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Development of a Small Burner for Marine Auxiliary Boilers Burning 700 cSt Oil

Miura Co., Ltd. (Head Office: Matsuyama, Ehime Prefecture, President: Yuji Takahashi), Japan's leading manufacturer of small once-through boilers, has announced the development of a burner that can handle high viscosity fuel oil for use with composite marine boilers and small auxiliary boilers.

With the increased cost of fossil fuels in recent years, demand is growing for the ability to use the highly viscous residue of the fuel oil used on ships. Until now, it was difficult to burn highly viscous oil residues with a small burner, and kinematic viscosity up to 350 cSt^{*1} was standard. Now Miura Co., Ltd. has developed a small^{*2} burner that can burn highly viscous oil residue with viscosity from 350 cSt (at 50 °C)^{*3} to 700 cSt (at 50 °C), the upper limit of shipping fuel standards.

Features

Using a return pressure spray nozzle ensures the uniform fuel oil temperature required for good combustion.

Adopting the unconventional approach of proportional control in a small burner improves combustion efficiency.

Extending the combustion range from the earlier 50 - 100% to 33% - 100% in four stages reduces the number of ignition times and achieves efficient boiler operation.

Reducing the scavenging loss associated with start-stop during combustion enables reduced fuel consumption.

Improving combustion performance extends the maintenance cycle of the burner, thereby reducing the work of the crew.

Burner specification

- Rated output: 700 to 10,500 kW, 4 models (equivalent to composite boiler evaporation of 800 to 1,600 kg/h)
- Combustion system: Return oil pressure spray burner
- Control system: Proportional control
- Combustion range: 1:3 (TDR^{*4})

*1 Kinematic viscosity is a value obtained from the time (seconds) taken for a fluid to pass through a capillary tube under regular conditions (temperature and pressure), and a viscometer constant. A higher value indicates greater viscosity. cSt (centistoke) = Unit of viscosity

*2 Evaporation of 800 to 1,600 kg/h

*3 The marine fuel coefficient of viscosity standard used by Miura is 350 cSt (at 50 °C)

*4 Turn-down ratio: The ratio of minimum fuel flow rate in relation to the rated fuel flow rate of the burner

Enquiries

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