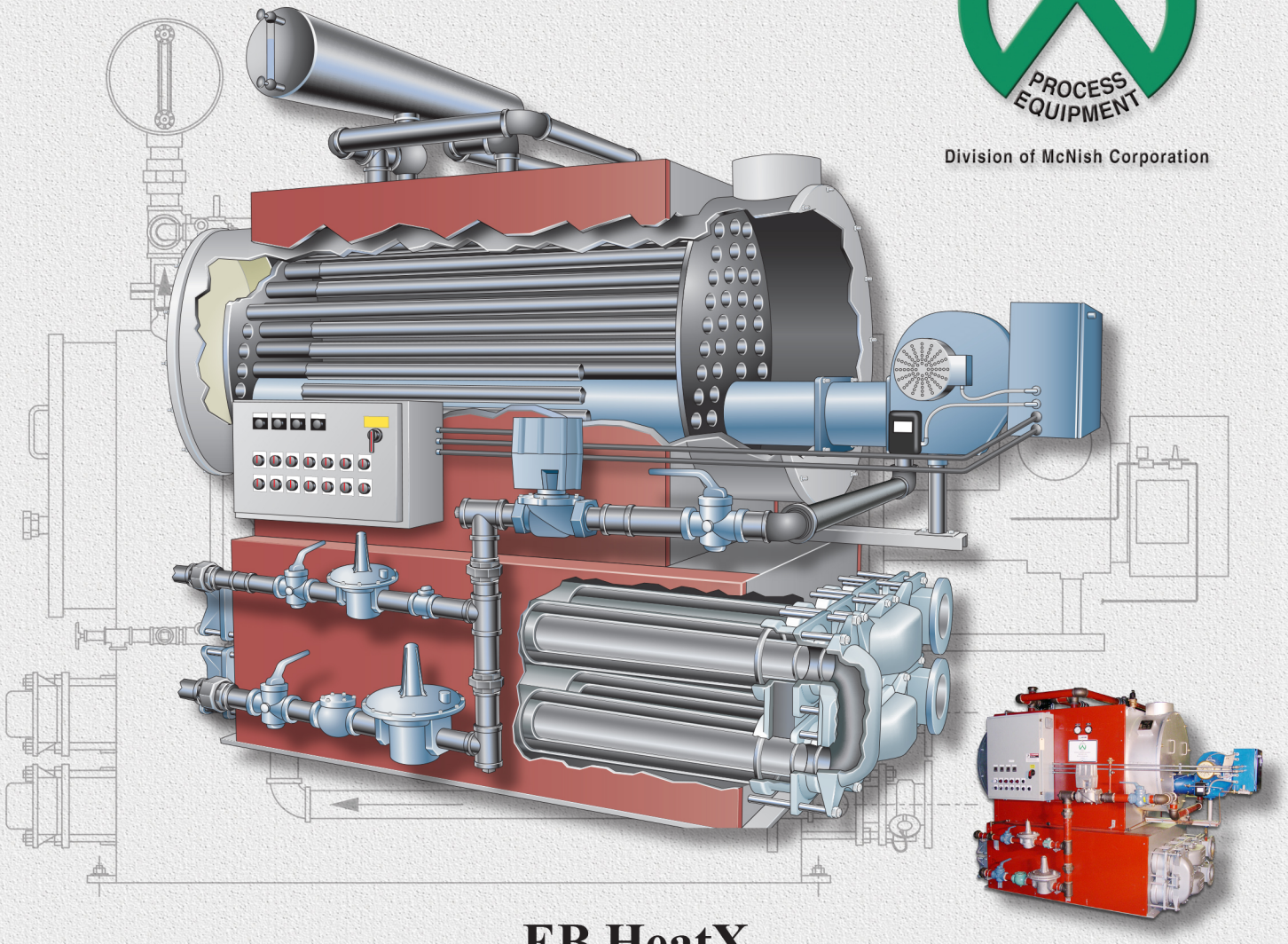
Boiler/Heat Exchanger

WALKER PROCESS EQUIPMENT

Division of McNish Corporation



EB HeatX

A complete packaged heating solution for anaerobic digestion systems

All Walker Process® Boilers and Heat Exchangers are designed in conformance with the latest ASME Code.

The Walker Process® EB HeatX is an ASME heat exchanger assembled on a common base with a commercially developed ASME hot water boiler. The boiler and exchanger are integrated with water piping, fuel lines, instrumentation and a complete electrical control system prior to testing and certification before shipment.

The boiler is a dry-back, double pass Scotch Marine boiler heated with a state-of-the-art forced draft burner for maximum combustion efficiency and operating dependability.

The exchanger is an independent compact tube-in-tube design with a sludge/water counter-flow arrangement to provide maximum heat transfer that produces an efficient and compact heating system for anaerobic digestion systems.

