

# APPLICATION NOTE HEAVY FUEL OIL ADDITIVE DOSING

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## APPLICATION NOTE

## HEAVY FUEL OIL (HFO) ADDITIVE DOSING UNIT FOR SHIP ENGINES

**Fuel Oil is a liquid that remains as a residue when distillate fuels are removed from crude petroleum during refining. The impurities in the original crude are concentrated in the residue giving rise to a number of difficulties in the combustion of residual fuel oil. Fuel Oil is rich in sludge-forming unsaturates and sulphur, ash and moisture. The presence of paraffinic and asphaltic particles in the fuel oil also causes improper atomization and prevents efficient burning of fuel oil. Incomplete combustion results in excessive formation of soot and smoke. Therefore additives play an important role to optimize the efficiency of the fuel oil and also to prevent engine damage.**

Measuring the flow of fuel oil to the engine requires a robust, low maintenance sensor with a very low risk of obstruction in the fuel line. Bronkhorst [CORI-FLOW](#) Coriolis mass flow meter is not only a very accurate measurement, but can also guarantee maximum safety and low maintenance costs.

In close cooperation with a manufacturer of petroleum additives and several ship-companies Bronkhorst developed the ideal dosing unit for these kind of additives for heavy fuel oil ship-engines. Safety and reliability when traveling at sea has been highly taken into account. Furthermore, high dosage accuracy and very low maintenance costs result in maximum cost saving. The system uses a master flow meter for measuring the actual fuel oil flow and a slave flow meter which follows with a certain ratio and directly controls a pump to exactly dose the wanted amount of additive. The ratio can be pre-set and varied, depending on the sulfur concentration of the fuel oil.



## Recommended Products



**MINI CORI-FLOW™ M14V14I**

Min. flow 0,03...1 kg/h  
Max. flow 0,3...30 kg/h  
Pressure rating 100 bar  
Independent of fluid properties  
High accuracy, fast control



**MINI CORI-FLOW EX D XM14**

Min. flow 0,03...1 kg/h  
Max. flow 0,3...30 kg/h  
Pressure rating 107 bar  
IECEx and ATEX Zone 1 approved  
Independent of fluid properties



**MINI CORI-FLOW™ M15**

Min. flow 0,2...5 kg/h  
Max. flow 3...300 kg/h  
Pressure rating 100 bar  
Independent of fluid properties  
High accuracy, fast response



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