camfil FARR

offshore filter systems

Camfil Farr Power Systems	Application brochure
Power Systems	
Camfil - clean air solutions for turbomachinery	

Offshore Filter System supplies clean air to machinery and people

The supply of filtered combustion and ventilation air offshore is a technical challenge. In addition to the marine environment, with salt particles in dry and wet phases, there are also industrial contaminants, such as hydrocarbons, cement, shot-blast sand, drilling mud etc. In this environment, reliability is absolutely essential.

Offshore Filter Systems are designed to clean process and ventilation air on stationary and floating platform installations. High-efficiency filters clean the air and help ensure the reliability, efficiency and operating economy of the process.

Filter elements

Our filter elements have been exclusively developed for rotating machinery.

They are resistant to high humidity as well as vibrations and pulsations. The filter elements are available in a wide range of efficiency classes to provide the necessary air-cleaning with the lowest possible pressure drop.

To achieve good arrestance, long filter life, low pressure drop and the resulting low energy costs, filters with extended surface area are used. A simple rule of thumb says that when the filter area is increased by 50%, filter life is extended by 100%.

System design

The optimum filter combination forms an integrated part of a complete Air Inlet System. Details such as water handling and drainage are of vital importance to ensure a proper function. We also take great care to design the installation for simple and safe maintenance.

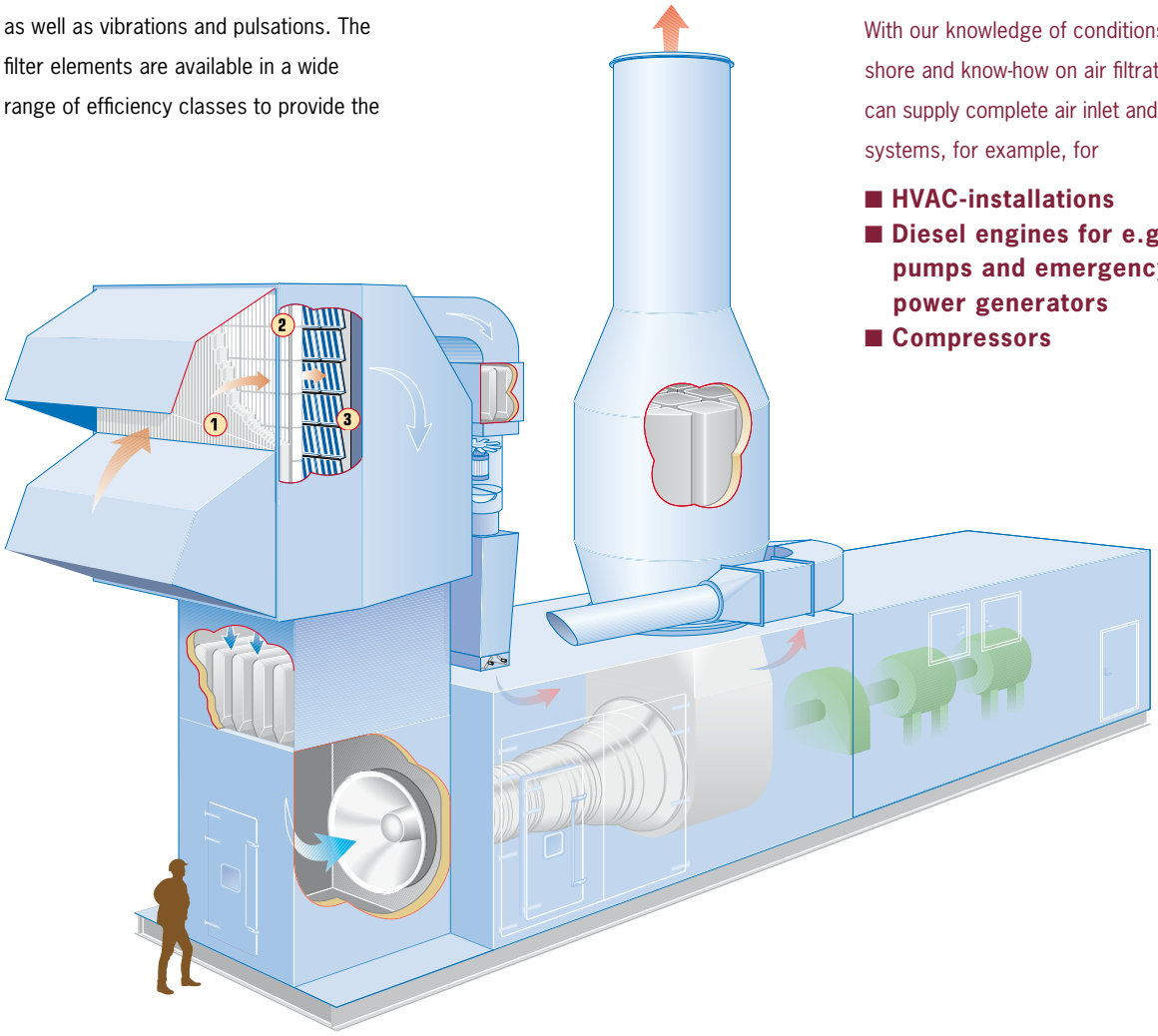
Inlet Systems are normally manufactured from corrosion resistant materials, such as marine grade aluminium or stainless steel. Aluminium is an excellent construction material, and its corrosion resistance ensures low maintenance costs. Its low specific gravity also gives up to 50% weight-saving which makes substantial costsavings possible.

