

HEAT RECOVERY STEAM GENERATORS: CONSTRUCTABILITY

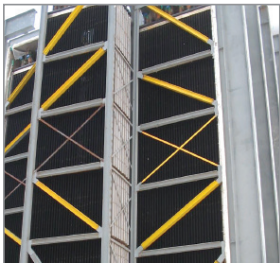


OVERVIEW

VOGT POWER INTERNATIONAL INC., a Babcock Power Inc.® company, provides the most constructable HRSG unit for every customer’s site-specific application. Our modular designs focus on reducing overall erection cost and schedule to save our customers time and money. The level of pre-fabrication can be varied depending on the size of the HRSG desired and the transport alternatives to the job site.

FOUR DESIGNS TO MEET YOUR NEEDS

1. ENHANCED CONSTRUCTABILITY SMART (ECS)



For HRSGs where transport and weight limitations allow, the main steel support structure is integrated and pre-fabricated with the boxes in a design that is the ultimate in constructability.

FEATURES	BENEFITS
Main support columns, top, side, and bottom casing attached to module box	No field installed insulation is required between “cold” boxes
Stub column provided to stabilize module when erected	No lifting frames required, only two moment connections per column line
Heating surface	Installed in module boxes
Module HARPS	Shop hydro tested

Shop Installed:

- Gas baffles (except center gas baffles)
- Interconnecting piping between HARPS
- Most vent and drain piping
- Stainless steel metal bellows
- Expansion joints or seal plates
- Bumpers and guides (except in “hot” boxes)
- Cover plates at all ECS penetrations in top and bottom casings

VOGT CONSTRUCTABILITY DESIGNS

ECS

Features: Prefabricated module boxes with integrated support

Benefits: Ultimate in constructability and stability

SMART Box

Features: Higher level of pre-assembly: modules, casing, interconnecting piping, and some of the structural steel all contained in each module box

Benefits: Makes construction possible where shipping constraints prevent the use of ECS design

MSG

Features: Specially designed for HRSGs gas turbines between 30 and 70 MW that allow a single gas path width

Benefits: The ultimate in pre-fabrication; dramatically reduces the erection schedule dramatically

Loose HARP

Features: Less pre-assembly; HARPS are transported individually

Benefits: Allows construction where access is limited and allows shipping using conventional road transportation, resulting in earlier delivery; lowers equipment price and lightens heavy equipment needs

2. THE SMART-BOX



Semi-Modular Accelerated Delivery Reduced Cost Top Supported is used when shipping constraints prevent the use of the ECS design. Our SMART-Box design is highly pre-assembled; modules, casing, interconnecting piping, and some of the structural steel are all contained in each module box.

FEATURES	BENEFITS
Top, side, and bottom casing attached to module box	No field installed insulation required between "cold" boxes
Stub column provided to stabilize module when erected	No lifting frames required

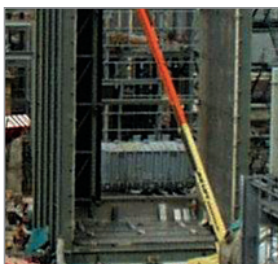
3. MODULAR STEAM GENERATOR (MSG)



The MSG is designed for HRSGs behind gas turbines between 30 and 70 MW that allow a single gas path width. This design incorporates the ultimate in pre-fabrication and dramatically reduces the erection schedule.

FEATURES	BENEFITS
Designed for HRSGs behind 30-70 MW gas turbines that allow a single gas path width	Dramatically reduces erection schedule

4. LOOSE HARP



In cases where site access is limited, Vogt Power will reduce the pre-assembly and supply a Loose HARP design. Individual module harps are transported to the site using normal road transportation.

FEATURES	BENEFITS
Loose HARP	<ul style="list-style-type: none"> Easier to ship and handle Lower equipment price Earlier delivery Reduced pre-assembly can allow normal road transport to site
Installation of: <ul style="list-style-type: none"> Module HARPS All interconnecting vent and drain piping Gas baffles SS metal bellows expansion joints 	<ul style="list-style-type: none"> Smaller crane required Use of trolley crane for HARP installation

SAFETY? PEOPLE. POWER. PROJECTS.
We're giving safety the third degree.

Babcock Power Inc. and its subsidiaries place the safety, health and security of our people at the core of our company values. Our team is our most valuable resource, generating solutions everyday to deliver safe, clean, reliable energy globally. With a keen focus on safety, Babcock Power Inc. conducts business in a manner that protects our people, our customers and the environment. From innovation to generation, we are proud of our award-winning safety record and are committed to operating with integrity and excellence.

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