

SeaProtect Solutions

Systems to protect the sensitive marine ecosystem and the value of your investment



Protection for the maritime Environment and your investment

- Water is the source of all life on our planet.
- The balance of the extremely sensitive ecosystem of the oceans requires the most effective protection that modern technology can offer.
- The IMO and national legislative authorities have issued strict laws to protect the ecosystem of the oceans.
- Ship owners have to cope with considerable costs and risks.
- These regulations can not be complied cost-effectively with conventional separating systems.



High performance equipment for the engine room

- Leading technologies and individual systems for marine use
- System engineering from one source
- High quality of workmanship
- Unrivalled worldwide service

**Westfalia Separator provides
a system to rely on.**

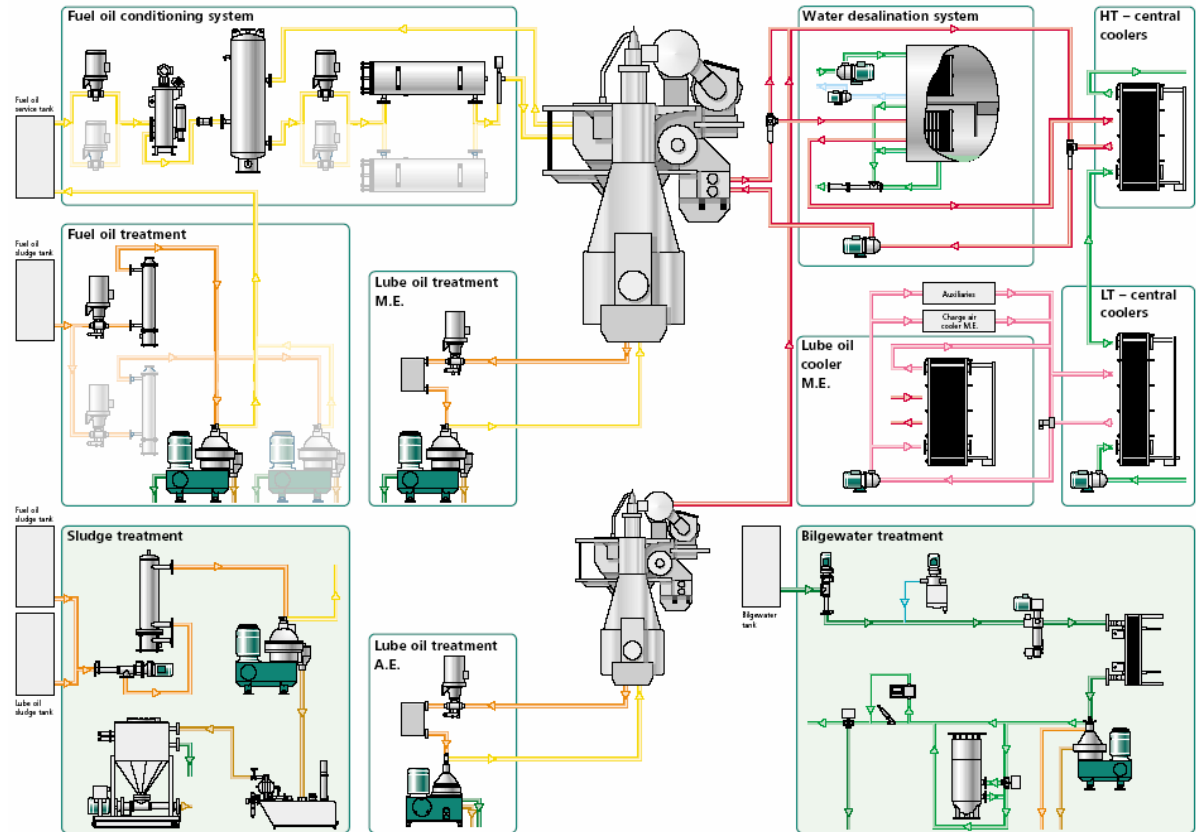




SeaProtect Solutions

Product range overview

- Fuel oil treatment
- Fuel oil conditioning system
- Lube oil treatment
- Sludge treatment
- Bilgewater treatment
- Central cooling system
- Lube oil cooling system
- Water desalination system
- Hydraulic oil treatment plants



