Products for Marine and Offshore systems

FläktWoods

Aida Diva Foto: AIDA Cruises

Marine applications for most kinds of vessels

At Fläkt Woods we aim to exceed the increasing demands for high living comfort, energy efficiency and life-long profitability. We achieve this through product development, innovations as well as a first class service support and spare parts supply, utilizing our global distribution network.

Fläkt Woods aim to design and manufacture products according to high environmental demands, excellent living comfort and low operating costs.

Meeting the highest demands
Marine applications put high demands on HVAC products and systems. The products must reliably provide the highest degree of indoor climate regardless of climate zone where the vessels are operating. We ensure excellent quality and performance to optimize the products to build complete HVAC systems. Our manufacturing process is certified under ISO 9001, ISO 14001 and EMAS (environmental management). The aim of Fläkt Woods is to design for a good environment, a good indoor climate as well as a low operating costs.

Fläkt Woods – long experience for long term business

Fläkt started manufacturing ventilation products in Sweden 1920 and the first products for marine applications were delivered to a passenger ship in 1937. Woods started making fans almost 100 years ago and is a respected leader in the field of axial flow fans. The merger into Fläkt Woods in the beginning of 2002, created a market leader within Marine HVAC with a wide range of quality products for the Marine and Offshore Industries.

Queen Mary 2

Passenger ships

The HVAC products provide the highest quality indoor climate regardless of climate zone or extreme environmental demands where ever the vessels are operating. Fläkt Woods has all the products needed to build a complete HVAC system to supply conditioned air in cabins, public spaces and service spaces. Most HVAC systems are of Single duct, Double duct or Fan-coil type depending on the design of each vessel.

Passenger ship applications references

Cruise Ships	Owner	Year of delivery
Oasis of the Seas	RCCL	2010
Alure of the Seas	RCCL	2010
Aida 1–6	Aida Cruises	2006–2011
Tallink Star	Tallink/Silja	2007
Viking Line	XPRS	2008
Voyager Class Ships	RCI	1999–2001

Ferries	Owner	Year of delivery
MSC Cruises	MSC	2006–2010
MS Nordlink	Finnlines	2007
Jaltland	Nordlink	2002
Stena Britannica	Stena Line	2000

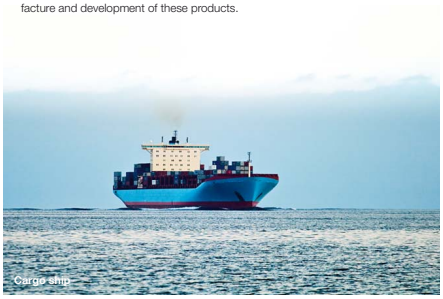
Cargo ships

Compared to passenger ships there are other demands depending on the cargo carried by these ships such as oil, gas, bulk, forest products or cars etc. Each type of cargo has specific demands for efficient ventilation and air conditioning to ensure good environmental care both for cargo and crew.

Engine room, cargo hold and car deck ventilation are examples of where it is especially important to have the right products to build a proper ventilation system. We have long experience in design, manufacture and development of these products.

Naval ships

These ships normally have extreme demands and depending on type of vessel and space available each system must be customized.
The products often need to be shock proofed and designed for full redundancy as the systems must operate efficiently with 100% accessibility.
This regardless of operation, climate zone or other conditions onboard frigates, patrol boats, mine sweepers or even onboard submarines.


Cargo ship

Cargo and naval ship applications references

Cargo

- Wallenius Line
- Stena Line
- Maersk Line
- Grimaldi

Navy

- US Navy/Coast Guard
- Royal Navy
- Italian Navy
- Swedish Navy/Coast Guard

Frigate


Icebreaker

Demanding conditions for the Offshore Industry

Fläkt Woods Group have vast experience from most kinds of applications including the Offshore Industry, regardless if it comes to extreme environmental demands, like climate zones, explosion proof and sea water cooling, or other classification as well as regulation related demands.

Flexibility and adaptability
As our product manufacturing philosophy is based on flexibility we do our utmost to adapt to the different requirements. Our Offshore related products are designed, manufactured and tested, according to valid standards, for quick installation and commissioning.

Environmentally aware
Fläkt Woods designs the products to make them environment friendly, to create a good indoor climate, a low operating cost as well as high accessibility to the HVAC systems.

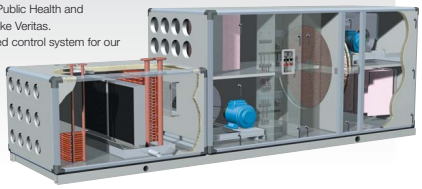
Offshore applications references

Plattform (products)	Owner	Year of delivery
Petrobras	Petrobras	2010
BP Skarv (AHU)	BP	2009
MPF (AHU)	Shell	2008
AKPO (AHU ATEX)	Total	2007
Moho Bilondo (AHU ATEX)	Total	2007
Tapti (AHU ATEX)	BP	2007
Korstö (AHU)	Statoil	2007
Petronig 1–3 (AHU, ATD)	Petrobras	2006–2007
Seadrill 8+9 (AHU, ATD)		2006
Sakhalin	Shell	2005
Volve	Aibel	2005
Thunderhorse	BP	2003
Kristin	Statoil	2003

A wide range of products to build a complete HVAC system

Modular Air handling units
EUMM is a stable, high performance air handling unit with a large variety of different functional sections from damper, air filter, heat exchanger, fan, cooling and heating coils, dehumidifier to smoke dampers. EMAA is a further development of the EUMM and complies with the standards of US Public Health and classification societies such as Lloyds, Det Norske Veritas.

