cain industries
heat recovery systems

Exhaust Heat Recovery Systems

Boiler Economizer Systems • Gas & Diesel Cogeneration Systems • Fume Incineration Systems • Finned Tubing

The Cain Industries Family of Heat Recovery Systems

DESIGNED, ENGINEERED & HAND BUILT IN THE USA

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heat recovery systems

"Manufacturing Waste Heat Transfer Products to Save Energy"

www.cainind.com

030717

Cain Industries Overview

Cain Industries is the leading designer and manufacturer of exhaust waste heat recovery systems for the following markets: **gas & diesel cogeneration systems, boiler exhaust stack economizer systems, and fume incineration systems**.

Cain Industries has developed **over 3,450 industrial heat transfer models** within its **16 product lines**. These products integrate seamlessly into any boiler exhaust, cogeneration exhaust, or incineration exhaust system.

Cain Industries, Inc.
Headquarters
Germantown, WI
USA

Cain Industries Product Markets

Boiler Economizer Systems

An extensive line of boiler exhaust economizers designed to recover exhaust waste heat (BTU) typically lost through the stack to preheat boiler feedwater, makeup water, process water, etc. for boilers ranging from 200,000 BTU input - 150,000 PPH steam.

Gas & Diesel Cogeneration Systems

Exhaust heat recovery for gas and diesel engines, gas turbines, and micro turbine generator retrofit applications from 30Kw-7Mw.

Fume Incineration Systems

Packaged fully automatic exhaust steam generators recovering large volumes of clean exhaust combustion from 600ºF-1600ºF, producing primary and/or secondary steam source.

Finned Tubing

An abundant range of custom-fabricated, industrial grade finned tubing, manufactured to meet stringent customer requirements.

Gas & Diesel Cogeneration Systems

HRSA Heat Recovery Silencer Axial

DESIGN

- Stainless steel exterior
- Internal thermal expansion design
- Cylindrical heat transfer coil design
- Optional stainless steel internal bypass
- Sound attenuation
- Optional 1” factory insulation
- Optional circulating pump

APPLICATION

Combustion Sources: Gas engines (reciprocating, turbo charged, naturally aspirated, and rotary), diesel engines, boilers

Combustion Capacity: 15 to 150 kw (20 to 200 scfm)

Entering Gas Temps: To 1250ºF

Heat Sink Types: Engine jacket water, process water, boiler water, ethylene glycol

Gas & Diesel Cogeneration Systems

HRSR Heat Recovery Silencer Radial

DESIGN

- Sound attenuation
- Optional temperature indicating control panel
- Factory insulation
- Internal thermal expansion design
- Horizontal/vertical exhaust flow connection
- Full exhaust bypass assembly
- Optional modulating damper actuator
- Optional exhaust transitions/expansion joints

APPLICATION

Combustion Sources: Gas engines (reciprocating, turbo charged, naturally aspirated, and rotary), diesel engines, boilers

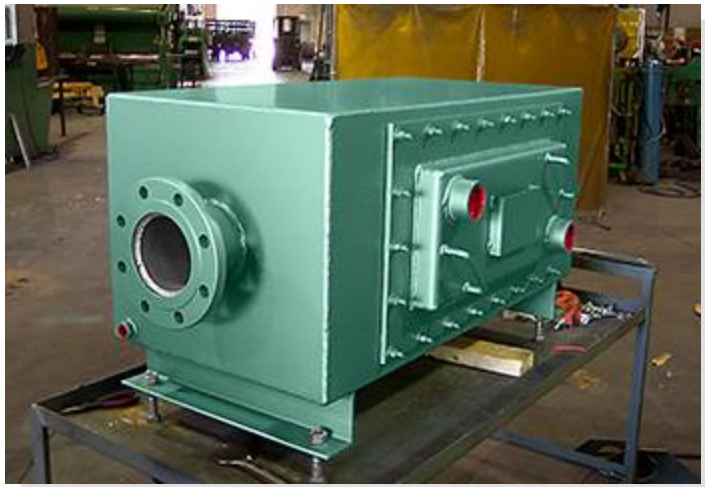
Combustion Capacity: 1200 to 4000 kw

Entering Gas Temps: To 1250ºF

Heat Sink Types: Engine jacket water, process water, boiler water, ethylene glycol

Gas & Diesel Cogeneration Systems

UTR U-Tube Recovery



DESIGN

- Stainless cylindrical heat transfer coil design
- Hardshell 10 ga. structural exterior
- Stainless steel interior
- 1” thickness factory insulation
- Condensation drain catch ring assembly
- Individual gas connection sizes and design
- Sound Attenuation
- Removable core assembly
- Header manifold for high liquid flow and low static head

