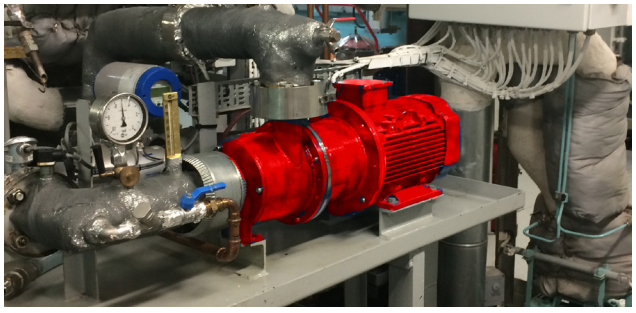
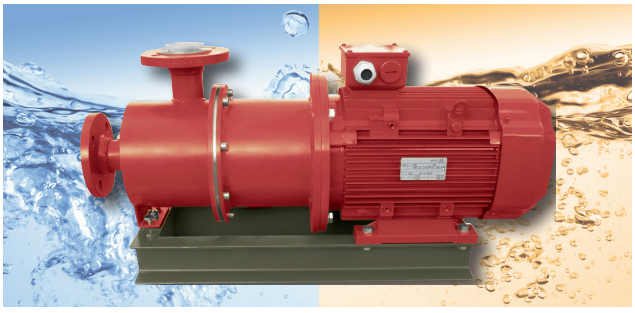
WATER POWER

AQUAMETRO
OIL & MARINE

WFE – Water In Fuel Emulsion Unit

For the sake of the environment: reduces NO_X / PM emissions.





The Water In Fuel Emulsion is a proven wet NO_X / PM reduction method. It creates stable Water-Fuel-Emulsion with HFO and MGO. This will lead to a reduction of NO_X / PM formation and will improve the atomization of the fuel. In result: a more complete combustion.

Features

- Stable Water-Fuel-Emulsion with HFO / MDO
- Improved combustion process
- Automatically controlled emulsification
- Compact and modular design
- Small footprint
- Adjustable water amount
- Combine with scrubber installation (scrubber SO_X reduction / WFE – Particle matter (PM) reduction)

Benefits

- Reduce NO_X / PM emissions
- Lower opacity of plume
- Reduced deposits in combustion chamber and exhaust gas system
- Economical solution for emissions reduction

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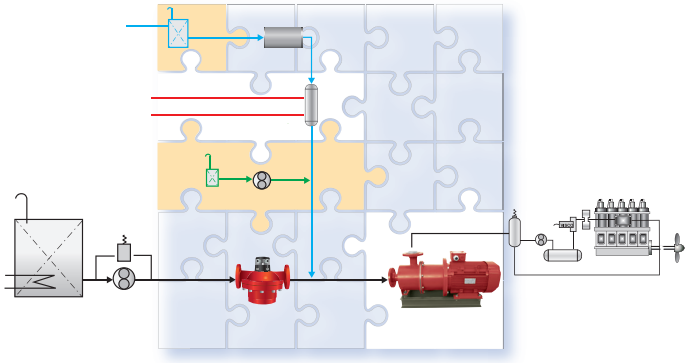
Compact and modular design

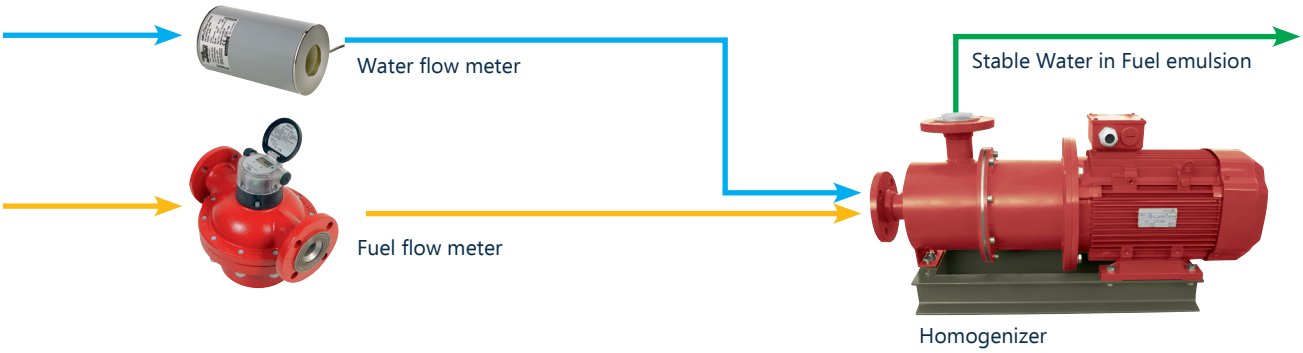
Customized design for newbuildings and retrofits.
Description:

- **WSM:** Water Supply Module
  - with or without water tank
- **WPM**: Water Preheating Module
  - steam or electrical preheater
- **EM:** Emulsifier Dosing Module
  - only for distillate fuel oils required
- **WFH:** Water-Fuel-Homogenizer
  - homogenizing water in fuel
- **WFECC:** WFE Control Cabinet
  - PLC/touch screen/monitoring system/data recording & transfer

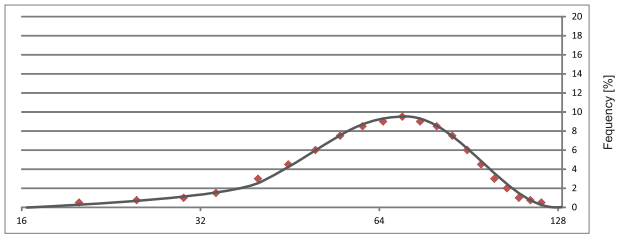


Operating principle

Water in Fuel Emulsion is a cost-effective and proven wet NO_x reduction method. The introduction of fuel with water in engine cylinders lowers the peak combustion temperature. Thus, **reduces the formation of NO_x / PM** emissions and improves atomization of the fuel, resulting in more complete combustion.
Improved fuel atomization will result in less unburned fuel, therefore **less particulate matter**, while **improving overall fuel consumption**.

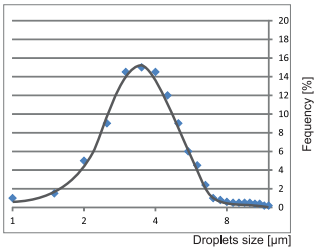


Water droplet size of non emulsified fuel oil



Frequency distribution droplets size non emulsified Fuel HFO

Water droplet size of emulsified fuel oil (<5 µm)



Frequency distribution droplets size

Second atomization

Water-in-Fuel Emulsion

Temperature increase in combustion chamber

Vaporization of water droplets

Flashing of water into steam breaks fuel into smaller droplets and lowers temperature peaks during combustion

Smaller fuel droplets provide an increased contact surface area between fuel and air