Fläkt Woods Control Master is a standardised control system for our AHU with the simplicity of an analogue system but combined with the potential brought by a digital system. This system may either be integrated in an EMAA or fitted in a separate cabinet to a modular EUMM.



Centriflow Plus 3000
Fläkt Woods expands its famous plug fan range with a high-pressure version, Centriflow Plus 3000 – and advanced direct-driven plug fan with maximum pressure of 3000 Pa.

Thanks to our new impeller direct-driven plug fans can be used in marine, hygiene and electronics applications where higher pressures are typically required.

Until now belt-driven fans were in practice the only solution when higher pressures were required. A good exaple is Marine applications where the space is always limited and relatively small ducts must be used, so the pressure losses are high. With the new Centriflow Plus 3000 the advantages of direct drive are now available on high seas.

Centrifugal fans – Centrimaster GT
A wide range of fans, up to 50 m^3/s and 3300 Pa. Impellers are forward- or backward curved, depending on demands for air flow or static pressure. Single or double inlet, single can be either direct or belt driven. Centrimaster double inlet GX-fans are installed inside our AHU's. Material: Galvanized steel or painted galvanized steel.

Miniduct
Miniduct is circular ductwork for ships and offshore air handling systems including both insulated and uninsulated components. It is lightweight, tight, easy to install and maintain and combines uniform appereance with robust construction.

Air Terminal Devices
The air supply units are equipped for single- or dual duct systems normally to be installed above the false ceiling. These systems offer individual adjustments, manually or by electrical control, of the air flow and/or the temperature for each unit or single served area.

Air distribution via a separate air diffusor connected to each air supply unit, mounted below the false ceiling. Air flow from 20 to 80 l/s.

Heat exchangers - Regoterm
An enegry recovery unit consists of a hygroscopic rotor and a drive motor to rotate it. The marine hygroscopic rotor transfers both heat and moisture and is mainly used to decrease installed cooling capacity for the whole HVAC system. This product is a condition for efficient operation in hot and humid climate areas. The rotor is made of aluminum with reinforced-edge face surfaces for corrosive environments where our AHU's are installed.

Coils – Cooling and Heating
The coils are manufactured to cool and heat in ventilation systems, for a variety of media such as water, brines, glycol, steam, refrigerant etc. The material in all marine coils are Cu pipes and Al, Cu or Cu tinned fins. The coils are normally installed in our AHU or separate in the duct systems.

Long experience

Fläkt Woods long experience of Marine HVAC product supplies makes it easy to optimize each product to build a complete system. As most systems are unique with their different demands and as no chain is better than its weakest link, we are well aware of the importance of each adapted product to make an optimized solution. Fläkt Woods AHU's and other marine related products are designed and tested to comply with the standards of clasification societies such as Det Norske Veritas and the American Bureau of Shipping.

We Bring Air to Life

Fläkt Woods is a global leader in air management. We specialise in the design and manufacture of a wide range of air climate and air movement solutions. And our collective experience is unrivalled.

Our constant aim is to provide systems that precisely deliver required function and performance, as well as maximise energy efficiency.

Solutions for all your air climate and air movement needs

Fläkt Woods is providing solutions for ventilation and air climate for buildings as well as fan solutions for Industry and Infrastructure.

- **Air Handling Units (AHUs)**
  Modular, compact and small AHU units. Designed to ensure optimisation of indoor air quality, operational performance and service life.
- **Air Terminal Devices and Ducts**
  Supply and exhaust diffusers and valves for installation on walls, ceiling or floor are all included in our large range and fit all types of applications.
- **Chilled Beams**
  Active induction beams for ventilation, cooling and heating, and passive convection beams for cooling. For suspended or flush-mounted ceiling installation – and multi-service configuration. With unique Comfort Control and Flow Pattern Control features.
- **Residential ventilation**
  A complete range of products for residential ventilation. Consists of ventilation units, exhaust air fans and cooker hoods designed to optimise indoor comfort and save energy.
- **Energy recovery**
  Dessicant-based product and systems that recover energy, increase ventilation and control humidity.
- **Fans**
  Advanced axial, centrifugal and boxed fans for general and specialist applications. Comprehensive range including high temperature and ATEX compliant options. Engineered for energy efficiency and minimised life cycle cost.
- **Chillers**
  Air-cooled and water-cooled chillers with cooling capacity up to 1800kW. Designed to minimise annual energy consumption in all types of buildings.
- **Controls and drives**
  Variable speed drives and control systems, all tested to ensure total compatibility with our products. Specialist team can advise on energy saving and overall system integration.
- **Acoustical Products**
  A complete line of sound attenuating products, including rectangular and round silencers, Media Free silencers, custom silencers and acoustic enclosure panels.

Brochure GB-10-2008 CDJ Kommunikation

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