APPLICATION

Combustion Sources: Gas engines (reciprocating, turbo charged, naturally aspirated and rotary), diesel engines

Combustion Capacity: 15 to 300kw

Entering Gas Temps: To 1600ºF

Heat Sink Types: Engine jacket water, process water, boiler water, ethylene glycol, thermal transfer fluids

Gas & Diesel Cogeneration Systems

UTR1 U-Tube Recovery 1

DESIGN

- Internal thermal expansion design
- 2” thickness factory insulation
- Hardshell 10 ga. structural exterior
- Optional compression fitted tube to header attachment
- Removable core assembly
- Removable inspection door
- Header manifold for high liquid flow and low static head

APPLICATION

Combustion Sources: Incinerators, thermal oxidizers, catalytic converters, boilers, hot oil heaters

Combustion Capacity: 200 to 50,000 scfm

Entering Gas Temps: To 1600ºF

Heat Sink Types: Process water, boiler feedwater, ethylene glycol, thermal transfer fluids

Gas & Diesel Cogeneration Systems

ESG1 Exhaust Steam Generator 1

DESIGN

- Skid mounted packaged forced circulation watertube design
- Size ranges from 20 to 500 Boiler horsepower
- Operating steam pressures ranging from 3 psig to 450 psig
- 98% dry steam at saturated steam temperatures
- 5 minute startup to operating steam pressure
- Large steam flash drum assembly allowing for wide load fluctuations to prevent low water shut down
- 1⁄3 the weight of conventional waste heat boilers
- 1⁄2 the size of conventional waste heat boilers
- Component design requires no welding for ease of maintenance
- Stamped in accordance with ASME code and National Board
- Fully automatic for supplemental or primary steam output source
- 'Explosion proof' heat transfer exchanger within the exhaust gas
- Full modulating internal exhaust bypass designed to easily accept dual engine exhausts
- Lowest 'pinch point' (operating steam temperature to final leaving exhaust temperature) offering greater efficiency

APPLICATION

Combustion Sources: Gas engines, diesel engines, incinerators, thermal oxidizers, catalytic oxidizers, hot oil heaters

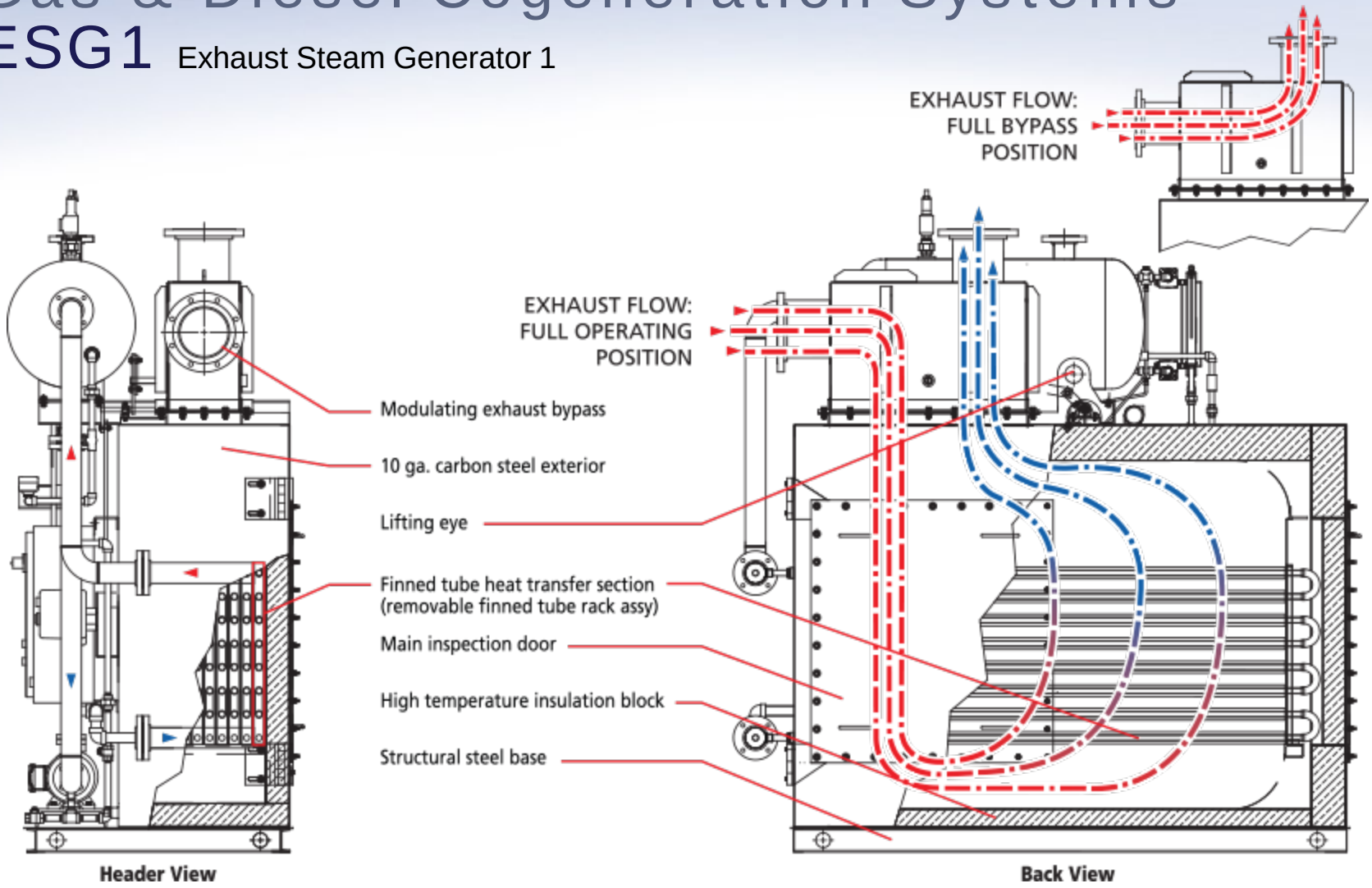
Combustion Capacity: 1000 to 50,000 scfm

