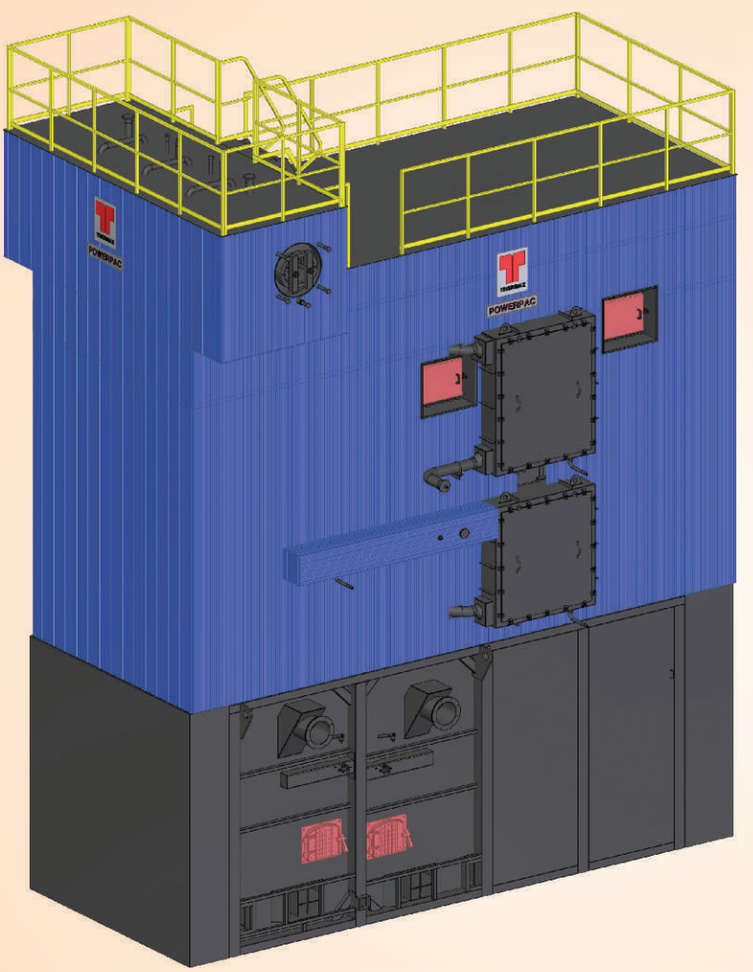
THERMAX

POWERPAC™

Fully Packaged, Water Tube Boiler
Turnkey Solution for Process & Power Industry

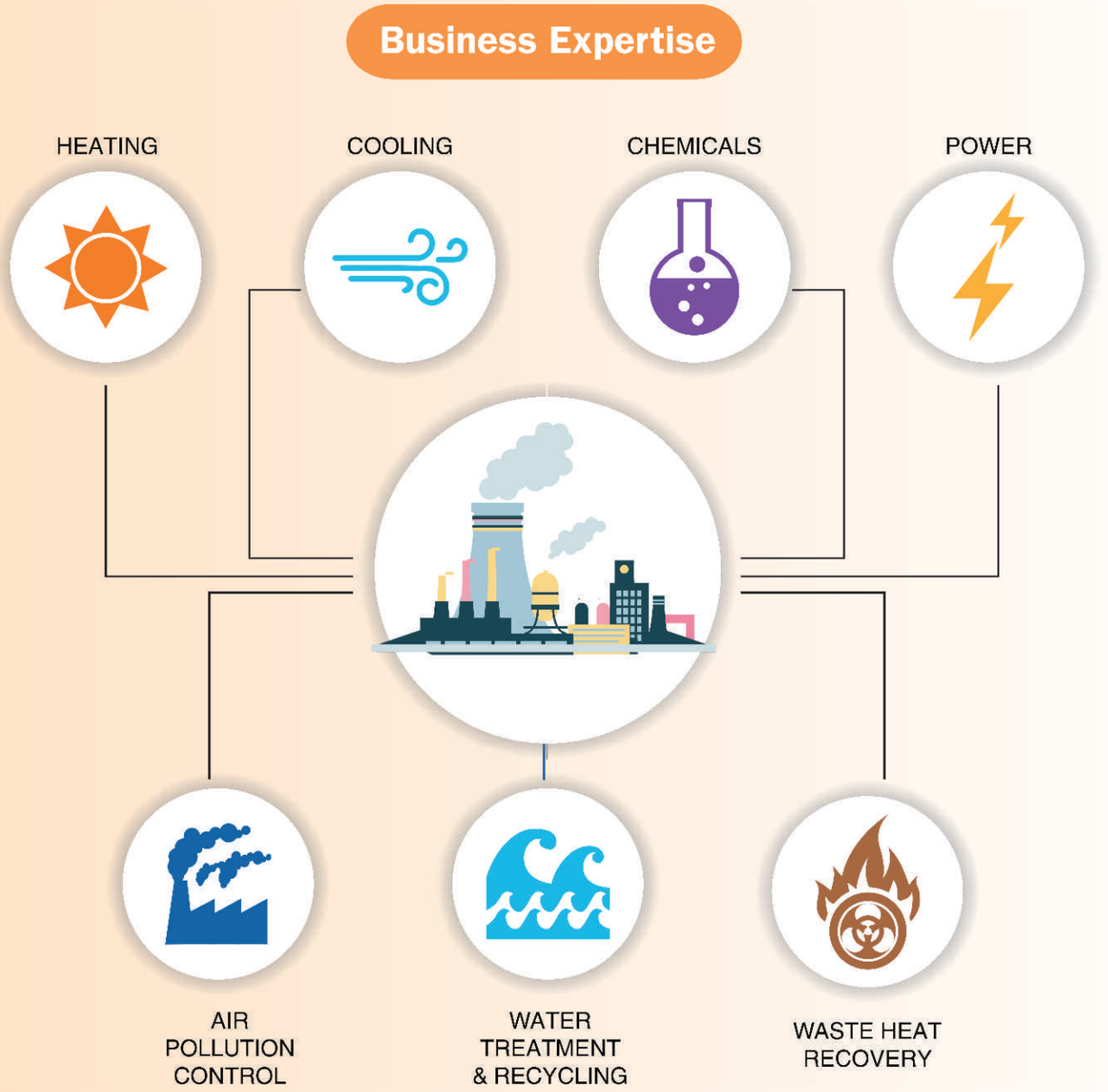


FOR PROCESS HEATING		FOR CO-GENERATION	
Capacity	8,000 to 18,000 kg/hr	Capacity	6,000 to 16,000 kg/hr
Pressure	11.25 ..upto 45 kg/cm^{2}g	Pressure	32 or 45 kg/cm^{2}g
Temperature	Saturated	Temperature	380 or 450°C

Heating Division

Improving your business is our business

Thermax offers products, systems and solutions in energy and environment engineering to industrial and commercial establishments around the world..



Packaged Heating Systems

As leader's in heating solutions over the last five decades, Thermax has been pioneering innovative solutions for a wide range of industrial and commercial heating applications. The company has scripted several innovations to support its clients. Fuel shift for example, allows business to switch to available low cost fuels - fossil (oil, gas, coal, lignite etc.) or biomass (agriculture waste, process waste etc.) Today, with over 35,000 installations across the world, Thermax helps small and medium firms to Fortune 500 companies to reduce energy costs.

Introduction to POWERPAC™

Water tube & smoke tube boilers are popular with co-generation & process heating industry respectively. Water tube boilers are known for efficient & reliable operation. Smoke tube boilers which are packaged in nature, are easy to install & maintain. Thermax presents POWERPAC™ – First of a kind packaged, modular construction, water tube boiler to address both, process heating & co – generation requirements.

