FUEL MILL

DESCRIPTION

The FUEL MILL dynamic homogenizer is a milling machine consisting of a conical-shaped, motor-driven rotor mounted concentrically inside a stationary stator. A magnetic coupling drive transmits torque from the electric motor to the rotor shaft, and provides a hermetically-sealed housing that prevents leakage. Residual fuel blends, such as VLSFO-RM grades, passing through the rotating gears is exposed to hydrodynamic power, consisting of shearing and frictional forces and maximum acceleration power with high frequency ultrasonic pressure waves.

High molecular weight asphaltenes in residual fuel blends, as large as 120 microns in size, are sheared to approximately 5-micron particle size and finely blended into the fuel. The resultant homogeneous fuel minimizes wear to fuel injectors and burns more completely in a diesel engine, reducing deposit formation due to incomplete combustion.

The FUEL MILL Homogenizer is also incorporated as an integral component of a fuel-water emulsification system to reduce smoke particulate matter and NOx emissions from the boiler/ engine exhaust.

When installed before the centrifuge(s), the FUEL MILL Homogenizer reduces fuel sludge production by as much as 80 percent. It also improves handling and burning of waste oils, greatly reducing or eliminating waste oil disposal expense.

BENEFITS OF HOMOGENIZATION

- Increases the quantity of burnable fuel per delivery
- Improves in-line viscosity control and fuel injection
- Reduces wear to the fuel handling and injection system
- Optimizes combustion of residual oil
- Reduces smoke particulate matter and NOx emissions from boiler/engine exhaust
- Maintains the turbocharger and exhaust system cleaner
- Eliminates unstable fuel during HSHFO/VLSFO/ULSFO switch-over
- Prevents penetration of lube oil film by unburned particles due to poor atomization

TYPICAL PROPERTIES

Improvements in refining processes during the past 50 years have resulted in a higher yield of distillate oil products. Consequently, refinery residue, known also as “bottom of the barrel” from refining crude oil - has a higher carbon-to-hydrogen ratio and consists of more complex hydrocarbon chains.

These enhancements in refining processes (i.e., vaccum distillation, visbreaking, etc.) have increased quantities of asphaltenes formed. Depending on the cutter stock used for blending refinery residue, the resultant blend will have a certain level of aromaticity reserve. The lower this aromaticity reserve the lower the residual fuel blend’s ability to keep the asphaltenes in suspension thus, resulting in the residual fuel blend’s tendency to form sludge. If the residual fuel blend is further blended (e.g., barge blending) using an incompatible distillate fuel oil, the blended fuel will result in even further sludging.

Asphaltene precipitation from residual fuel blends can form sludge in tanks, overloading of the centrifuges and filters.

Contact your Drew Marine representative for more information

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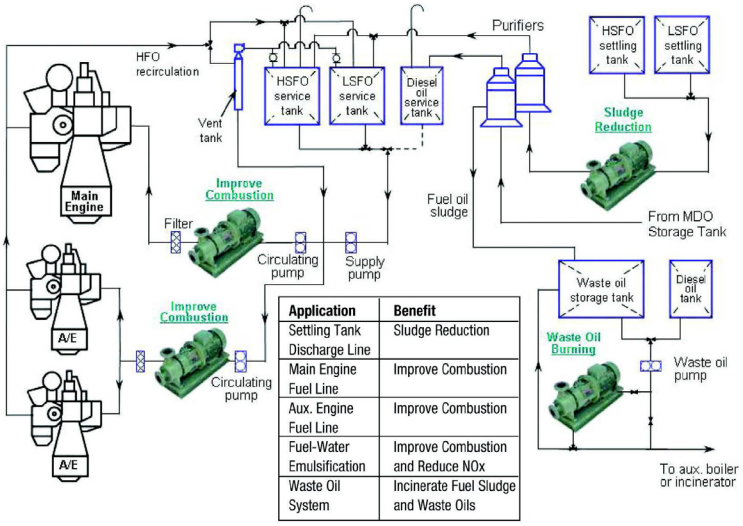
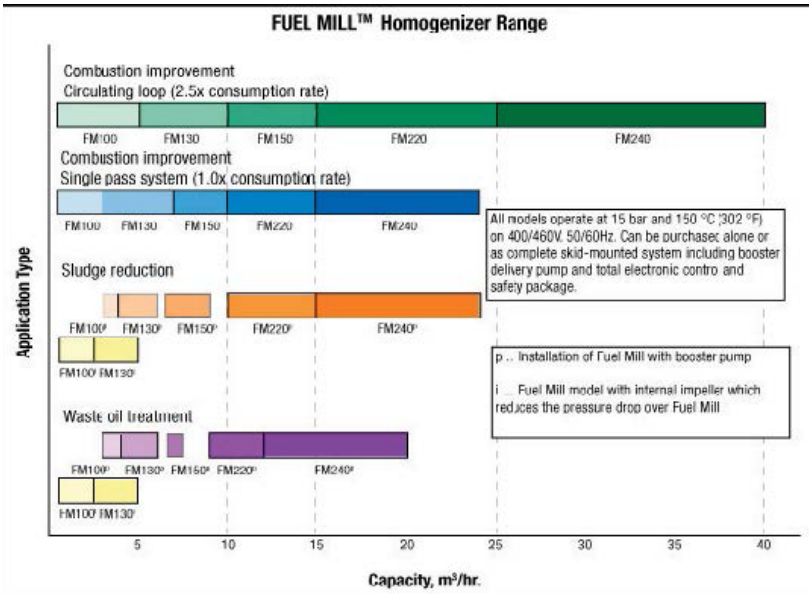


Application	Benefit
Settling Tank Discharge Line	Sludge Reduction
Main Engine Fuel Line	Improve Combustion
Aux. Engine Fuel Line	Improve Combustion
Fuel-Water Emulsification	Improve Combustion and Reduce NOx
Waste Oil System	Incinerate Fuel Sludge and Waste Oils



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