Boiler

- Dual Fuel Burner with state-of-the-art combustion monitoring control produces maximum combustion efficiency and operating dependability.
  Primary Fuel - Digester Gas
  Secondary Fuel - Natural Gas, Propane or Fuel Oil
- Modulating Fuel Control Technology
- Forced Draft burner design produces the most consistent air-fuel control for efficient burner operation.

Exchanger

- Concentric Tube-in-Tube design with counter-flow circulation of sludge and water.
- Return Bends - cast iron and removable.

Designed for Dependable Efficient and Long Service Life

The Walker Process® EB HeatX sludge heating system is designed with the boiler as a separate unit from the heat exchanger to allow the boiler water temperature to be maintained at a high temperature, typically 180ºF. The high temperature of the water assures optimal boiler exhaust temperature as heat is transferred from the burner flame to the boiler water and prevents corrosive flue condensation that may occur with boilers operating at a temperature lower than 160ºF. The independent boiler also provides an inventory of uniform hot water for building heat if required.

The heat exchanger feed water system automatically blends hot water with cooled water exiting the heat exchanger on demand to maintain an optimal heat transfer while preventing "baking" sludge to the inside of the sludge tubes.

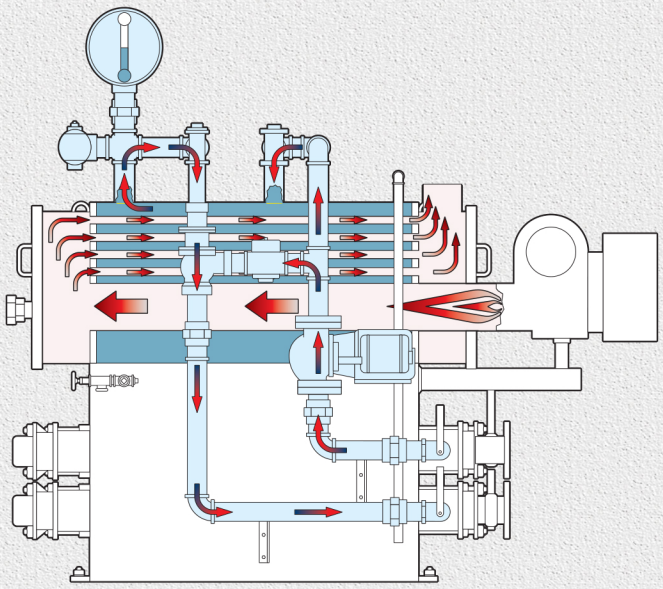
The dry-back boiler uses a long-life refractory lining to protect the boiler end plate where the heated gases turn back and enter the boiler tubes. The major advantage of dry-back construction is that it allows removal of the back plate without having to drain the water from the boiler. This feature permits inspection and cleaning of the boiler tubes to maintain peak boiler efficiency.

The dual fuel capable burner uses digester gas as the primary fuel and automatically blends in natural gas if digester gas pressure is low. The automatic switch over control system is used when the alternate fuel is either propane or fuel oil.

The concentric tube heat exchanger is designed with a counter-flow circulation scheme for the most efficient heat transfer. Sludge tubes are accessible if necessary and all sludge passageways are designed to pass 3" spheres with 4" sludge tubes or 4 1/2" spheres with 6" sludge tubes. Walker Process® designed end castings are available for a working pressure of 30 psi and for special high pressure applications to 70 psi.

All Walker Process® EB HeatX units are provided with complete electrical control systems that are thoroughly shop tested and verified prior to shipment.

Walker Process® Equipment has continuously improved the design of the type EB HeatX unit that was first introduced in the late 1940s and has hundreds of installations worldwide.



Boiler Unit Sizes	NOMINAL RATINGS (Btu/Hour)
No. 1	272,000
No. 2	387,000
No. 3	525,000
No. 4	825,000
No. 5	1,040,000
No. 6	1,528,000
No. 7	2,000,000
	These boilers maintain temperature at 180°F to provide a sufficient heat source and to prevent damaging corrosion that may result from flue gas condensation that could occur at lower boiler temperatures.
Burner	Dual Fuel, State of the Art Burner System provides maximum combustion efficiency and maximum operating dependability. The forced draft burner requires low energy input.
Fuel Control	
Blend-In System	Digester Gas/ Natural Gas
Switch-Over System	Digester Gas/ Natural Gas Digester Gas/ Propane Digester Gas/ Fuel Oil
Heat Exchanger	Counter-Flow Tube-in-Tube Type.
Hot Water Circulation System	A hot water blending control system automatically monitors heat demand to produce a controlled temperature hot water in the range of 150°F to 180°F to be pumped through the exchanger.

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