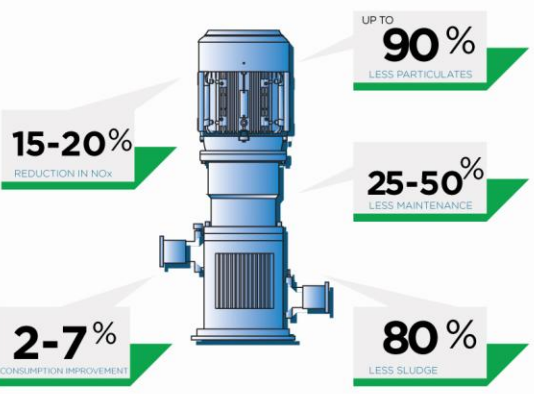


FWT SCHULZ PROPRIETARY LIQUID SHEAR FUEL MICRONIZATION AND ASPHALTENE DE-AGGLOMERATION SYSTEMS

The **FWT SCHULZ** is a Powerful Liquid Shear Fuel Micronization and Asphaltene De-agglomeration System that has been in continuous operation onboard many vessels without incident or replacement since 2007. The second generation system was introduced in 2013, including a proprietary Siemens SPS Automatic Control and Fail Safe System.

Fuel is micronized by the multi-level liquid shearing effect created by the proprietary high speed rotor/Stator design. Ultrasonic forces and the associated liquid shear forces efficiently separate organic molecule chains and micronize fuel droplets to a uniform 3 microns. The system works on most fuels.

THE FOLLOWING BENEFITS HAVE BEEN CONSISTENTLY ACHIEVED;



FUEL CONSUMPTION

Typically achieves 2% to 7% improvement in fuel consumption.

ASPHALTENE SLUDGE

80% asphaltene de-agglomeration into combustible fuel preventing sludge.

MAINTENANCE BENEFITS

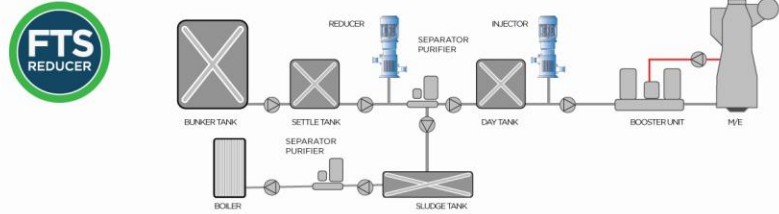
25% to 50% due to more efficient combustion / cleaner engine.

No impact - Cat Fines

BEFORE FLUE STACK ENTRY BENEFITS:

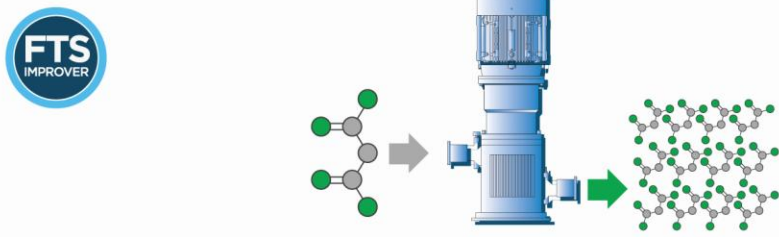
Unburnt Fuel Droplets	100% consumed.
NOX	15% to 20% reduction.
Particulates	Up to 90% reduction.
CO2	Reduced fuel based benefit.
Sulfur	No direct benefit.

The **FWT SCHULZ REDUCER** is located before the purifier and micronizes fuel droplets and de-agglomerates 80% of asphaltenes to three microns thereby enabling separator pass through and combustion. Sludge handling, disposal and scheduling costs are reduced by approximately 80%.

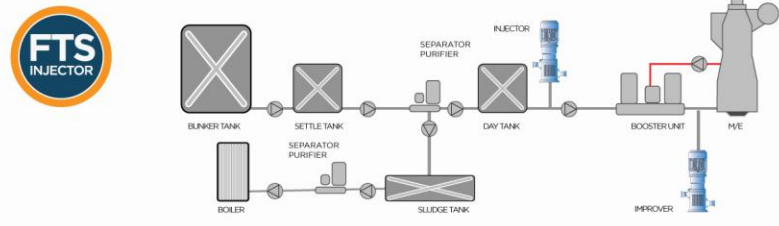


Fitted vessels can often secure a 'Low Sludge Producer' MARPOL/IMO certification enhancing trading flexibility and reducing port fees and logistical expenses.

The **FWT SCHULZ IMPROVER** is located at the fuel rail and micronizes fuel droplets increasing surface area for oxygenation thereby improving combustion efficiency and engine cleanliness.



The **FWT SCHULZ INJECTOR** is a **FWT SCHULZ IMPROVER** that is custom designed for water injection and emulsification to further increase surface area for oxygenation and improved combustion.



INSTALLATION: In-line installation is less than 2 days while the vessel is underway with only a 1 to 2 hour engine shut-down to weld a temporary fuel line by-pass. An Injector installation can take up to one week due to calibration related testing.

INSTALLATION COMBINATIONS: Typically a **REDUCER** is coupled with either an **IMPROVER** or an **INJECTOR**, but not both.