Entering Gas Temps: 600º - 1600ºF

Heat Sink Types: Supplemental steam demand and/or primary steam source for steam heating or process steam

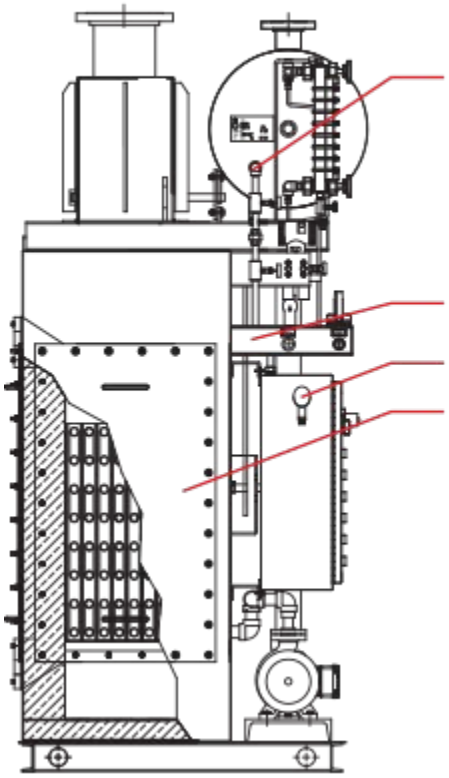
Gas & Diesel Cogeneration Systems

ESG1 Exhaust Steam Generator 1



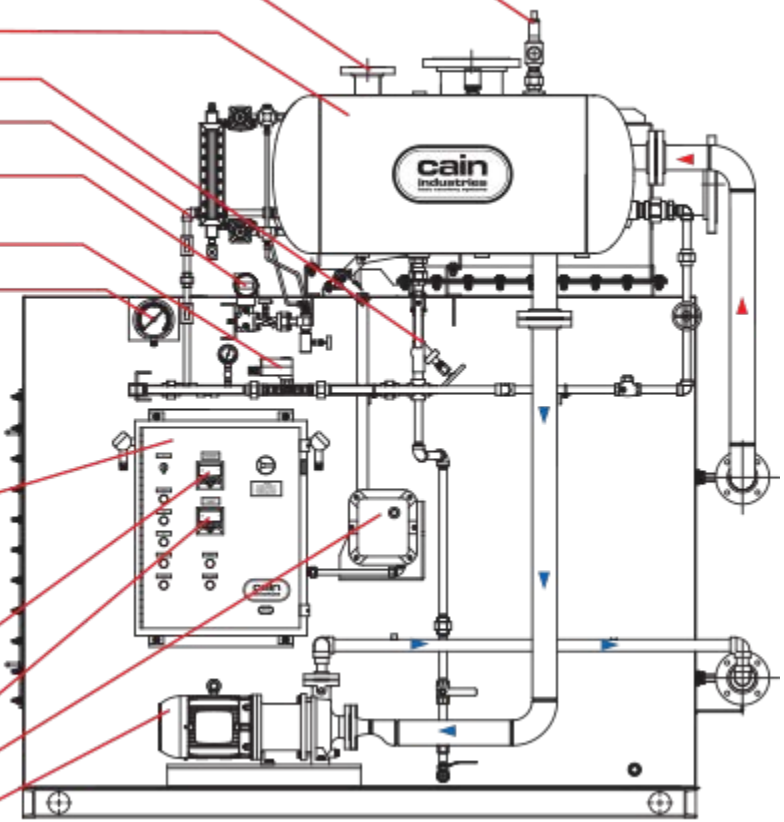
Gas & Diesel Cogeneration Systems

ESG1 Exhaust Steam Generator 1



Door View

- ASME Steam safety valve
- Steam outlet flange
- Steam flash drum assembly (insulated)
- Main blowdown valve assembly
- Continuous surface blowdown
- Differential pressure, water level controller
- Modulating feedwater valve
- Steam pressure gage
- Localized piping connections for feedwater and blowdown manifold
- Excess steam pressure switch
- Tube removal access door