SeaProtect Solutions



Protecting the eco-system of the oceans and the investments of ship owners

BilgeMaster



CombiMaster



SludgeMaster





The main features of the systems are:

- The high separating efficiency
- Continuous unmanned operation
- Pronounced service friendliness
- Significantly reduced disposal costs

BilgeMaster

SeaProtect Solutions



BilgeMaster **Self-cleaning Centrifugal System**

- The treatment of bilgewater on board ships is strictly controlled by national and international laws.
- The maximum oil content must not exceed 15 ppm. The limit has even been reduced to less than 5 ppm in special areas.



BilgeMaster

SeaProtect Solutions

The System - BilgeMaster
with selfcleaning separator
So that your water stays
as nature made it - clean



BilgeMaster SeaProtect Solutions

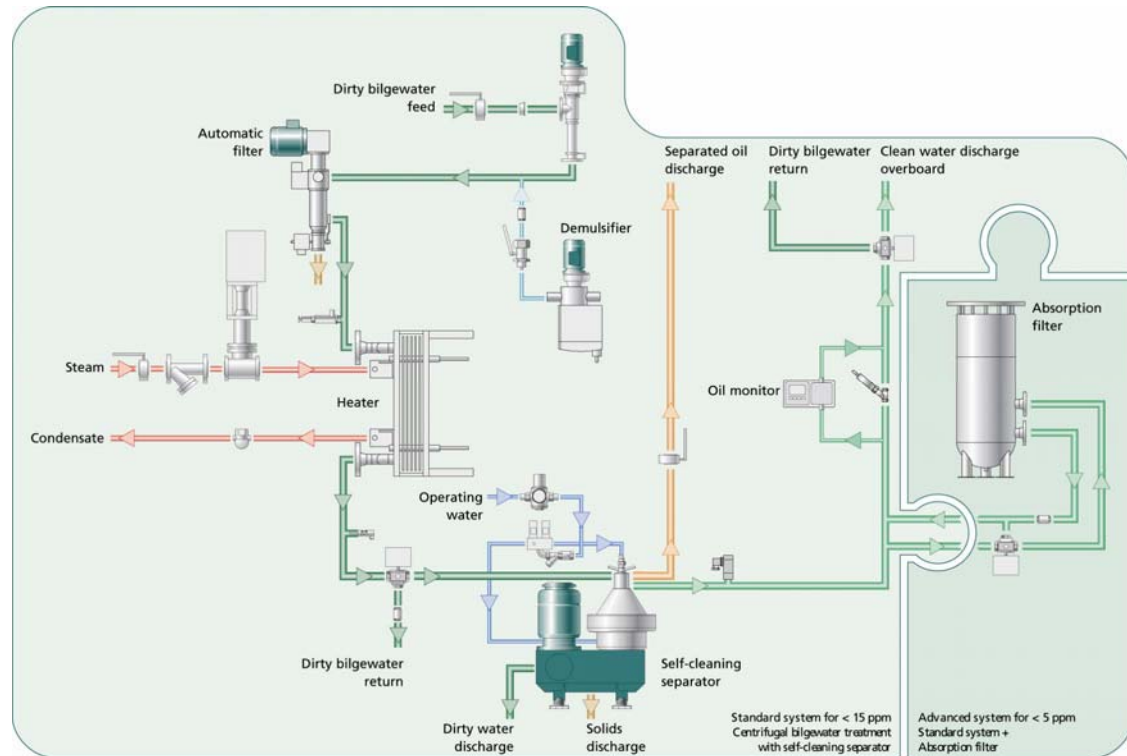


The Technology - BilgeMaster

Technologies to protect the sensitive marine ecosystem

The main components of the system are:

- Self-cleaning centrifugal separator
- Feed pump
- Filter
- Preheater
- Control panel
- Oil monitor for 5/15 ppm bilge alarms
- Base frame with small sludge tank or sludge transfer unit
- Demulsifier plant
- Absorption filter (optional for advanced system < 5ppm)



