TEKNOTHERM







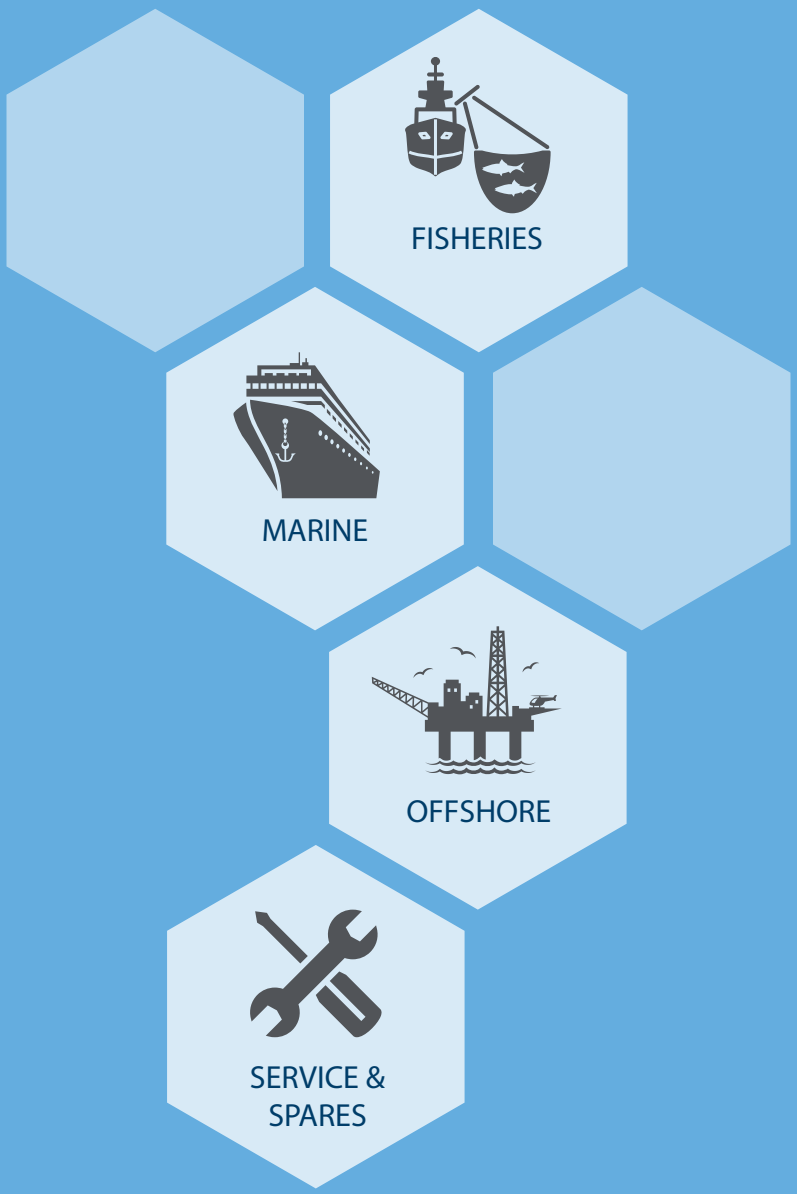


INNOVATIVE
CLIMATE & COOLING
SOLUTIONS

Heating Ventilation Air Conditioning Refrigeration

By the history we create the future

Teknotherm has a history dating back to 1926 as a designer, contractor and manufacturer of marine and industrial refrigeration systems. Today we are a company fully focused on serving the maritime industry as well as the offshore industry with high quality Heating, Ventilation, Air-Conditioning and Refrigeration systems (HVAC+R). Our long experience and extensive knowledge is incorporated into our products, making Teknotherm a highly competent and reliable supplier of refrigeration systems for maritime and offshore installations.



Our goal is to be the preferred supplier of HVAC- and refrigeration systems for marine and offshore installations.

