



Fishing Enterprise Maximizes Plant Efficiency And Achieve Fuel Savings Of 31%

United Fishing Enterprises, is one of the leaders in Fishing industry and turned to Rentech and Autoflame to reduce their fuel costs, ensure maximum savings and improve their plant's efficiency during the fishing season. The solution was to install Limpsfield burners in their boiler room and then converting existing Hamworthy Rotary Cup burners with Autoflame controllers for use in Fishmeal plant in Walvis Bay, Namibia.

Up till now popular belief has been that pressure jet burners cannot fire in short combustion chambers, which are common with most boilers fitted with rotary cup burners, thereby limiting use of pressure jet burners. With the Limpsfield burners installed, they have solved this problem and are able to easily fire high volumes of fuel into small/short combustion chambers.

The Autoflame Combustion Management System uses a microprocessor to store paired values of fuel and air positions, and direct drive actuators to achieve an infinitely repeatable positioning accuracy of 0.1° angular. The result was a significant fuel saving. Being microprocessor based the Mk6 Evolution System incorporates a series of further enhancements; second setpoint control, optimum (choke) ignition position, intelligent boiler sequencing, fuel flow metering and boasts a total of 9 patents.

New to Namibia is the inclusion of steam/electric heater on fuel pump skid with Autoflame pre-heater electric control, which utilises thyristor (phase angle control type) solid state relay control. Phase angle control provides accuracy through cutting part of the sine semi wave to control the power supply to load, this largely solves overheating in heaters and thus eliminating cracking of oil. Huge 38 kW fans supply combustion air to the burners. The fans are sized to provide sufficient air at high fire for safe, complete combustion. In reality a burner spends 80% of its life at less than 40% firing rate. At lower firing rates, the fan is pushing air against closed dampers, and in doing so consuming unnecessary electrical current. A variable speed drive allows the rpm of the fan motor to be reduced as the burners firing rate decreases. Electrical savings of 60 and 75% can be achieved.

Existing Equipment:

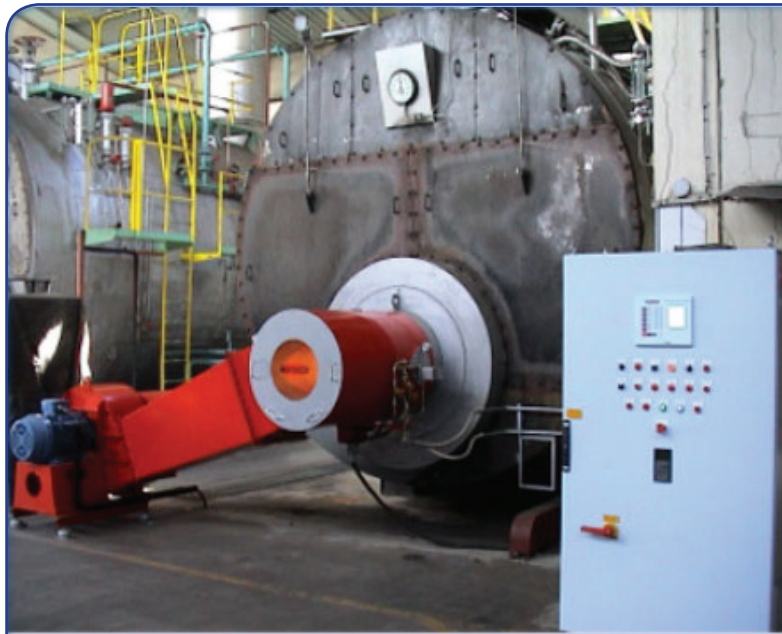
Dated Hamworthy Rotary Cup burners, inefficient combustion system

Solution:

Autoflame Mk6 MM Control System, EGA and DTI with Limpsfield Burners

Benefits:

- Reduced emissions
- Enhanced safety
- Monitored plant performance and optimised maintenance
- High level of precision and accuracy throughout the system
- Fuel savings of 31%
- Increased efficiency



Above: Front view of 18 ton boiler and control panel



Side : 7.2 ton boiler with Limpsfield burner

Additional benefits are reduced wear and tear on the motor, reduced electrical loading on the plant on start-up and a huge reduction in noise levels at low fire. The existing boiler water level controls consisted of magnetic float switches set to switch the feed water pump on and off at pre-determined levels. This causes the boiler water level to fluctuate dramatically, affecting the plants ability to produce steam. Each time the feed water pump switches on; cold water is pumped into the boiler causing thermal shock. To compensate for the cool water, the burner must now ramp up to high fire, increasing the thermal loading on the boiler and forever chasing its tale as the cycle repeats itself.

The Autoflame system uses two separate capacitance probes to continually monitor the boiler water level to within 3 mm, and by means of a modulating feed water valve, introduces just enough water to make up for the steam requirement of the process. The intelligence of the microprocessor also monitors the wave signature of the boiler, recognises foaming at peak steam draw, monitors water temperature in, steam temperate and pressure out, and by means of calculation using the heat input of the burner also displays steam production. The result is a higher quality of constant steam as the process requires it. Together with Autoflame Exhaust Gas Analyser and Data Transfer Interface, plant performance is monitored and trended to optimise maintenance, alarm conditions are logged with description, time and date stamp, plus reset time. The system is now fully automated, burning 31 % less fuel and allowing operators to get on with production and have peace of mind that plant is operating under peak performance, ensuring maximum savings and no downtime during operation.



Autoflame operates worldwide with 60+ technology centres performing installation and support. Founded in 1972, Autoflame is a British manufacturer based near London. It ensures industry-leading quality control and innovation by performing in-house R&D, engineering, software development, manufacturing production, and technical support.

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