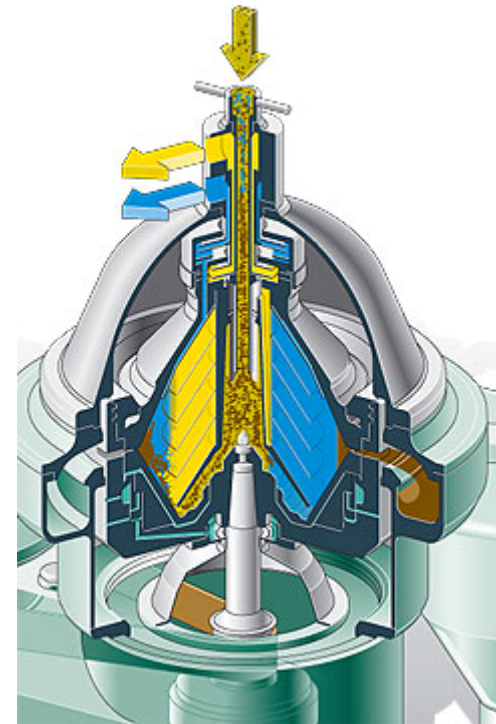
BilgeMaster

SeaProtect Solutions



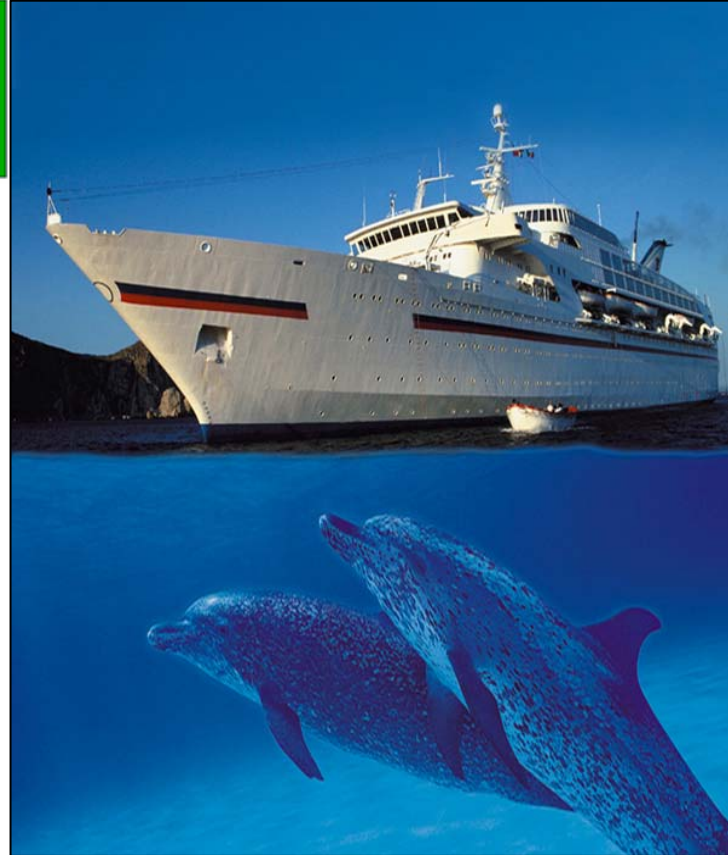
Your benefits are:

- Fuel oil treatment
- High separation efficiency due to large clarification area
- Controlled de-sludging with high solid content due to the 'HydroStop' system
- Gentle treatment due to the 'Soft Stream' system
- Continuous separation of oil and water phase
- Self-cleaning effect of disc stack due to total ejection
- No impact of the ship's movement on the separation efficiency



