COOL DOWN THE GLOBAL WARMING

TEKNOTHERM MARINE

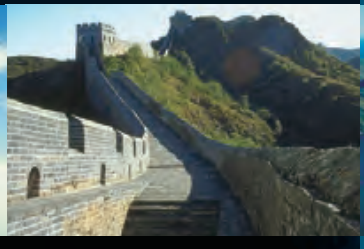
www.teknotherm.com

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 refrigeration systems. Throughout the years we have worked in close cooperation with our customers in the marine environment, learning their needs and meeting the special requirements demanded by the maritime industry. The experience gained, combined with use of modern technologies, has been incorporated into our products, and made Teknotherm a highly competent and reliable supplier of refrigeration systems for maritime installations.

Flexibility is our strength

Teknotherm has the capability to be your total supplier of refrigeration systems. This means we have our own engineering and production, we have electrical competence, we design and build our own control systems and switchboards, takes installation work and have a service- and spare parts department that will follow up your installation throughout the entire life time. Being a customizer, always in response to the specific needs of our customers, has made Teknotherm a flexible company, rapidly responding to changes in needs or requirements. Furthermore, we have an organisation that are alert to new trends and fashions within the industry, enabling us to position our company in the front line of the development. To put it short: Flexibility is our main strength.



We focus on quality and HES

Being a supplier to the maritime industry for years, we are well acquainted with the different rules and regulations valid for this specific industry. We are proud of being a supplier of quality products, and are focusing on quality in every link down the chain of production; from documentation to the product itself. In addition, all our working processes are in accordance to the ISO 9001 standard. We keep a clear focus on health, environment and safety (HES) issues, ensuring you that all our systems are designed, produced and delivered according to the latest standards.

World wide business

Being a partner to the international shipbuilding industry, part of our strategy is being where the customers are. Therefore we have established subsidiary companies in Gothenburg in Sweden, Wuxi in China, Szczecin in Poland and St. Petersburg in Russia – in addition to our Norwegian branch in Ålesund. Furthermore we have a well established network of agents and representatives in strategic markets all around the world.

Take care of our global environment, use Teknotherm's knowledge

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

The focus to obtain an environmental friendly refrigeration system can be divided into two main categories: - Choice of correct working medium known as the refrigerant and secondly; - the design of the plant. Both these issues are equally vital to obtain a good, reliable and environmental friendly installation

The refrigerants can be divided into two major groups, the artificial mediums commonly known as the HFC's, having zero ozone depletion potential and varying greenhouse warming potential, while the other group known as the natural refrigerants have zero ozone depletion potential and very low warming potential.

The design of an installation is as important as the choice of refrigerant. Through correct design of the plant the amount of refrigerant charge shall be reduced to a minimum, having trouble free operation in mind. The correct medium for a specific plant shall focus on optimizing the COP value, which indicates the goodness of the plant, meaning obtaining as many as possible kW of cooling effect out of a minimum of input driving force.

The input driving force is normally coming from a combustion driven generator set, and reduced power input to the refrigeration machinery will consequently reduce emissions of CO2 to the atmosphere from such machinery.

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.

Depending on operation conditions and sailing conditions of a vessel, natural cooling or so-called free cooling by using ambient low temperature conditions will contribute to reduce the running time for a plant giving substantial reduced overall CO2 emissions of an installation.

Teknotherm is constantly working with these issues to contribute to a better environment and always willing to be your adviser by correct design of your plant.

Serving the merchant marine

«Our strength and our power; we owe it all to the white sails,» an old Norwegian saying claims. At the time the words were spoken, Norway was a leading nation amongst those who made a living from trading on the far away continents, with the largest merchant fleet in the world.

In the era of the sail-ships, our vessels roamed the seven seas, history tells us.

The more seldom told story is about the sailors' silently praying leaving the port. In addition to the storms and other forces of the nature, they knew for certain that some of them would have to face the agony of scurvy. The prayers were said as protection against the evil spirit causing this disease.

