CleaverBrooks®

LEVEL MASTER

WATER LEVEL CONTROL

WHY THE LEVEL MASTER?

SAFETY DRIVES THE INDUSTRY

Boiler manufacturers throughout the world have been striving for years to provide safe and reliable equipment. Adhering to rigid construction standards such as ASME, UL, CSD-1, NFPA, cUL, etc., the safety in boiler design has made significant strides as they go about satisfying a plethora of needs from comfort heating to an assortment of process applications.

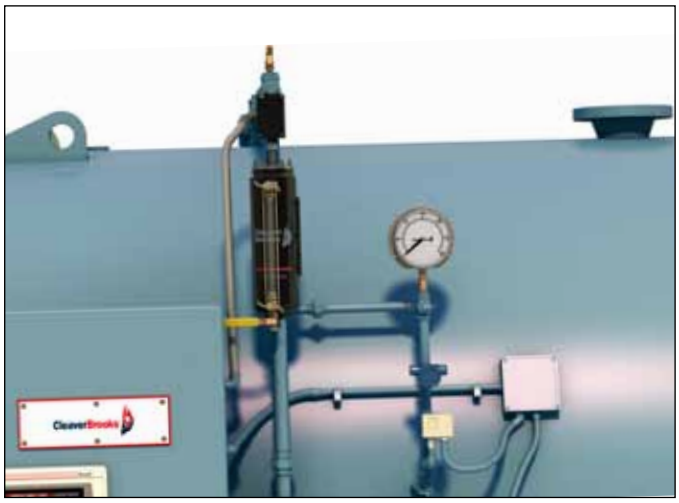
Much of the increased safety over the last 20 years, has been a direct result of boiler manufacturers incorporating some of the advances in control technology into their operating systems. Microprocessors and solid state based componentry have proven to be extremely effective and reliable replacements to the old electro-mechanical controls which were prevalent for so many years. The additional benefits offered by this type of technology in addition to enhanced safety, is the ability of the device to self check itself to assure its operating properly, enhanced security through password protection, communication either locally or remotely, diagnostic checking and logging of alarm history, just to name a few.

The primary control on the boiler; however, which has been mostly overlooked when it comes to incorporating state of the art technology, is the low water cutoff.

PREVENT A CATASTROPHIC BOILER OCCURRENCE

Considered by many as the most important safety device on the boiler, the typical low water cutoff and pump control offered today looks and functions the same as it did 75 years ago, and as such, includes some inherent problems which can manifest themselves if the control is not maintained regularly and properly.

The National Board has been tracking “incident” reports over the past 10-15 years, siting specific boiler occurrences while investigating the various causes. In almost 50% of the cases, the low water cutoff was determined to be the principal cause of the occurrences, some of which involved catastrophic losses including loss of life.



NEW TECHNOLOGIES ENHANCE SAFETY

Cleaver-Brooks, knowing this was a vulnerable area, and wanting to provide the safest boiler possible to its thousands of valued customers, decided to take direct action. The basis of design called for use of a microprocessor based control system which embraced six (6) important design criteria: Simplicity, Safety, Security, Dependability, Adaptability and Environment. The result is the revolutionary Level Master low water cutoff and pump control using the proven magnetostrictive technology (used for many years in various industries for measuring level and distance relationships) in conjunction with a solid state sensor and microprocessor based controller. Simply, the safest control on the market today.

MAGNETOSTRICTIVE TECHNOLOGY PROVIDES SAFER, MORE RELIABLE BOILERS

Single phase power (120 volts) is delivered to the Level Master’s controller where it is reduced to 24 VDC and sent to the sensor. The sensor takes this power source, reducing it further, sending a low voltage signal through a small wire imbedded in the sensor’s probe. Traveling up and down this probe is a 2” float containing an integral magnet which accepts this signal and returns its position back to the sensor. The sensor then communicates the signal to the controller where it is displayed in inches above the low water cutoff point on the LCD readout and the LED light display. This float is made of 316 SS, and is non contact/ non wearing, providing years of useful life.

KEEPING YOUR BOILER OPERATION AS SAFE AND RELIABLE AS POSSIBLE

SIMPLICITY

- Magnetostrictive technology eliminating levers and switches.
- Non contact and non wearing stainless steel float.
- User friendly controller with easy to read parameters/alarms.
- Uses single phase power to a central connection point.
- Can be used for on/off pump operation or modulating feed.

SECURITY

- Password protected regarding level settings and alarm and blowdown history files.
- On going level indication; easy to see and read exactly.

DEPENDABILITY

- Alarm and blowdown history logging.
- Blowdown reminders.
- Constant checking of electrics/electronics.
- Remote communication access (RS-232).

SAFETY

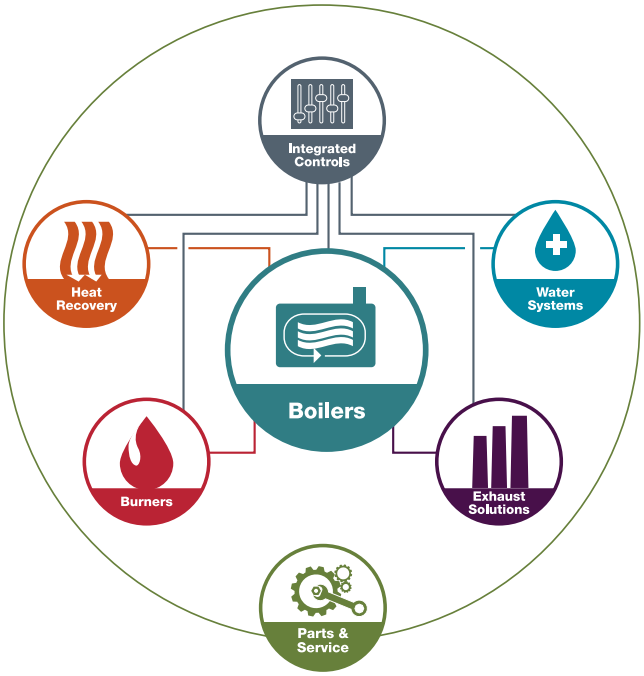
- Column blowdown reminders and message it's been done properly or improperly.
- System allows for checking the auxiliary low water cutoff and its proper operation.
- Float movement is constantly checked; stuck float shuts boiler down.
- Electrics and microprocessor circuits checked several times per second for continuity and performance.
- Low water shutdown and alarming.
- High and low water warnings.
- Alarm and blowdown history logging with time and date stamps.

ADAPTABILITY

- Direct replacement and retrofittable to all makes of boilers.
- On/off or modulating boiler feed control with same unit.

ENVIRONMENT

- Mercury free



Total integration doesn't stop with the boiler.

Only Cleaver-Brooks offers complete boiler systems, from fuel inlet to stack outlet, that are completely designed, engineered, manufactured, integrated, and serviced by one company. That integration starts with the burner, and Cleaver-Brooks has been perfecting this integral element of the boiler system through innovation and expert engineering for more than 80 years.

CleaverBrooks®

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