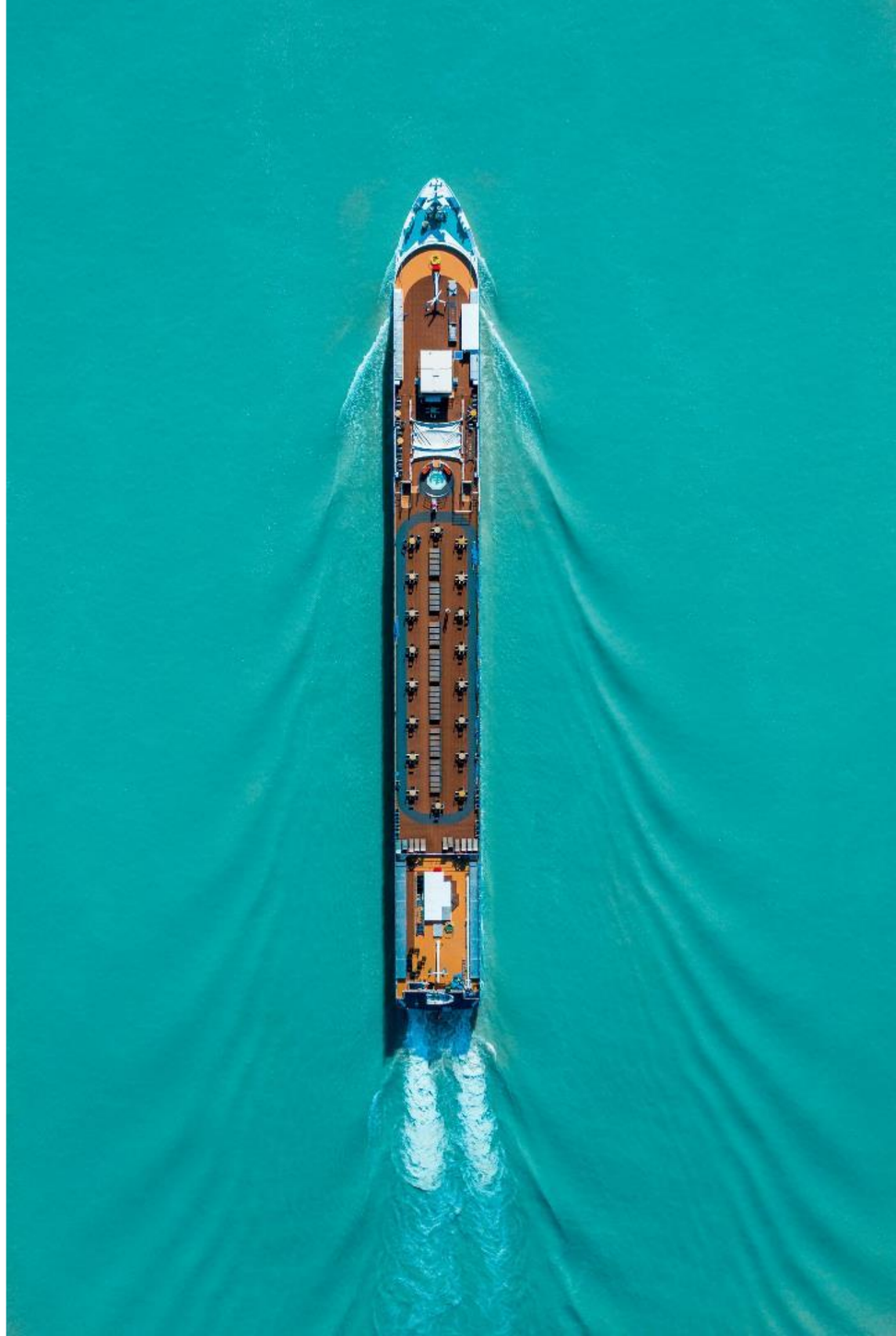


Cruise ships and Super Yachts

Emerald Princess - PCL

Carnival Sunrise - CCL

Costa Serena

Pegaso – Oceanographic yacht

Queen Elizabeth - Cunard

P&O Azura

Evrima - Ritz-Carlton

Msc Cruise

RETROFIT REFRIGERATION UNITS WITH 0 ODP REFRIGERANT LOW GWPBAY LOW

Context

Cruise Ship Owner's Needs:

- energy savings and environmental sustainability, in compliance with the regulations overseen by the IMO control body. The ships aim to decarbonize (LOW GWP) and eliminate the use of gases with an ODP other than 0 (e.g., R22).