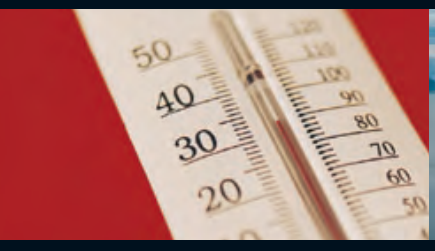
Nowadays we know the scurvy has nothing to do with evil spirits, but rather the lack of vitamin C.

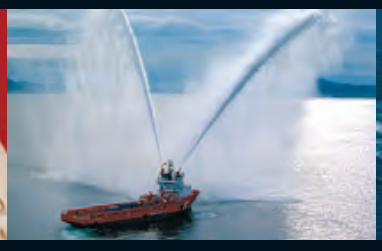
The ship-rations in the age of the sailing-ships for obvious reasons consisted of dried and salted meats and fish, rather than fruit and vegetables filled with C-vitamins. The curse on the seafarers vanished as by magic the day the first freezers and cooled provision storage were installed onboard the ships: Today sailors are able to enjoy fresh food in a well air-conditioned saloon onboard the vessel.

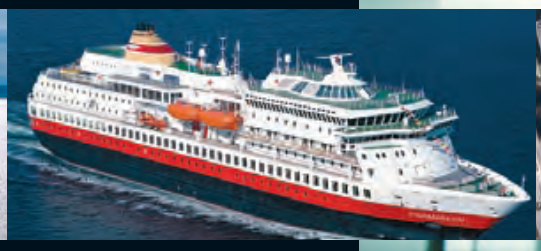
For many years Teknotherm has kept the magic alive by being among the leading suppliers of refrigeration systems to the international merchant marine. Our range of products covers every need for refrigeration installations onboard a modern vessel, while our flexibility ensures You a cost-efficient system, customized to fulfil all Your requirements.

Cargo refrigeration

Teknotherm cargo refrigeration plants can be supplied for ships carrying food for human consumption, industrial solids or liquids. Refrigeration plants for full-size reefers or partly* refrigerated vessels carrying frozen or chilled goods are available as two different systems: Either as a «direct system;» with evaporation of the refrigerant directly in the air-coolers, or as «indirect systems;» by circulating cold brine through the air-coolers.







Teknotherm deliver refrigeration plants for cooling «low boiling point» -liquids onboard chemical tankers or product carriers. Our product range also includes purpose-designed refrigeration plants for drying inert gas, as well as systems for cooling C02 in low-pressure fire fighting systems. For all these plants we take care of – and responsibility for – calculation and design of the entire refrigeration system.

Provision storage

Teknotherm provides a full range of systems for provision storage. Systems will be delivered as a complete package of factory assembled units with all necessary operation devices.

The most common installation on a merchant vessel is a Direct Expansion system, with 100% back-up provided by a standby unit.

We design and manufacture the whole system, including condensing- and evaporation units, valves, pipes, control system etc.

On request, we also supply multi-machinery packages of different types, where one unit handles freezing needs and one unit cooling rooms, while a third unit provides back-up for both.

Onboard larger passenger vessels, Teknotherm deliver refrigeration systems for the provision storages as well as centralized refrigeration plants for bar-coolers, refrigerators etc.

Air-conditioning

Air-conditioning of living quarters, control rooms, etc., is an area for which Teknotherm's refrigeration plants are highly applicable. They can be delivered either as direct expansion systems, or as water chilling units for indirect cooling.

Whichever system required, the refrigeration system must be designed in close connection with an appropriate, well functioning, ventilation system.

In accordance with required capacity and to fit Your specific demands, our plants can be delivered with compressors of reciprocating- or screw type, or as multi-compressor units fitted with several compressors etc.

Depending on Your needs, all of our units will be equipped with main components, such as compressors, electrical motors, condensers, evaporators (for chilled water units) and other necessary auxiliary equipment. Quite frequently we also pre-fabricate the pipe-work on the skid as well as electrical wiring.

