

HRSG

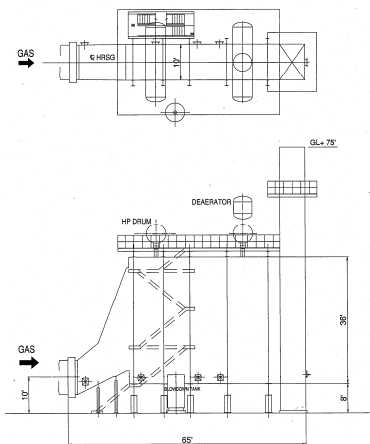


HITACHI POWER SYSTEMS AMERICA, LTD.

Heat Recovery Steam Generators Small Capacity



Vertical Type HRSG



Horizontal Type HRSG

Babcock Hitachi has developed, designed and constructed HRSG's based on their over 30 years of conventionally fired boiler technology experience.

- Satisfies requirements for vertical and horizontal type in accordance with site area restrictions
- Proven reliability
- easy maintenance
- High constructability (tube bundle with pipe & casing)

Standard Specifications

Standard Specifications	UNIT	HORIZONTAL	VERTICAL
Combustion Turbine Type	-	LM 6000	
Circulation Type	-	Natural Circulation	
GT Exhaust Gas Flow	lb/hr	1,001,600	
HRSG inlet Gas Temperature	° F	835	
Static Draft Loss from HRSG inlet	in H ₂ O	Less than 15	
Supplemental Firing		Fired/Unfired	Unfired ^{*1}
HP Steam Flow	lb/hr	193,000 / 89,500	89,500
HP Steam Pressure	psig	1,470 / 620	620
HP Steam Temperature	° F	980 / 760	760
LP Steam Flow	lb/hr	26,000 / 29,700	29,700
LP Steam Pressure	psig	95 / 52	52
LP Steam Temperature	° F	440 / 365	365
Applicable Maximum Supplemental Burner input ^{*2}	MMbtu/h	150 / N.A	N/A
Required Site Area (LxD)	ft.	80X10 ⁻³ / 65X10	45 x 17

*1 The supplemental firing is NOT applicable to Vertical type HRSG.

*2 Maximum supplemental burner input is based on average gas temperature equal to or less than 1400° F.

*3 The required site area for Horizontal HRSG includes duct burner & SCR

Typical Supply Scope

- H.P. Drum
- L.P. Drum
- H.P. Super Heater
- H.P. Evaporator
- H.P. Economizer
- L.P. Super Heater
- L.P. Evaporator
- L.P. Economizer (Pre-heater)
- L.P. Economizer Recirculation Systems
- HRSG Casing and Internal Insulation
- HRSG Inlet and Exhaust Transition Ducts
- HRSG Structural Supporting Steel and Platforms/Ladders/Stairways
- Exhaust Stack
- SCR Catalyst System and Ammonia Injection Grid
- Space for Future CO Catalyst
- Natural Gas Fired Duct Burner and Associated Equipment



HITACHI POWER SYSTEMS AMERICA, LTD.

Small Capacity HRSG Supply List

	Utility	Station	# Units	Plant Output (MW)	Steam System	HRSG Circulation	Gas Flow	Comm. Oper. (Mo-Yr)	Gas Turbine
1	Nippon Petrochemicals	Shiohama (Japan)	1	6	Single	Natural	H	'66	MS-3002(G)
2	Turusaki Kyoudo Power	Tsurusaki 3 (Japan)	1	17	Single	Natural	H	'68	MS-5001(LA)
3	Idemitsu Kosan Co. Ltd.	Tokuyama (Japan)	1	25	Single	Natural	H	'74	MS-5001(N)
4	Libyan Electric Power Agency	- (Libya)	3	14.6x3	Single	Natural	H	'74	MS-5001(LA)
5	Sorachi Coal Mining Co.	Sorachi (Japan)	2	3.85x2	Single	Natural	H	'80-'82	MS-1002(RB)
6	Trinidad Nitrogen	Trinidad & Tobago (Trinidad & Tobago)	1	24.73	Single	Natural	H	'87	PG-5361(P)
7	Japan Energy Corp.	Chita (Japan)	1	10	Single	Natural	H	'89	PTG-10
8	General Oil Co.	Sakai (Japan)	1	25	Single	Natural	H	'89	H-25
9	Turusaki Kyoudo Power	Tsurusaki 4 (Japan)	1	25	Single	Natural	H	'90	H-25
10	Kigunasu Oil Refinery	Kawasaki (Japan)	1	35	Single	Forced	V	'94	PG-6541
11	Cosmo Oil Co.	Chiba (Japan)	1	35	Single	Natural	V	'98	PG-6541
12	Turusaki Kyoudo Power	Tsurusaki 5 (Japan)	1	25	Single	Natural	H	'98	H-25
13	Hitachi Ltd.	Rinkai (Japan)	1	106	Double	Natural	V	'00	F6FA
14	Hitachi/NEDO/ Myanmar Electric Power Enterprise	Ywama (Myanmar)	1	33.4	Single	Natural	H	N/A	H-25

Hitachi Power Systems America, Ltd.
 645 Martinsville Road
 Basking Ridge, NJ 07920
 (P) 908-605-2800
 (F) 908-604-6211
 power.info@hal.hitachi.com

Hitachi HRSG Application (experience)

Steam

- Single
- Dual
- Triple Pressures w/reheat/non-reheat

Types

- Horizontal Gas Flow
- Vertical Gas Flow
- Natural / Forced Circulation

CTG's

- GE F9B
- F9E
- F9EA
- F9FA
- F9H
- F7E,
- F7EA,
- F7F,
- F7FA,
- F7FB,
- F6FA,
- F5,
- F3,
- PGT10,
- MHI 501F
- 501G,
- 701F,
- Siemens V84.3A,
- V94.3A,
- Hitachi H-25

Fuel

- Natural Gas
- Oil
- BSG

HITACHI
 Inspire the Next