

NEW BOILER PACKAGE TO STABILIZE AND OPTIMIZE BOILER OPERATION

BOILER DIVISION CASE STUDY

Aseptic Solutions USA

Corona, California

Optimized Boiler Package

CUSTOMER APPLICATION AND KEY CHALLENGES

Aseptic Solutions USA, located in Corona, CA, is a premier state-of-the-art beverage bottling facility that specializes in co-packing nutritional products, dietary supplements, and organic and premium juices.

Boilers in this facility are necessary for providing steam for “flash” sterilization in which the products are sterilized at an increased temperature for a shorter period of time, thus allowing Aseptic Solutions to kill off all microorganisms while preserving the natural taste, aroma, vitamins, and nutrients of the product.

After experiencing an incident with their previous water tube boiler, Aseptic Solutions approached R.F. MacDonald Co. for a solution to better meet their facility needs.



One production line in the Aseptic Solutions bottling facility

THE R.F. MACDONALD CO. ANALYSIS & SOLUTION

R.F. MacDonald Co. proposed the Cleaver-Brooks Optimized Boiler package to meet the needs of Aseptic Solutions. A Cleaver-Brooks 500 HP boiler was rented to the facility with all installation and maintenance handled by R.F. MacDonald Co. until delivery of the new system.

The Cleaver-Brooks Optimized Boiler package consisted of the CBLE 700-500-150ST boiler, Hawk ICS Controller, Level Master water level control system, two-stage condensing economizer and SM30-600 Deaerator tank. The CBLE 700-500-150ST is a forced draft, horizontal firetube steam boiler rated for 500HP with fuel input capacities of 20,142 CFH based on a gas of 1000BTU/ft³ and a maximum of 150psig steam pressure. The unit operates at <9ppm low NO_x when firing natural gas.

The Cleaver-Brooks Hawk ICS Control is a new, “state-of-the-art,” technology that combines VFD, O₂ Trim, communications, data logging, and HMI for seamless boiler operation. The Level Master water level control system includes enhanced safety features with an extensive security system. The system offers self-inspection and includes password protection of operating parameters. The Cleaver-Brooks SM30-600 indoor NEMA, 1 spray-type, pressurized, horizontal deaerator is a single-tank design rated at 30,000lbs/hour. It extends boiler and steam system life by preventing corrosion of boiler surfaces, steam supply piping, condensate return lines, and reduces boiler blow-down losses, thereby improving overall boiler steam efficiency. The combustion air fan with variable-speed drive helps to decrease energy consumption by allowing the blower motor to operate only at its required speed versus the previous speed of a constant 3,600 revolutions-per-minute. The two-stage condensing economizer allows for maximum heat recovery.

BOILERS

PUMPS

SYSTEMS

SERVICE

PARTS

CORPORATE

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SAN DIEGO

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858.538.5877

www.rfmacdonald.com



The boiler with the control system in the new installation

PROJECT RESULTS

R.F. MacDonald Co. commissioned the new boiler, providing boiler start-up and fire-tuning as well as source testing. The unit met all permit requirements operating at or <9ppm NOx and 50ppm CO with an average 89% efficiency. Cleaver-Brooks predicts the CB Optimized Package will provide customers with savings of up to \$150,000 per year in energy costs while reducing greenhouse emissions by up to 600 tons per year.

	Yearly Fuel Savings	Est Greenhouse Gas Emission Reduction
300 hp	\$36,186	221 tons
600 hp	\$72,403	442 tons
800 hp	\$96,538	586 tons

Based on natural gas at \$9/MM BTU, 50% load, 10% efficiency gain at 18 hours /day



The new boiler unit with condensing economizer during construction