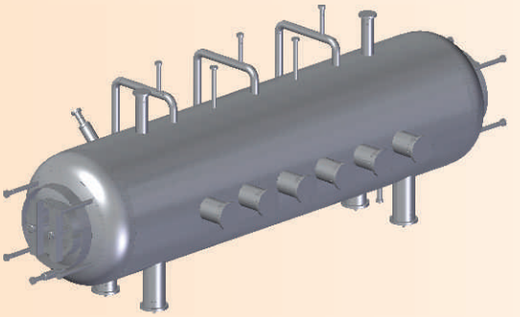
POWERPAC™ boilers are offered along with flexible combustor solutions to cater to wide range of fossil & biomass fuels. Fully packaged, modular construction water tube design ensures highest uptime, lowest installation time / cost and most efficient operation. POWERPACK™ boilers truly combines the benefits of site erected water tube boilers & package smoke tube / hybrid boilers.

Salient Features and Benefits

Features	Benefits
Fully Packaged Boiler	Reduction in installation time by over 60% Minimal site activity - tube expansion not required, reduction in site welding. Miss-outs & matching errors avoided.
Water Tube Design	Uninterrupted boiler operation ensuring higher uptime even for fouling fuel.
Multi-Fuel Flexibility	Flexibility to choose fuel depending on availability and reduction in operation cost.
Modular Construction	Easy to transport & assemble at site.
Compact Layout	Apt for space constraint sites.
Best in Class Efficiency	Additional efficiency, reduction in fuel bill.
Easy to Operate	Revolutionary Thermowiz™ panel for monitoring & control.
Easy to Maintain	Easy access to heat transfer areas for cleaning as compared to water tube boilers. Reduction in maintenance time and cost compared to smoke tube design. Options for on-line soot blowing systems.
In house manufacturing	Highest quality of workmanship. No deviations in quality procedure unlike site erected boilers.