TEKNOTHERM

Flexibility is our strength

With sales, engineering and high-quality in-house production we can customize, design and build our own units from scratch together with control systems and switchboards. We can always respond to the specific needs of our customers. Further we can provide installation work and support our customers with our service- and spare parts department throughout the entire life time of your installation. Following new trends and fashions within the industry, positions our company in the front line of the development. To put it short: Flexibility is our main strength.

We focus on quality and HSE

We are experts with the rules and regulations valid for the marine and offshore industries, and we are proud to be known as a supplier of high quality products. Our focus on quality is in all phases from engineering to production. All our working processes are in accordance to the ISO 9001 and 14001 – Quality Management Standard. We never compromise on health, safety and environment (HSE).

World wide business

Being a partner to the international shipbuilding and offshore industry, part of our strategy is being where the customers are. Therefore, we have established subsidiary companies in Gothenburg in Sweden, Szczecin in Poland and Seattle in USA – in addition to our Norwegian branches in Ålesund, Bergen, Oslo and Tromsø. Furthermore we have global presence through our owners, our well established network of agents and representatives in strategic markets all around the world.



ENVIRONMENT

Teknotherm has for years been focusing on environmental friendly installations meeting international- and national regulations and standards as well as the classification society's requirements for environmental notations.

An environmental friendly refrigeration system can be divided into two main categories: - Choice of correct refrigerant medium, either HFC's or natural refrigerants, and secondly; - the design of the plant. Both are equally vital to obtain a reliable, cost efficient and environmental friendly installation.

The correct medium and design shall focus on optimizing the COP value, which is equal to the efficiency, obtaining as many as possible kW of cooling effect out of a minimum use of energy. By this our customers will save fuel which is equal to less costs, and at the same time contribute to a better environment by the reduced emissions of CO2, NOx and SOx.

Arranging the refrigeration installation as an indirect system will obtain reduced refrigerant charges and minimizing the number of joints, seals and valves compared with a direct expansion system and thus reduce the possibilities for leakage of refrigerant.

By utilizing natural cooling or so-called free cooling, by using ambient low temperature conditions will contribute to less running time for a plant and respectively saving fuel and emissions.

Teknotherm is constantly working with these issues to contribute to a better environment and reducing our customers costs. With this we are a preferred expert and your adviser for correct design of your plant.

With us, you save both money and the environment



MARINE

REFRIGERATION

Products:

Cargo refrigeration

Teknotherm cargo refrigeration plants for ships carrying food for human consumption, industrial solids or liquids. Teknotherm deliver refrigeration plants for cooling «low boiling point» -liquids onboard chemical tankers or product carriers.
Our product range also includes refrigeration plants for drying inert gas and systems for cooling CO2 in low-pressure fire fighting systems.

Inert gas

Teknotherm provides a full range of high quality refrigeration units for inert-gas systems. Our refrigeration units are custom made according to the end user's specifications, and designed to be energy efficient, compact and easy to maintain.
Teknotherm is the world's leading supplier of refrigeration to inert gas systems.

Provision storage

Teknotherm provides a full range of systems for provision Storage that guarantees to keep your food fresh or frozen. Systems will be delivered as a complete package of factory assembled units with all necessary operation devices.

Marine Water Chillers, Condensing units and Heat Pumps

Chilled water units, condensing units and heat pumps for comfortable air in worldwide conditions.

Battery cooling

Chilled water units for cooled and efficient batteries

MGO Cooler

Reliable chilled water solutions towards lower sulphur emissions

We are active in all segments:

- Cruise & Ferries
- Expedition Vessels
- Yachts
- Special Vessels
- Navy Vessels
- Merchant Vessels









HEATING, VENTILATION AND AIR CONDITIONING SYSTEMS

According to Maslow's hierarchy of needs, air for breathing is one of the most essential human's need. Without air in required quantity and of proper quality a human being cannot function well.

A well-functioning HVAC system is crucial for providing the crew and passengers with fresh, clean air of desired temperature and humidity. The efficiency and wellbeing of crew members, safeguarding the condition of valuable cargoes and the maintenance of machinery and equipment onboard are key contributors to successful vessel operation. Investment in the correct design, engineering, installation and commissioning of HVAC systems onboard will provide benefits throughout the lifetime of the ship.

