

INTEGRATED, INTELLIGENT

HAWK

CONTROLS SYSTEM

Hawk 1000-5000 Series



FOR MAXIMUM

INTEGRATION

EFFICIENCY

SAFETY

RELIABILITY

COMMUNICATIONS



HAWK

INTELLIGENT, INTEGRATED BOILER ROOM CONTROL SOLUTION

For over 80 years, Cleaver-Brooks has been packaging boiler room equipment. Today, we integrate the boiler/burner/controls and heat recovery for the most efficient heating or process solution possible.

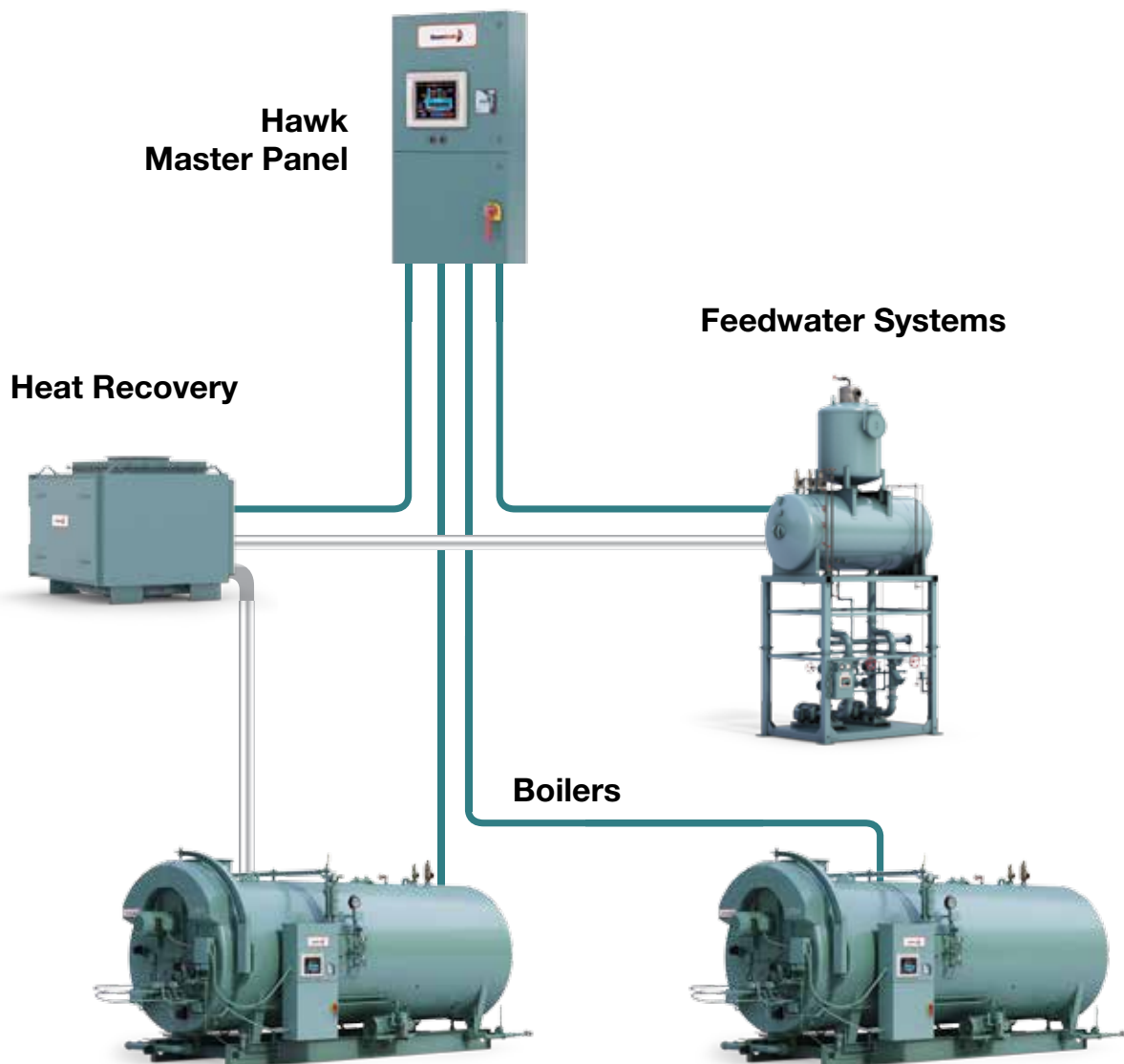
Since we engineer the core components of our equipment, we can ensure everything is made to work together for maximum efficiency, safety and reliability with a seamless, easy-to-use, human-to-machine interface.



SINGLE SOURCE INTEGRATED BOILER ROOM CONTROL FOR MAXIMUM EFFICIENCY

The Hawk is a complete boiler room solution. It not only integrates the boiler/burner, heat recovery and feedwater systems, but provides complete boiler room data to remote communication systems such as building automation systems, SCADA packages and other remote monitoring systems. While integrated, the combustion and burner management are maintained as separate devices to meet NFPA85 and other safety codes.