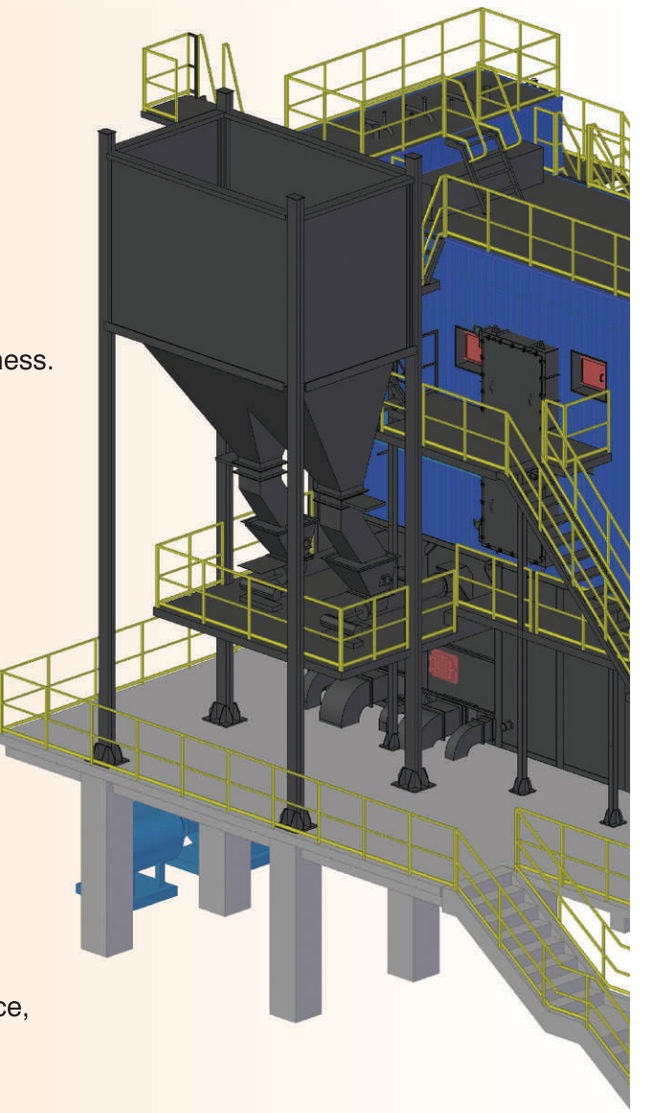
POWEI

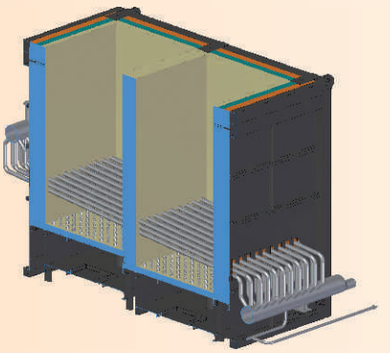
BOILER



Steam Drum Assembly

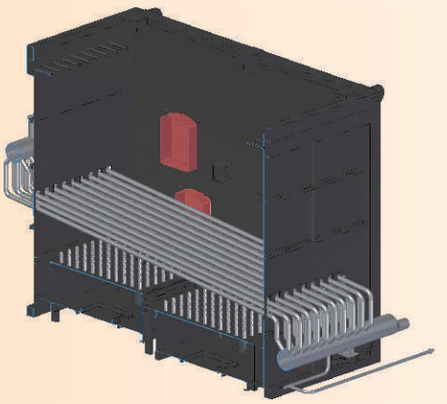
- Demister pad & baffle arrangement – Ensures steam dryness.
- High pressure design – Up to 45 bar possible.
- Mounted outside flue gas path – No soot accumulation.





Furnace and Refractory

- Special castable refractory design – Reduced maintenance, reduced infiltration of air.
- Quality insulation – for heat conservation & personnel protection.
- Factory lagged – For uniformity of insulation & superior finish, better aesthetics.



IBH Assembly

- No bends inside furnace – Less prone to erosion.
- Superior MOC & High thickness – Ensures long life & reliable operation.

