



## Fishing Enterprise Realizes Fuel Savings Of 35%

Etosha Fishing Corporation, formerly known as the Walvis Bay Canning Company, pioneered Namibia's fishing industry in the 1940s with the country's first fishmeal and canning plant. In 1995 the facilities were completely revitalised and today Etosha Fishing boasts one of the best round can production facilities in the world. However, they were experiencing efficiency problems with it. They turned to Rentech and Autoflame for a solution to reduce the fuel costs of their plant, eliminate the ongoing water level problems and improve efficiency.

Of paramount importance to any combustion plant is the ability to provide precise, repeatable combustion. The existing Rotary cup burners used a single actuator to drive the primary air, secondary air and fuel regulating valve through a series of cams and linkages. The lost motion, hysteresis and slack inherent in any mechanical system resulted in varying combustion and poor setpoint control and thus, caused massive fuel waste.

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. Another cutting edge innovation for Namibia is Variable Speed Drive control of the combustion air fan, Exhaust Gas Analysis Trim and Autoflame fully modulating boiler feed water control. Huge 22 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 even up to 60 and 75% can be achieved. 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.

### Existing Equipment:

Dated Hamworthy Rotary Cup burners, inefficient combustion system

### Solution:

Autoflame Mk6 MM Control System, EGA and DTI

### Benefits:

- Reduced emissions
- Fuel savings of 35%
- Monitored plant performance and optimised maintenance
- High level of precision and accuracy throughout the system
- Increased efficiency



Above: Boiler no.4 Burner and Control Panel



Above : 2 Boilers with Autoflame and Pressure Jet

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.

The Autoflame Exhaust Gas Analyser uses three individual sensors to sample the O<sub>2</sub>, CO<sub>2</sub> and CO contents of the exhaust gases. It continually monitors these gases with reference to the commissioned values and makes minute corrections to the air damper position to return combustion to optimum levels and thereby overcoming the everyday variations in atmospheric conditions and fuel quality.

Finally the Autoflame Data Transfer Interface collects up to 200 items of information from each boiler system and presents it locally on the operators PC, via the network to the Managing Director and remotely over the telephone line to Rentech's head office. Plant performance is monitored and trended to optimise maintenance, alarm conditions are logged with description, time and date stamp, plus reset time.



*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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