Teknotherm's HVAC systems;

- Ensure the best environment in areas where passengers and crew relax, work, eat and sleep
- Provide the correct supply and treatment of air in cargo areas
- Maintain required temperatures in machinery areas and provide air supply for combustion
- Control temperature, humidity and air pressure in areas with sensitive equipment
- Meet all international maritime regulations

Teknotherm is a complete HVAC system supplier for both marine and offshore. Based on the building specification, GA drawing and our extensive experience, we design and deliver the system with all equipment and accessories needed, do the startup and commissioning of the system and supports the ship with parts and service after delivery.

Our extensive knowledge about HVAC, combined with Teknotherm's product and system knowledge about refrigeration, ensures a fully integrated system. It will also give you a single point of contact for HVAC, refrigeration and provision cooling for your project, all the way from concept phase to after-market.

Do yourself a favour: contact Teknotherm for assistance at an early stage of your project.















FISHING FLEET

Keeping the catch fresh- all the way from the fishing ground to the consumer; is crucial for the fishing industry. Teknotherm has for years been a leading supplier of refrigeration systems to the world's fishing fleet. Our wide range of products covers any kind of refrigeration installation onboard a fishing vessel, both for freezing or cooling the catch at sea. A typical plant for installation onboard a fishing vessel includes one - or several - of the following options:

RSW systems

Teknotherm RSW plants mean rapid chill down and storage of the catch in Refrigerated Sea Water. Storing the catch in RSW is an efficient and cost-saving method of preserving the catch while proceeding to discharge or further on-board processing. Utilising Teknotherm RSW the catch is brought down close to the freezing point of seawater in minimum time by our highly efficient RSW-chillers.

Plate-freezer systems

For those who need the product to be delivered in a frozen state, Teknotherm refrigeration plants for plate-freezing can be delivered in any size required.

Freezing the fish into blocks is an effective and economical method of preserving the product and our plate-freezers can be supplied as vertical or horizontal models, with a variable number of freezing stations and station sizes.



FISHERIES

Air blast freezing system

Teknotherm air blast freezing plants can be supplied either for «Batch» or «IQF» freezing of the catch. Common for either systems is that they can be supplied for a number of different capacities; customized to suit each vessel's specifications.

In a Batch-freezer, the product to be frozen is placed on pallets or shelves, hung on hooks or similar in the freezing room, in which cooled air is being circulated.

In an IQF-freezer, the products are frozen individually and rapidly on a conveyor system, with low temperature air being forced upon it, thus giving a naturally shaped product of the highest quality. Teknotherm IQF (Individual Quick Freezing) freezers are manufactured both as single-belt and twin-belt models.

Cargo holds

Teknotherm's air-coolers for cargo holds can be supplied either for natural/gravity air-circulation, or for forced air-circulation, directly or via ducted system.

General

In addition to the above mentioned freezing systems, Teknotherm supplies plants and systems for ice-making, special low-temperature plants, brine freezing plants, etc.

Our refrigeration systems vary from direct expansion systems, via flooded and pump circulation-, to indirect systems, using reciprocating and screw type compressors of single stage, or compound execution. Refrigerant is preferrably of natural type to reduce impact on the environment.

Whatever Your requirements are, we will provide the optimally designed plant to meet Your specific demands the most cost-efficient way possible.





OFFSHORE

Serving the offshore industry

Teknotherm provides a full range of high quality standard as well as tailor made HVAC & Refrigeration systems for the demanding offshore industry. We can supply equipment in explosion proof execution and we design in order to comply with all major classification societies and standards such as DNV/GL, Lloyds, ABS, BV, NORSOK and Oil & Gas Companies internal standards.

Teknotherm provides HVAC & Refrigeration systems to any type of fixed and floating offshore installation:

- Fixed platforms for drilling, production and accommodation
- Semi-Submersible rigs for drilling, production and accommodation
- Jack-up drilling and production rigs
- Floating Production Storage Offloading Vessels

Engineering

A highly trained technical staff provides you with design data, documentation, drawings and certificates. Teknotherm designs and builds in-house control systems for our HVAC & Refrigeration Systems.