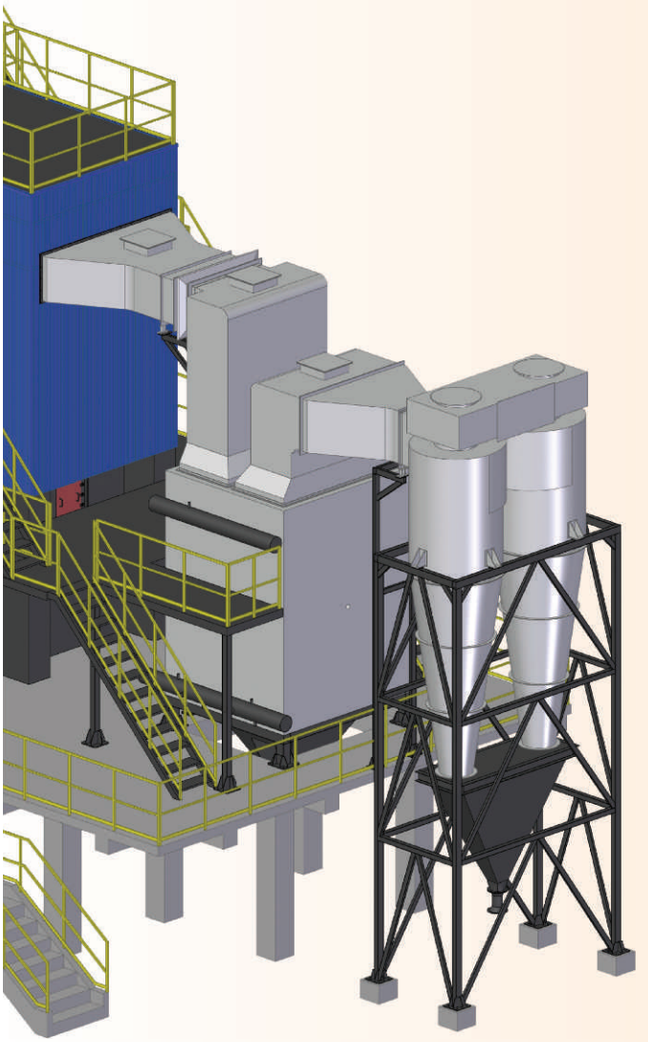
Design

Self supporting design

Modular design

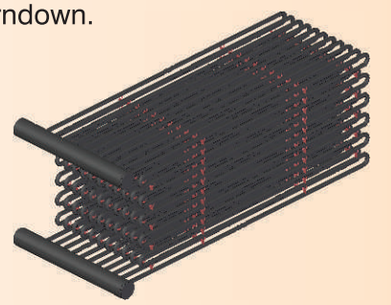
Compact design

RPAC™
PLANT



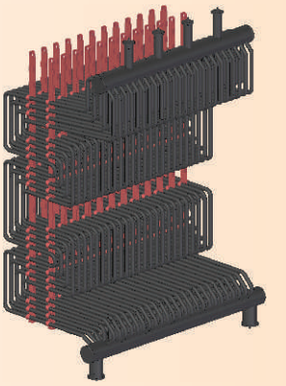
Membrane Panel Assembly

- Membrane type water wall – Better heat transfer & increased life.
- Welded on fully automatic PEMA machine - Highest welding quality & alignments.
- Gas tight enclosure – Avoids ingress of unwanted excess air.
- Large furnace volume – Ensure better combustion & limits carry over of ash.
- High circulation ratio – Ensures good response to fluctuating load & high turndown.



Super Heater Assembly

- Two stage super heater design with attemperator – Accurate control on final steam temperature.
- Location of superheater - non luminous radiation – Increases life of super heater.

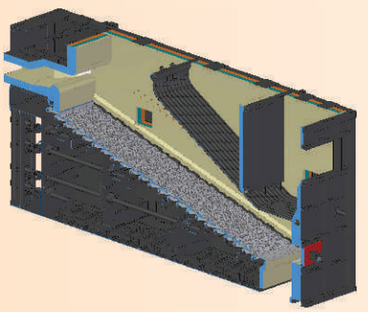


Convective Coil Assembly

- Serpentine coil welded to headers – Easily removable, supported on special arrangement.
- Tube expansion not required unlike conventional water tube boilers results in hassle free installation & maintenance
- Easy access for cleaning – No need to cut through welding, re-work is avoided.