- NEMA 12 control panel complete: High voltage 3 phase single connection, fuse disconnect, circulating pump variable speed drive, stepdown transformer, alarm lights
- Digital modulating water level controller
- Digital steam pressure controller
- Modulating damper actuator
- Magnetic circulating pump assembly



Front View

HRSR Proposal Process

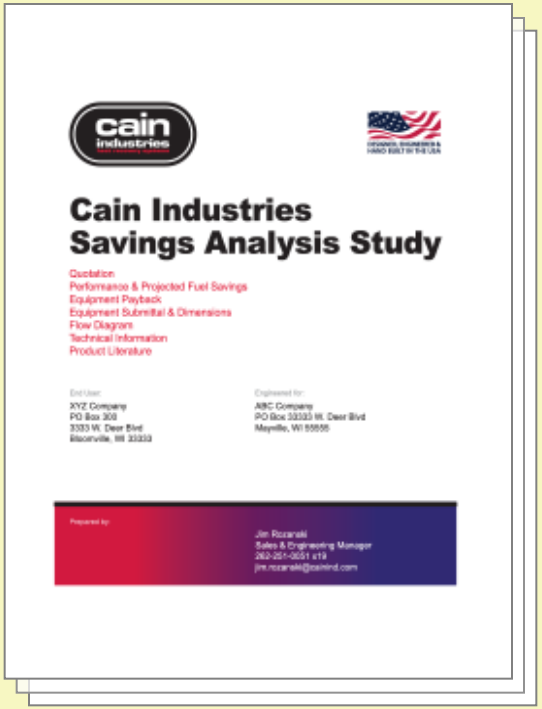
Savings Analysis Study

1. Complete Form:

Simple Application Data Form available at www.cainind.com:

2. Receive Proposal:

Within 48 hours, receive detailed proposal



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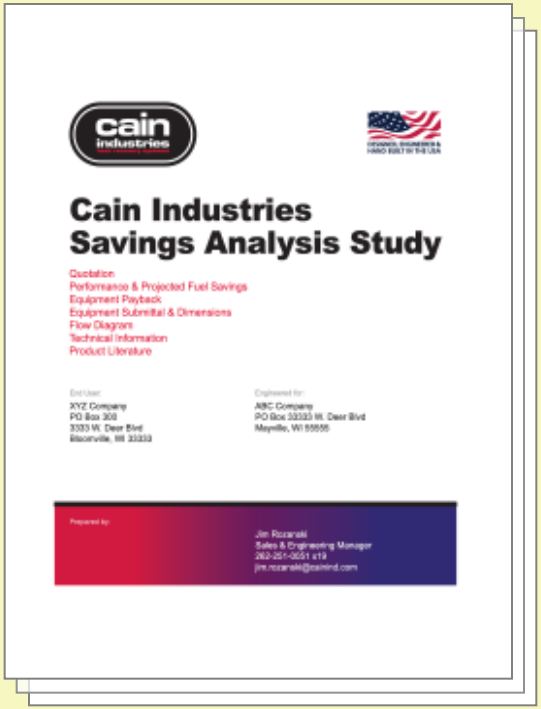

Receive a free Savings Analysis Study:

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C-WEP
Cain Web Engineering Program

800-558-8690

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