Products:

- Heating Systems: Air Handling Units, Electric heaters, Heat Exchangers
- Ventilation Systems: Axial Fans, Centrifugal Fans, Duct fans
- Air Conditioning Systems: Air Handling Units for single and dual duct system, fan coils
- Refrigeration Systems: Water Chillers, Condensing Units, Self-contained units
- Provision Room Refrigeration Systems: Condensing Units, Air Coolers, Valves and Piping System
- Electrical & Control Systems: Starter Panels, Control Panels

Main features:

- Factory assembled packages including internal piping and electrical cabling
- Freshwater, Seawater or Air cooled condensers
- Teknotherm touch-screen monitoring and control
- Custom design meeting all project requirements
- Reliable operation with high quality components, materials and painting
- Optimized size and weight for limited space requirements
- Easy access for service and maintenance
- High efficiency for low power consumption
- Environmental friendly refrigerants (R407C, R407F, R134a, CO2, NH3)

SERVICE/ SPARE PARTS

Fast and reliable service - wherever you are

Even the finest machinery can have occasional hiccups, and when it happens, it is good to know you can rely upon Teknotherm to come up with a solution to your problem in a minimum of time. When systems fail, time is usually the most crucial factor. Contact service for help with troubleshooting and help on board or aftersales for spares.

Spare parts for any application

Teknotherm's main office and Spare Parts Department is located in Halden. Through many years in the business, we have built up a comprehensive data base giving us rapid access finding correct parts for every application in our warehouse. The Spare Parts dept. also handles replacement components such as Teknotherm condensers, RSW evaporators, RSW filters or anything else you require.

24/7 World-class service - world-wide

Our skilled service engineers provides supervising, commissioning, warranty and repair work all over the world on all types of refrigeration plants onboard merchant marine- and fishing vessels.

Teknotherm has for many years used the compressor brands Mycom, Carrier and Bock, and our engineers are therefore especially trained for servicing these brands.

The Service Department in Ålesund has its own workshop where we overhaul or repair almost any type of refrigeration units.

The service dept. has also skilled project engineer`s ready to quote for rebuildings of your system.

Compressor replacements, capacity changes, controls upgrades and refrigerant conversions from R22 to HFC are typical jobs the service dept. deals with.

Retrofit/conversions

We can offer full overview of your refrigeration unit's situation, based upon either your own provided data or a physical inspection - with a full report of the best and most economical/ lifetime functionality alternatives.

We provide you with an offer of the most contemporary upgrade that fulfills today and tomorrow's requirements, while remaining a unit that fulfills its original purpose.

After mutual agreement, the equipment and units etc. are delivered as required, installation occurs upon your request and we provide supervising and start-up of the new unit, all in accordance to your expectations.





SERVICE & SPARES

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AUTOMATION

With development and modernization in the Marine- and Offshore Industry, automation and control has to a large extent replaced the human elements onboard the ship.

Modern vessels are equipped with high-technology machinery, and new technologies need careful handling during operations and maintenance. There is also a growing need for developing and understanding of the working, maintenance and troubleshooting of the various automated control equipments.

Teknotherm supplies high-technology automation solutions for maritime- and offshore applications from full ships automation systems to stand-alone control applications. We supply our solutions directly to yards, owners and original equipment manufacturers for newbuilds and retrofits.

Our PLC control systems is based on a programmable controller installed in the control cabinet, and with a touch-screen in the cabinet door.

The main screen of the control terminal will have the following basic functions:

- Read out of operating status for the refrigeration system
- Start and stop of compressor
- Start and stop of pumps
- Entering setpoints
- Alarms and alarm history

Other features of the control system will be :

- Password protection and user levels
- Run time equalization
- Backup of settings
- Logging of temperatures, unit pressures and running conditions for trending and report
- Export of various data to Excel for support
- Remote control, diagnosis and troubleshooting via internet
- Access through tablets, PCs etc
- Communication with IAS system



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