For control rooms and various workshops we can deliver several types of Self Contained Units, which takes care of incidental heat gain as well as air-conditioning in the actual room. Self Contained Units are available both as standard units and customized types, always in order to ease interface work during installation.

Cold fish for a hot market

Freshly caught fish, cooked with love and affection and all the right spices; neatly arranged with vegetables of the season and a glass of chilled white wine… the true gourmet's dream.

But neither loving treatment, exotic spices nor the finest Chardonnay, can keep the gourmet cook from frowning when the dish is brought in, if the fish wasn't still fresh when it reached the chef's hands. Freshness is the very essence of the product. That's why 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.

Air blast freezing system

Teknotherm air blast freezing plants can be supplied either for «Batch» or «IQF» freezing of the catch. Common for both 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

Every fishing vessel that freezes its catch needs low temperature cargo storage for frozen products, although their specific needs vary. Teknotherm's air-coolers for cargo holds can therefore be supplied either for natural/gravity air-circulation, or for forced air-circulation.

Other systems

In addition to the above mentioned freezing systems, Teknotherm supplies plants and systems for ice-making like 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.
Whatever Your requirements are, we will provide the optimally designed plant to meet Your specific demands the most cost-efficient way possible.

Serving the offshore industry

Teknotherm provides a full range of high quality standard as well as tailor made refrigeration systems for the demanding offshore industry. Our refrigeration systems can comply with all major classification societies and standards.

We provide refrigeration systems to any type of fixed or floating offshore installation such as:

- 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
- Offshore supply vessels

Air-conditioning for accommodation as well as technical/control-rooms etc. are areas where Teknotherm's refrigeration plants and units are highly applicable. Provision refrigeration is also an area where Teknotherm has a full range of plants for all sizes and requirements.

Engineering

A highly trained technical staff will provide you with designs, documentation, drawings, certificates etc. in accordance to various environmental, customs, quality, classification, authorities or other requirements necessary. Teknotherm is designing/building switchboard and control systems (with various manufactures of PLC's) for our own refrigeration plants as well as for HVAC-plants.Tailor made plants and units for hazardous areas, outdoor placing or other customer requirements can be delivered.

Production

Our factories placed in Halden Norway and Wuxi China are fully equipped with all necessary machinery and team of highly skilled staff with their years of experience to produce high quality refrigeration systems to meet the customers demand.

Products

Brief description of our refrigeration products, standard as well as tailor made are:

MWC – Marine Water Chiller

- Single compressor series with wide capacity range up to 1500 kW
- Twin compressor series with wide capacity range up to 2200 kW

MCU – Marine Condensing Unit

- Standard or custom made range up to 200 kW
- Custom made units from 200 kW and upwards

RKA – Self-contained unit

- Custom built units with Air Handling Units and Refrigeration Machinery built together on one common skid
- Cooling capacity from 20 kW and upwards

Provision Room Refrigeration System

- Complete provision plant including:
  - Condensing Unit
  - Air Coolers
  - Control and Starter Panels
  - Valves and Refrigeration Piping System

Tailor made units

- In addition to our standard range of units we can supply Taylor made units for Hazardous areas, outdoor placing, limited space requirements etc.

All Teknotherm Units will feature:

- Factory assembled packages including internal piping and electrical cabling
- Freshwater, Seawater or Air cooled condensers
- TEKNO-TRONIC touch-screen monitoring and control
- Custom-built to meet all major classification societies
- Environmental friendly refrigerants (R407C, R134a, R404a)