Because the Hawk comes preprogrammed for boiler/burner applications, commissioning your boiler system can save you time in getting your customer online.



NEW OR RETROFIT APPLICATIONS



Upgrade options give your old boiler state-of-the-art performance. Employing industrially hardened PLC technology, user-friendly touch-screen operation, and advanced operating and diagnostic messaging, the Hawk offers unmatched functionality.

Why upgrade?

- Update your boiler’s controls to the Best Acceptable Control Technology (BACT)
- Increase efficiency
- Fuel savings
- Allow variances to reduce resource utilization with data reporting and communications
- Reduce emissions with burner update and Hawk control
- Monitoring, communication and optional reporting capabilities



Retrofit your boiler’s dated control system with virtually any boiler or system

Maximize your efficiency and fuel savings with BOOST

If there’s a question in your mind whether adding components like heat recovery are worth your investment, our proprietary boiler room analysis tool can help. BOOSTSM (Boiler Operation Optimization Savings Test) utilizes key operating metrics from your current boiler system to determine how efficient your boiler room is in its current state. The tool compares costs of upgrades like heat recovery systems with potential energy savings and develops a detailed financial report to justify boiler room improvements. To learn more, visit us online or email BOOST@cleaverbrooks.com.

Total Annual Savings: \$88,447

Payback: 28.0 Months
NPV: \$216,838
IRR: 40.7%

PROJECT SUMMARY CASH FLOW												
Year	0	1	2	3	4	5	6	7	8	9	10	11
Total Implementation Cost	(\$143,780)											
Annual Incremental Pre-Tax Savings		\$88,447	\$88,447	\$88,447	\$88,447	\$88,447	\$88,447	\$88,447	\$88,447	\$88,447	\$88,447	\$88,447
Less Depreciation from Boiler 1		(\$14,378)	(\$25,880)	(\$20,704)	(\$16,563)	(\$13,257)	(\$10,597)	(\$9,418)	(\$9,418)	(\$9,432)	(\$9,418)	(\$4,716)
Before Tax Savings		\$74,069	\$62,567	\$67,743	\$71,884	\$75,191	\$77,851	\$79,030	\$79,030	\$79,015	\$79,030	\$83,731
Less Tax		(\$29,628)	(\$25,027)	(\$27,097)	(\$28,753)	(\$30,076)	(\$31,140)	(\$31,612)	(\$31,612)	(\$31,606)	(\$31,612)	(\$33,492)
After Tax Savings		\$44,441	\$37,540	\$40,646	\$43,130	\$45,114	\$46,710	\$47,418	\$47,418	\$47,409	\$47,418	\$50,239
Add Back Depreciations		\$14,378	\$25,880	\$20,704	\$16,563	\$13,257	\$10,597	\$9,418	\$9,418	\$9,432	\$9,418	\$4,716
Net After Tax Cash Flow	(\$143,780)	\$58,819	\$63,420	\$61,350	\$59,694	\$58,371	\$57,307	\$56,835	\$56,835	\$56,841	\$56,835	\$54,955
Cumulative Net After Tax Cash Flow		\$58,819	\$122,240	\$183,590	\$243,284	\$301,654	\$358,961	\$415,797	\$472,632	\$529,473	\$586,308	\$641,263

HAWK CONTROL SYSTEM PACKAGES

POWERFUL COMMUNICATIONS

The Hawk is one of the most flexible control systems available in the industry. Control options provide easy access to information to the end users Building Automation System, C-B SCADA and other remote monitoring systems. The Hawk has the ability to monitor and control multiple aspects of the boiler control such as fuel usage and hours of use, O₂ levels, stack temperature, lead/lag sequencing, boiler efficiency, water level, temperature/pressure, hot standby, combustion control and more.

The Hawk's user-friendly interface has robust local HMI trending and data trending, up to 300,000 points, allowing the operator to continually tune the system for optimal performance. You can be alerted by e-mail, text messaging, internal network or Internet of boiler status and alarms, and this same data can be shared with smartphones or the latest mobile device.



Hawk 1000 Control

The Hawk 1000 is a complete package that comes standard for precise fuel-to-air ratio control with parallel positioning, O₂ trim and variable speed drive control in one integrated system. Optional single-point and Lo-Hi-Lo control allows flexibility for commercial-type boilers requirement.

Features:

- Standard Honeywell (CB780E) integrated burner management system or Fireye (CB120E) as an option
- 4" color touch screen HMI for setup, monitoring, and data acquisition



Hawk 4000 Control

The Hawk 4000 includes complete boiler room control integration including fuel-to-air ratio controls (parallel positioning), O₂ trim, variable speed drive control on the combustion blower, economizer monitoring, draft control, custom programming and more.

Features:

- Standard Honeywell (CB780E) integrated burner management system or Fireye CB120E as an option
- Allen-Bradley Panelview Plus 7" color touch screen HMI for setup, monitoring, and data acquisition (10" screen is an option).
- uL Listed



Hawk 5000 Control

The Hawk 5000 package includes the same features and flexibility as the Hawk 4000, but is ideal for smaller capacity industrial watertube applications requiring single-point positioning, parallel positioning or full metered control.