Low pressure drop in filters and other components saves fuel and reduces operating costs resulting in increased overall plant efficiency.

Other air inlets for use offshore

With our knowledge of conditions offshore and know-how on air filtration, we can supply complete air inlet and acoustic systems, for example, for

- **HVAC-installations**
- **Diesel engines for e.g. fire pumps and emergency power generators**
- **Compressors**



Selecting a filter system

Gas turbines and other machinery must have the best available protection in order to maintain high efficiency with long maintenance intervals. This shall be obtained at a minimum resistance for reduced fuel consumption and CO_2-emission tax.

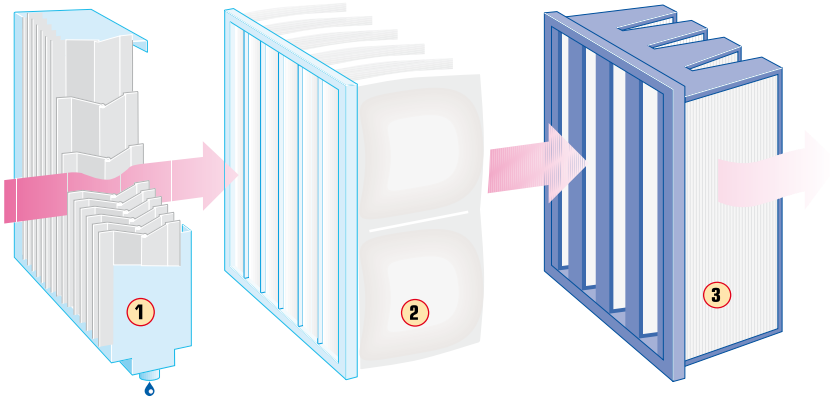
We have two different types of filter systems for offshore application. They are based on two different principles to cope with salt in dry and wet phase.

For detailed technical data, see the individual product sheets.

Njord platform, North Sea.

The Low Velocity Barrier System is the most effective, offering high filtration efficiency (class F9, EN 779) and low pressure drop. The system is a non-entraining filter system which doesn't allow droplets to re-entrain into the airstream. The final stage filter has been developed for use under high humidity conditions.
Face velocity is 2.5 - 3. 9 m/s.

Air cleaning takes place in three stages.
- The inlet section arrests snow and large water drops.
- The second stage captures small water droplets, as well as large, moist salt crystals and other large dust particles.
- The final stage filter collects small, dry salt particles, and other small dust particles.



CamVane Droplet Seperator or Weather Hood

Prefilter/Coalescer G4
– Hi-Cap alt.
– R 30/30 WR

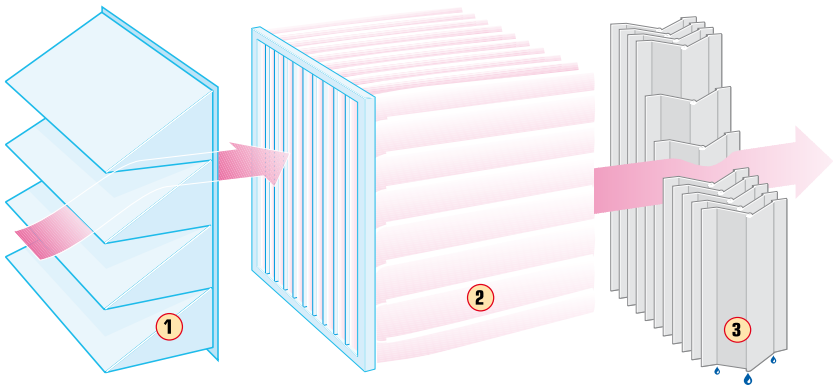
High efficiency cartridge filter F9
– Cam GT

Banff FPSO, North Sea.

