

AUTOFLAME Mk.6 Evo/WATER LEVEL CONTROL

Combustion Management Systems



Intelligent Water Level Control

- **Operation:** Two capacitance probes both control "High level", "Required level", "First low" and "Second low" level states.
- **Safety:** Water level is checked simultaneously by both probes. Both probes self check for mechanical and electrical operation soundness. The reading from both probes are compared and self-checked against the commissioned values and internal hardware references.
- **When probes are mounted in float chambers external to the boiler shell** both probes monitor for continual water turbulence and wave fluctuation to ensure that water level in float chambers is freely connected and representative of the water level in the boiler shell. This monitoring facility is only active when the boiler is producing steam (i.e. When turbulence is expected to be present).
- **Accuracy:** Water level is repeatably controlled to +/- 3mm (1/10"). Standard sampling and correction rate is at 1 second intervals.
- **Historical Data:** The system remembers and displays the last 32 alarm level conditions. These are tagged with time and date.
- **Commissioning:** The system is extremely quick and easy to commission. Entered level states can be commissioned into the system with the boiler at operating pressure and temperature.

- **Remote Logging and Data Acquisition:** All historical records and online states can be addressed remotely through the DTI system.

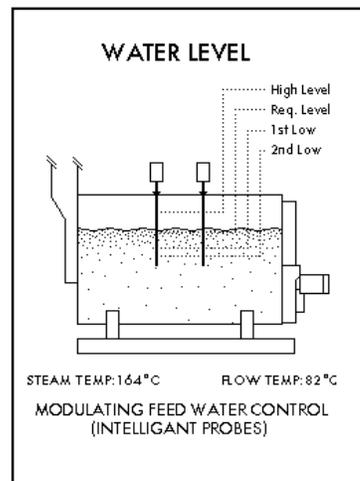
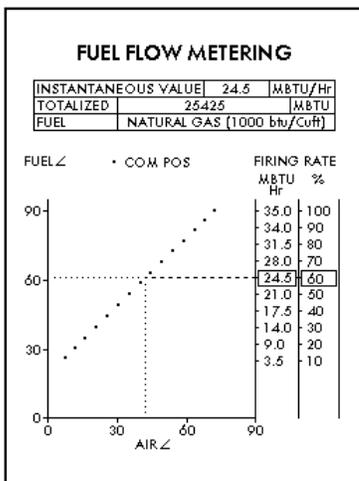
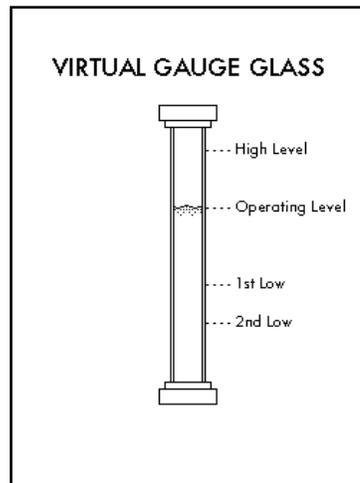
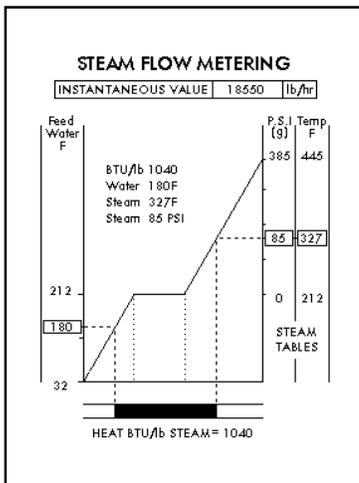
- **Control Form:** The two-probe system can operate a fully modulating feed water control system or on/off control of the feed water pump.

Steam Flow Measurement And Data Display

- The system calculates and displays steam flow in lbs/hr or kgs/hr.
- The system measures and displays steam flow temperature and feed water temperature.
- The system calculates and displays gross heat flow into boiler.
- The system calculates and displays useful heat into water (gross heat less stack and radiation losses).
- The system shows online analysis of the above via graphed digital displays on the quarter VGA screen of the MK6 Evo.
- Data logging and acquisition on all of the above values are accessible via the Autoflame DTI system.