Fast and reliable service - wherever you are

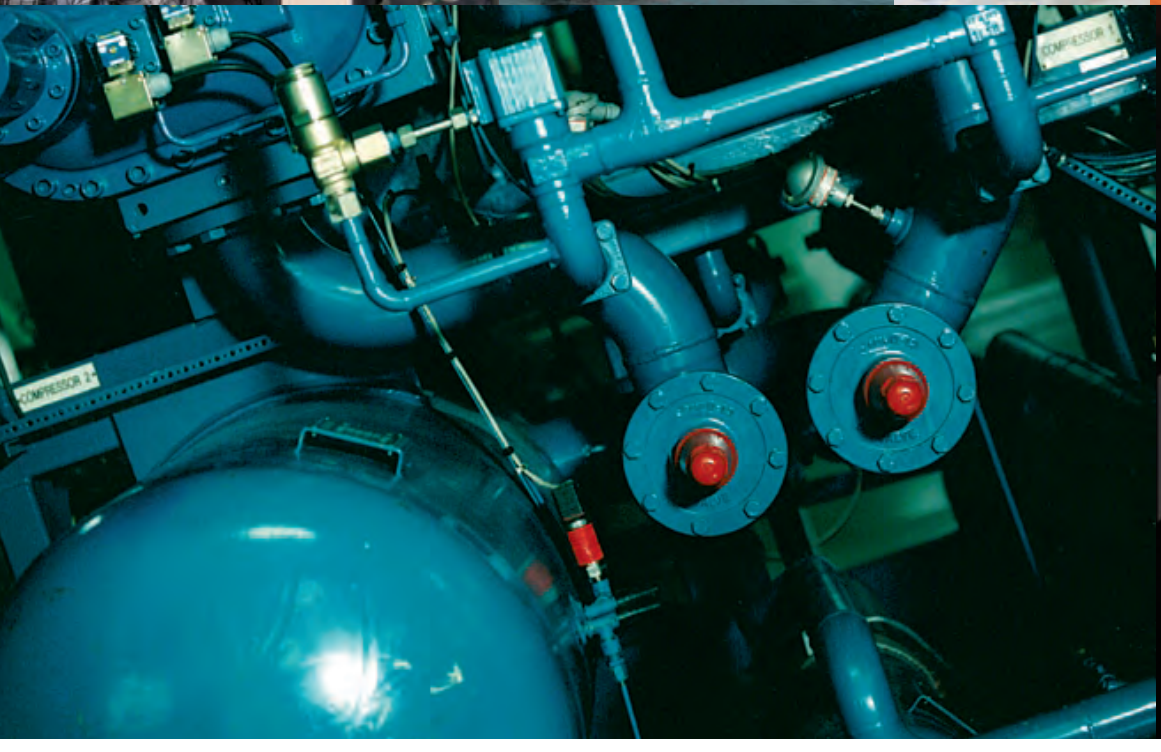
Even the finest machinery can have occasional hiccups, and when it happens, it is good to know you can rely upon Teknotherm to come up with a solution to your problem in a minimum of time. When systems fail, time is usually the most crucial factor. Teknotherm has therefore established an After Sales Department to provide you with parts and service assistance whenever needed.

Parts for any application

Teknotherm's main office and parts warehouse is located in Halden, Norway.
Close to the Swedish border with easy access to various transportation possibilities to serve the market and our customers world-wide. The After Sales Department has developed a flexible distribution system that allows us to either ship parts from our own stock, or direct from our suppliers to vessels around the world. Through our many years in this business, we have built up a comprehensive data base giving us rapid access finding correct parts for every application.

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 more than 80 years experience as an independent manufacturer in the marine refrigeration business. This gives us the product familiarity necessary to position us as a reliable service source for virtually any compressor brand.
Teknotherm has for many years used the compressor brands Mycom, Carrier and Bock, and our engineers are therefore especially trained for servicing these brands.



Successfully replacement units

The After Sales Department in Halden has its own workshop next to the production-department. Here we overhaul or repair almost any type of refrigeration units.
One of our most successful products are custom-made replacement units. These are produced complete with compressor, el. motor, suction trap, oil separator, gauges and safety switches installed on a common frame. This product serves as replacement for old compressors which are no longer available, or priced too high.
Another advantage by choosing a replacement unit is that it normally means shorter standstill of actual plant when installing the replacement unit, versus overhauling of old unit on site.

Therefore, whatever your requirement is, Teknotherm After Sales Department will be your optimal partner. ***service@teknotherm.no***

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Worldwide representation

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