Inlet system in aluminium.

High Velocity Bagfilter Systems have a smaller frontal area. Filter efficiency is moderate (class F6 - F7, EN 779) and pressure drop is kept low in spite of the high velocity due to extended surface bagfilter. The system accepts the fact that water droplets penetrate a bagfilter and separates the "carry-over" with a final stage vane separator.
Face velocity is 3.5 - 5.0 m/s.

As above, air cleaning takes place in three stages.
- The inlet section limits the penetration of water drops and snow.
- The bagfilter captures small water droplets, mist, salt crystals and dust particles.
- The Vane Separator arrests drops which re-entrain into the airstream from the bagfilter.



Weather Hood or Weather Louvre

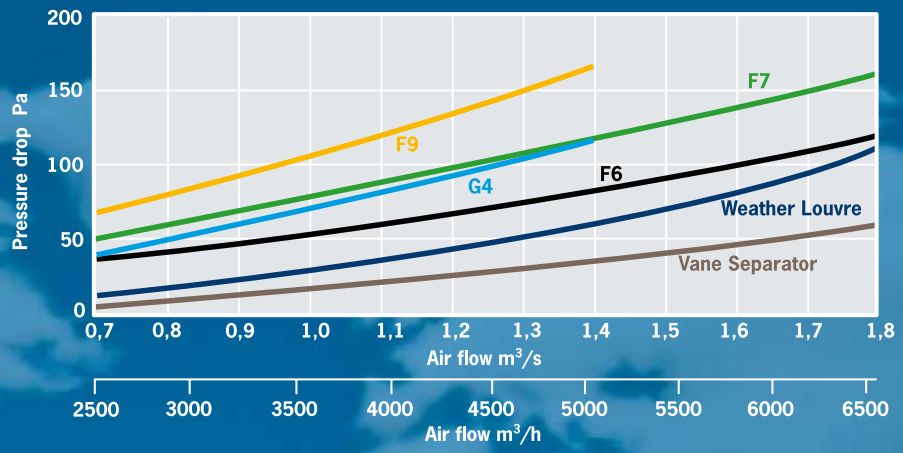
High efficiency bag-filter F6 or F7

Vane Separator

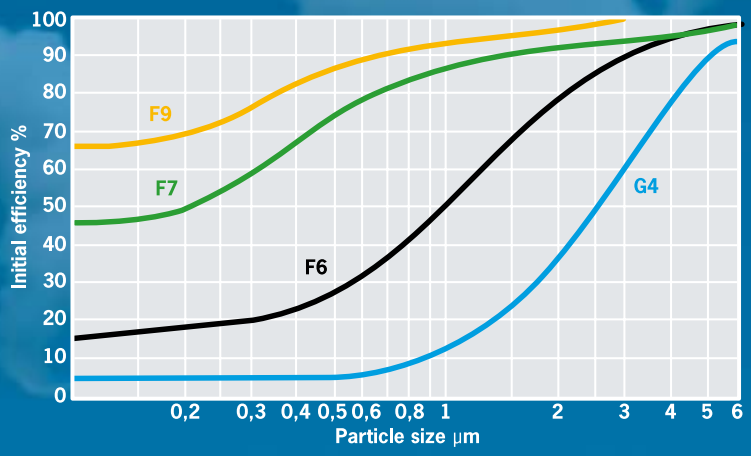
Offshore Filter Systems are designed for use on stationary and floating platform installations. We offer three other filter systems which are designed for specific environments:

- **Barrier Filter Systems**
- **CamPulse Filter Systems**
- **Marine Filter System**

Filter performance



Pressure drop for clean filters, Wheater Louvre and Vane Separator.



Particle arrestance for clean filters during tests in accordance with EUROVENT 4/9.

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