Features:

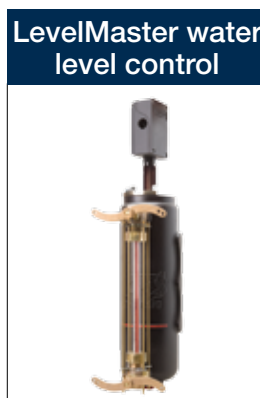
- Fireye (CB120E)-based integrated burner management system or Honeywell (CB780E) an option
- Allen-Bradley PanelView Plus™ 10" color touch screen HMI for setup, monitoring, and data acquisition

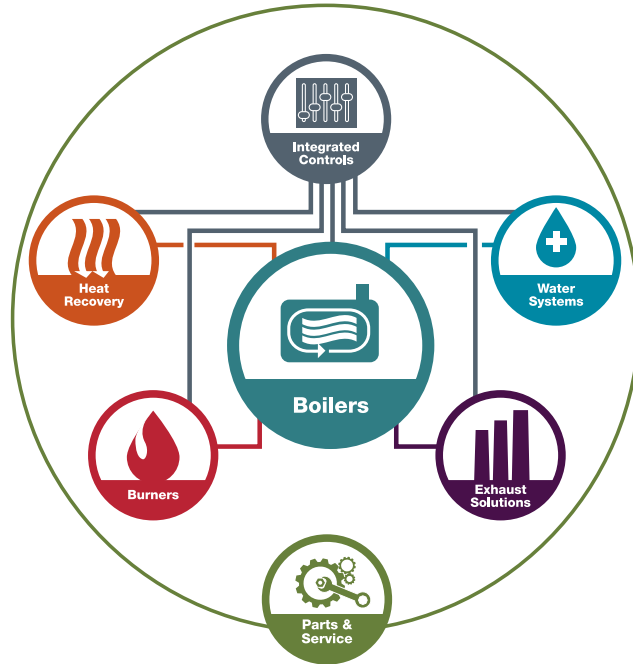
Hawk Standard and Optional Features

All Hawk packages come standard with parallel positioning, stack temperature with high cutoff set point, thermal shock protection, dual set points, Ethernet, touch screen HMI, hot standby, remote stop/start, PLC-based combustion control, flash card reader and alarm monitoring and historical monitoring.

OPTIONAL FEATURES FOR HAWK PACKAGES			
	Hawk 1000	Hawk 4000	Hawk 5000
Processor	L24ER	L35E	L35E
4" color touch screen	Standard	N/A	N/A
6" color touch screen	Optional	N/A	N/A
7" Panel View Plus color touch screen	N/A	Standard	N/A
10" Panel View Plus color touch screen	N/A	Optional	Standard
Honeywell CB780	Standard	Standard	Optional
Fireye CB120E	Optional	Optional	Standard
O ₂ trim programming (hardware priced separately)	Optional	Optional	Optional
Alarm history	Included	Included	Included
Parallel positioning	Standard	Standard	Standard
Variable speed drive (hardware priced separately)	Optional	Optional	Optional
Single point positioning/jackshaft	Optional	Optional	Optional
Hi-Low-Off control	Optional	N/A	N/A
Full metering capabilities	N/A	Custom	Optional
Economizer flue gas outlet temperature input	N/A	Optional	Optional
Economizer feedwater inlet temperature input	N/A	Optional	Optional
Economizer feedwater outlet temperature input	N/A	Optional	Optional
Additional user analog inputs	N/A	Optional	Optional
Expanded annunciation	Optional	Optional	Optional
Combustion air/ambient temperature monitoring	Optional	Optional	Optional
Online trending	N/A	Included	Included
Stack loss boiler efficiency reading	Included	Included	N/A
I/P OPC Ethernet communications	Included	Included	Included
E-mail, text messaging via internet	N/A	Included	Included
Building Automation Interface	Optional	Optional	Optional
Remote monitoring SCADA system	Optional	Optional	Optional
Data logging Premium, Elite and Universal systems	Optional	Optional	Optional
LevelMaster/water level display capabilities	Limited option	Included	Included
2 boiler lead/lag Hardware	Optional	Optional	N/A
MasterPanel lead/lag (see system specs for specific use)	Optional	Optional	Optional
Remote modulation or set point input (See system specs for use of this input)	Optional	Optional	Optional
3rd fuel capabilities	N/A	Optional	Included
Draft control integrated to PLC (draft assembly priced separately)	N/A	Included	Included

Note: See specific Hawk system specifications for complete details for each optional allowance or use.





Total Integration goes far beyond boilers.

For more than 80 years, Cleaver-Brooks has built a reputation for innovation in the boiler solutions industry. We remain committed to introducing technology and products that enable a more energy-efficient and environmentally friendly generation of steam and hot water.

When you come to us for a fully integrated controls solution, you can know that each element is created to the highest standards and all will work together seamlessly to give you a highly efficient and reliable solution for protecting your boiler system. To learn more, please call or visit us online at cleaverbrooks.com.



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