First Out Announcement Inputs

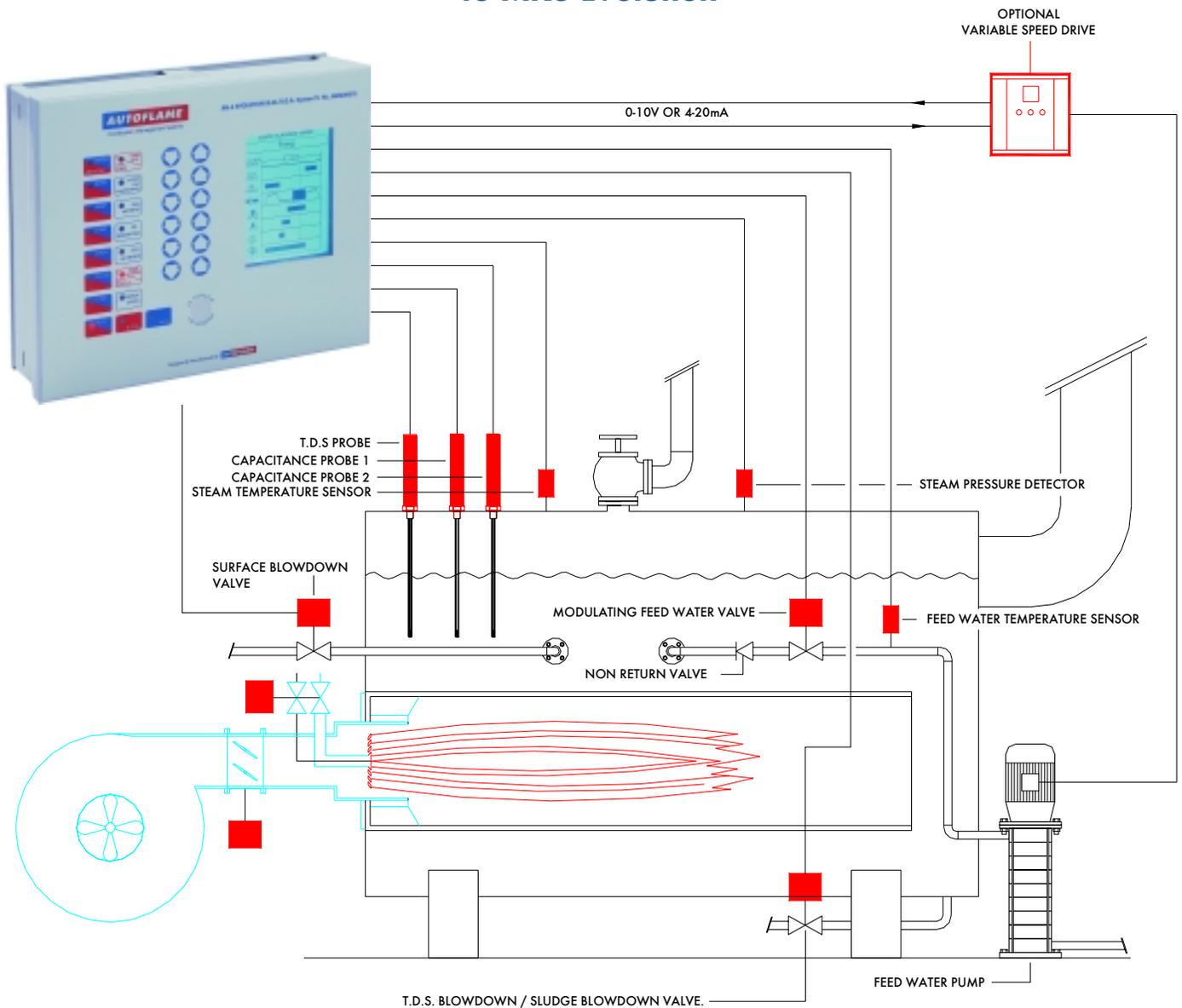
- Included on the water level/steam flow PCB are 16 first out line voltage inputs. User assignable labels can be addressed via laptop and Autoflame/Windows software utility.
- All inputs can be tagged for status i.e. High or Low level alarms for broadcasting via DTI monitoring package.
- Screen for list of first out annunciation that shows status and title assignment of inputs.



US-Patent Application No. 09828581

AUTOFLAME

Schematic for connection of Water Level Control elements to MK6 Evolution



Capacitance Probes

Probe connection: 1/2"
Probe length: 20" - 60"
Stainless Steel
PTFE coated



Feed Water Valve

Valve sizes: 1/2" to 2"
Carbon steel valve, stainless steel ball & stem
Servo Torque: 37ft.lb & 42ft.lb
NEMA 4 rated
Position feed back potentiometer
Flange spec: ANSI 300lb
Maximum pressure: 300psi
Maximum volume: 11,000gal/hr