- They also aspire to modernize the control system.

Main Difficulties:

- Limited space for installing large machinery and the complexity of installation and maintenance operations.
- Procurement of materials and working fluids.
- The ship cannot stop to carry out these works, so some are performed during sea going while for more complex works, the ship is in dry-dock, where all interventions must be completed in a short period of time to avoid incurring heavy penalties.

Our response

•Retrofit of Refrigeration Units: We have carried out a retrofit using a refrigerant with an ODP of 0 and a low GWP. We transitioned from R22 gas, with a GWP of 1810 and an ODP of 0.05, to a CO2 solution1.

•Space Limitations: The new units are 10-15% larger and require a modular layout1.

•Performance Gap: The overall system performance can vary from 5 to 20%1.

•New Controls and Safety: We have updated the SCADA system and the system architecture1.

•Training: Training has been provided for the new controls and safety measures1.

•Compressors and OEM Controls: We offer after-sales support, spare parts, and service assistance

Corsica Linea

RETROFIT OF CHILLED WATER PRODUCTION UNITS

Context

Corsica Linea encountered several major malfunctions with the chillers on a Ferry vessel, including:

- A crack in the condenser of chiller #2, causing leaks.
- Failures in the condensers of chillers #1 and #3.
- Obsolescence of the three-way seawater valves and the refrigerant level regulation system.

The objective was to modernize these systems to optimize energy performance and ensure the reliability of the onboard chilled water production system.

Our response

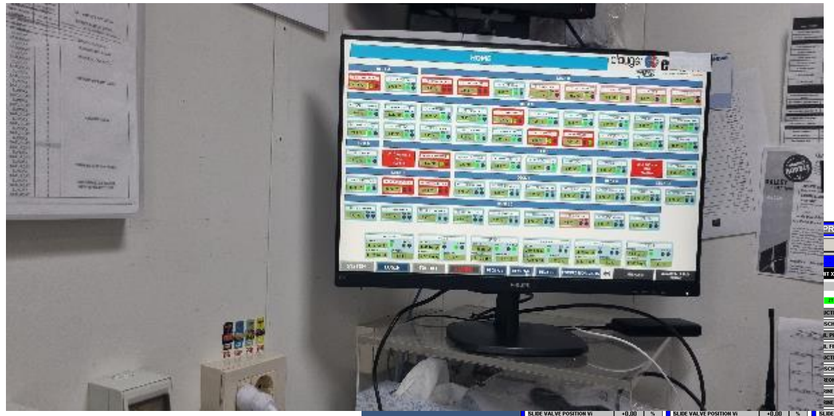
- Replacement of chiller #2 with a new 1400 kW unit featuring improved COP.
- Replacement of the condensers for chillers #1 and #3 with identical units after an onboard validation visit.
- Installation of new three-way seawater valves to optimize flow rate and condensation temperature.
- Optimization of the refrigerant level regulation system for improved energy efficiency and system standardization.

Results and ROI

- Increased reliability of the vessel's cooling system
- Improved energy efficiency, with reduced electricity consumption thanks to the new equipment
- Standardization of installations, facilitating maintenance and spare parts supply
- Reduced risk of breakdowns and optimized onboard thermal comfort..

Carnival Cruise Lines

ANTI OBSOLESCENCE PROGRAM – PROVISION'S SUPERVISION SYSTEM RENEWAL



Context

A very important system for safety of human and goods is the provision supervision system.

It's duty is to monitor the "man trap alarm" for freeze cells and in general to show and control the status of all the cells present onboard.