BilgeMaster SeaProtect Solutions

The System – BilgeMaster
with manual cleaning separator



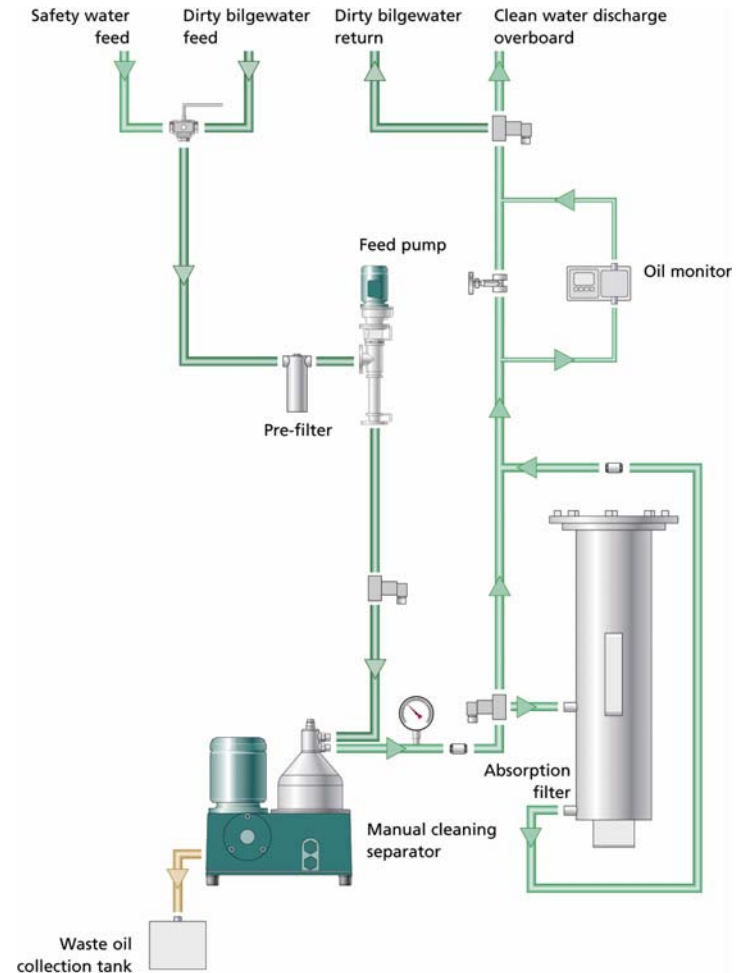
BilgeMaster SeaProtect Solutions



The Technology – BilgeMaster Clean and compact

The main components of the system are:

- Manual cleaning separator
- Pump / pre-filter
- Absorption filter
- Control unit



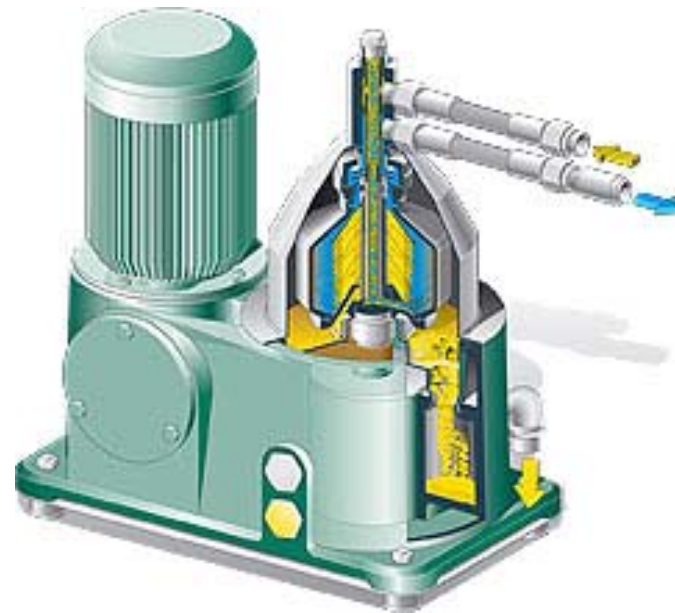
BilgeMaster

SeaProtect Solutions



Benefits:

- Water outlet less than 5/15 ppm
- Reliable
- Easy handling
- Low maintenance cost
- Small dimensions
- Low weight
- Quick return on investment



BilgeMaster

SeaProtect Solutions



Results with normal feed conditions, i.e.

solids content: $\lt 0.1\%$

chloride content: $\lt 30,000$ ppm

pH: 6 – 9

and no excessive oil emulsions in the water phase, the residual oil content in the clean water discharge is 10 – 12 ppm