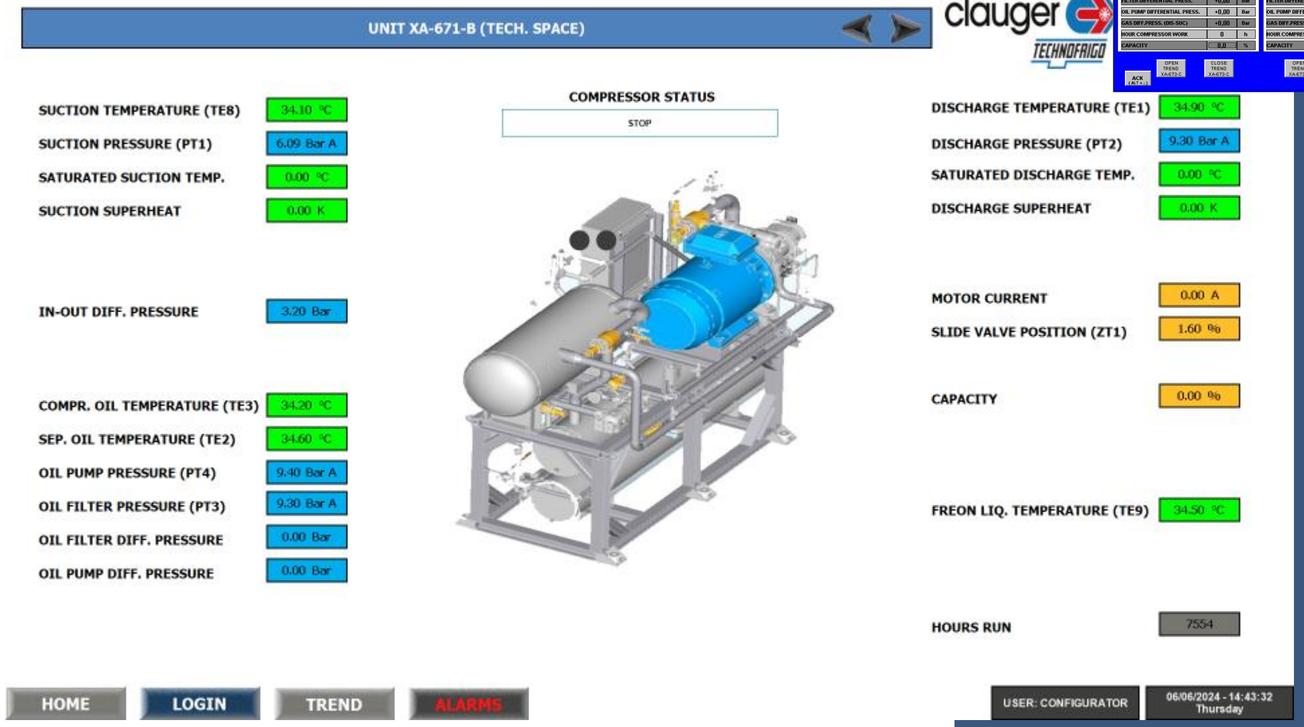
Reliability and efficiency of this system is mandatory for the ship provision.

Our response

•Offering replacement of old hardware out of service or affected by end of life support.

•Improvement of the capabilities of the system with shared database and new trending system.

•Full control of the room cell temperature and defrosting from remote.



Ferries

Britanny Ferries

Méditerranée – Corse Linéaire

Girolata – La Meridionale

Martin I Soler - Balearia

Tanit– CTN

Navy & Gov. vessels

Le Monge – French MOD

Mistral class LHD – French Navy

Outermost frigates – French Navy

FREMM frigates – French Navy

Formidable class frigates – Singaporean Navy

Patrol Boats – Guardia Civil

Merchant, service and workboats

Salica Frigo – Transport vessel

FLOTEL - PEMEX

North Star Shipping Grampian Surveyor

Velox – Tug Vessel

Gracia Del Mar – Cargo Vessel

Fishing vessels

CFL Hunter – Freezer Trawler

PALOMA V – long-line fishing vessel

Parsian Shila – Tuna Vessel

Ljubica – Tuna Vessel