SludgeMaster

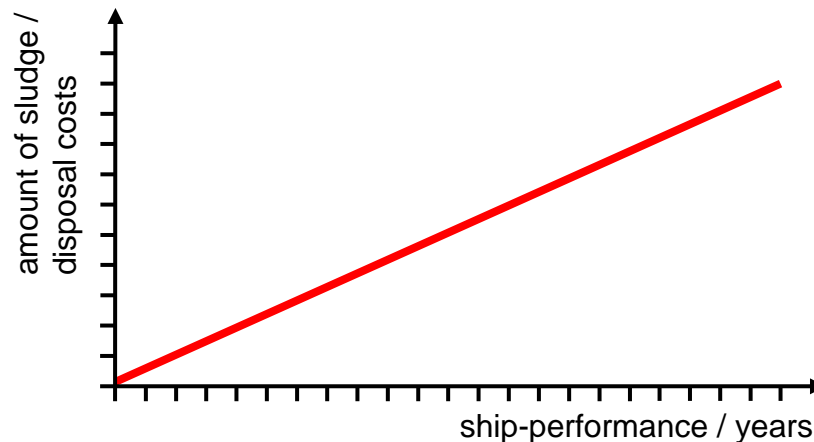
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SludgeMaster – System concepts for the future

Burning higher viscosity and higher density fuel oils together with an increasingly common usage of residuals as the fuel for medium speed diesels means...

The amount of sludge being created from both fuel and lube oil systems is increasing.



SludgeMaster

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The System – SludgeMaster with selfcleaning separator



SludgeMaster

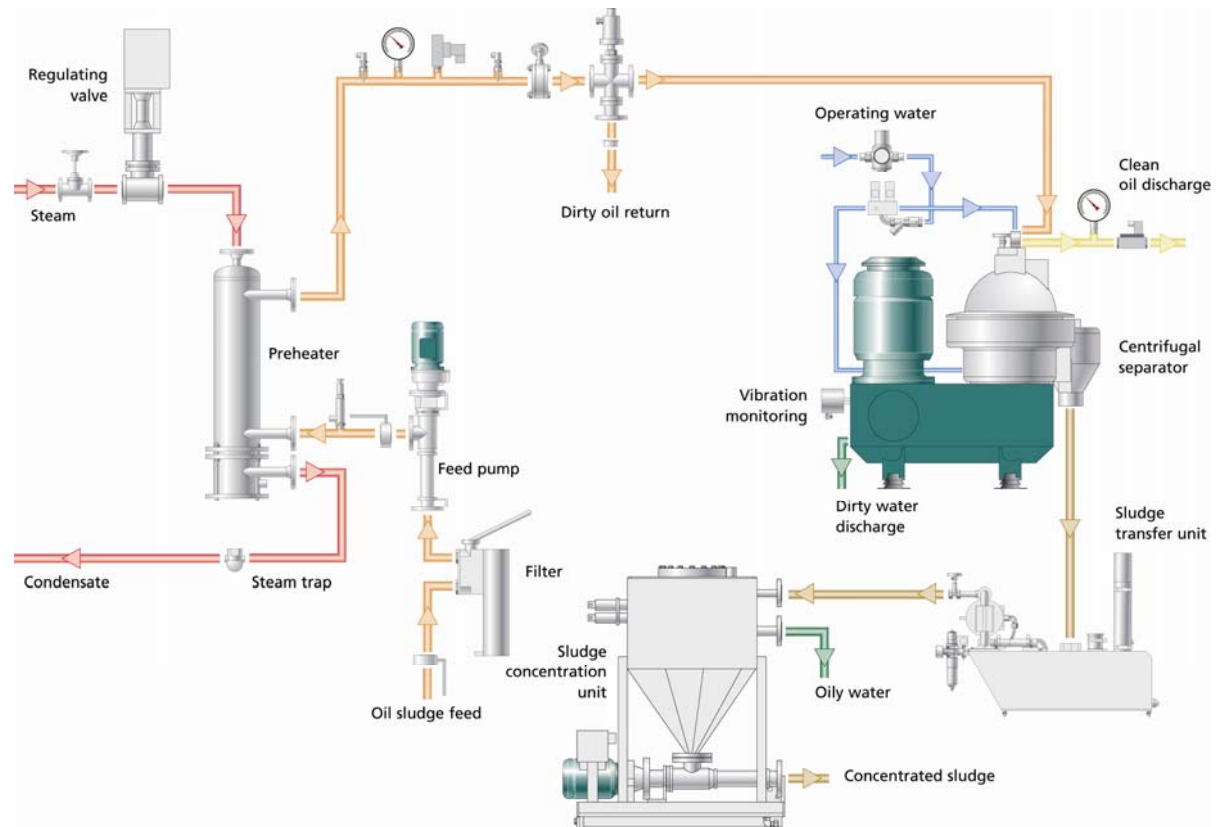
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The Technology – SludgeMaster

Economical advantages – ecological merits

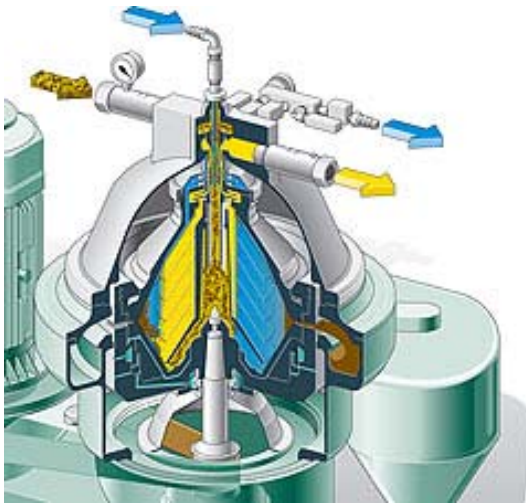
- Oil, water and solids can represent 2.5% of marine fuel consumption.
- Increasing environmental awareness
- Strict regulations and controls
- Sludge disposal is becoming an expensive problem



SludgeMaster

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Your Benefits



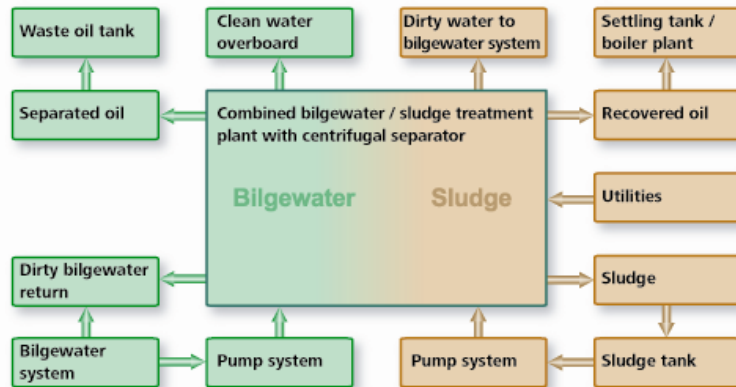
- Reducing the volume of sludge for disposal by up to 90%
- Fuel oil is recovered for re-use and recovered lubricating oil can be used as boiler fuel
- Saves up to 90 % disposal costs
- Recovers valuable fuel oil
- Unburdens the bilgewater system from oil residues
- Protects our sensitive marine ecosystem

CombiMaster SeaProtect Solutions



CombiMaster combined bilgewater / sludge treatment

- Sludge and Bilgewater Treatment
- Specially designed for the rough conditions in shipping and the offshore industry
- Capacity range is 2000 up to 6000 l/h for bilgewater
- And 500 up to 1000 l/h for sludge



CombiMaster

SeaProtect Solutions



The System – CombiMaster with self-cleaning separator



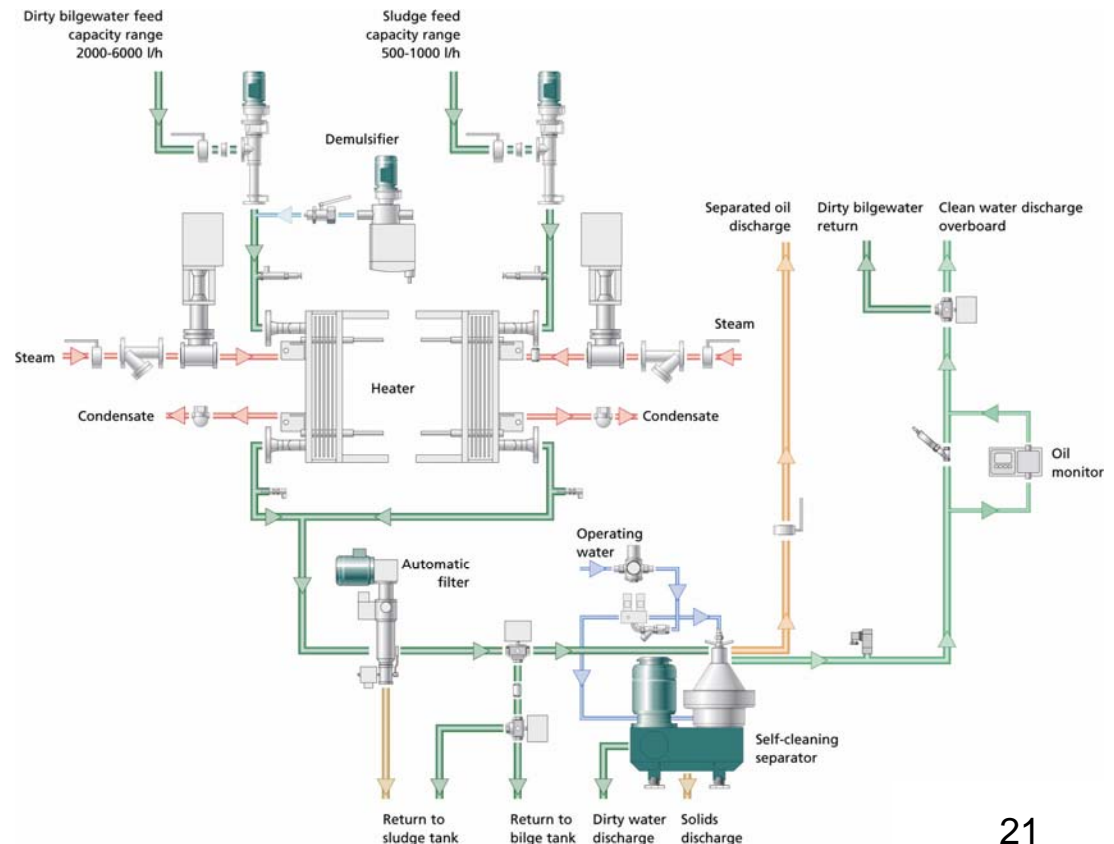
CombiMaster SeaProtect Solutions



The Technology – CombiMaster One System – double performance

Features

- Water outlet less than 15 ppm
- Sludge volume reduction up to 90%
- Reliable
- Easy handling
- Low maintenance cost
- Small dimensions
- Low weight
- Quick return on investment

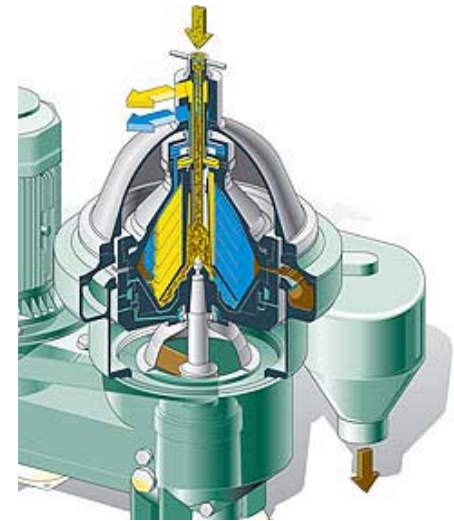


CombiMaster SeaProtect Solutions



Results with normal feed conditions, i.e.

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and no excessive oil emulsions in the water phase,
the residual oil content in the clean water discharge
is 10 – 12 ppm



Bilgewater



Sludge



SeaProtect Solutions





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