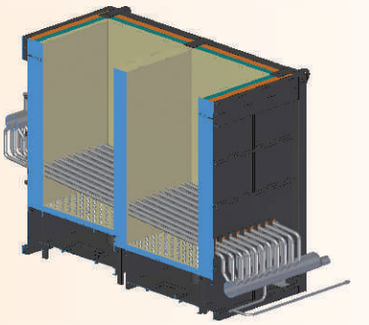
– Rigid framework, no hanging frames
– Ease of transport, handling & installation at site
– Reduction in footprint

Inclined Reciprocating Grate - Lambion Technology



- Flexibility to burn a variety of fossil and biomass fuels.
- Completely automatic controller enables modulation as per steam load & maintain high thermal efficiency.
- Silent combustion ensures substantial reduction in particulate emission, and less erosion.
- Zone wise air supply & use of special castings for optimized air distribution for complete combustion.
- No special civil work required for furnace construction. Easy integration with boiler.
- Safe and ease of operation.
- Designed as per German Standards for long life.

Fluidised Bed Combustor - Established Technology

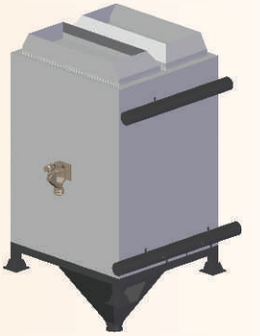


- Suitable for fine fuels like Coal, Rice Husk
- Ability to handle high ash coal.
- Minimum un-burnt losses & low excess air, ensures high efficiency.
- Fully automatic operation.
- Rapid response to load fluctuation.
- Uniform heat flux distribution for long refractory life.
- Specially designed air nozzles for optimum performance.

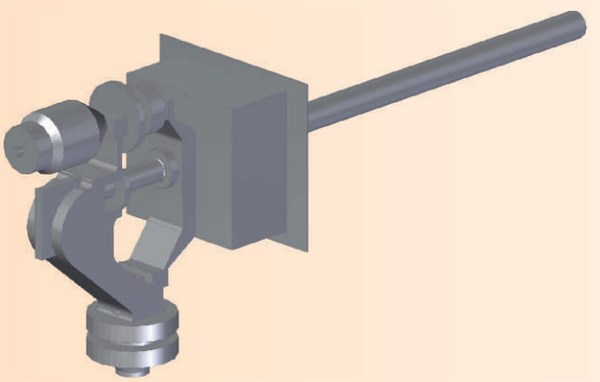
High Efficiency Heat Recovery Unit - Economiser

- Boosts efficiency up to 87% on NCV basis.
- Single HRU ensures lower footprint, lesser pressure drop.
- Reduction in additional space & cost for routing pre-heated air.

Economiser

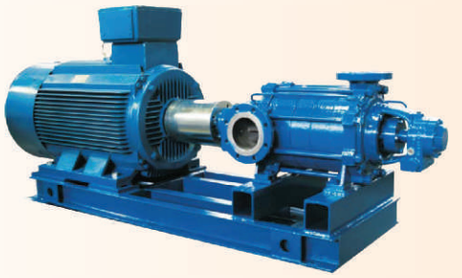


Online Soot Blowing System



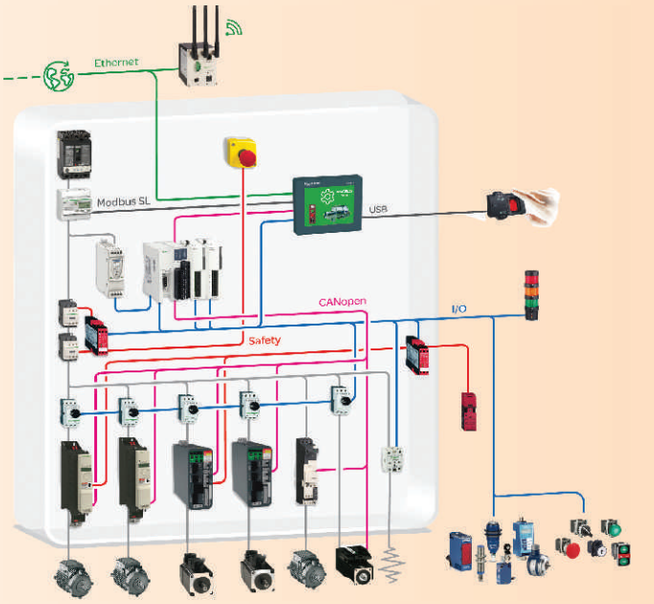
- Ensures high uptime for boilers fired on fouling fuels.
- Prevents build up of soot on HTA by blowing at regular intervals.
- Timing & duration of soot blower can be easily programmed as per fouling nature of fuel.
- Various types available RSB / LRSB based on type of HTA to be cleaned.

High performance Rotary Equipment



- Centrifugal fans with backward curved blades – High efficiency & low power consumption, long & reliable operation
- Centrifugal multistage pumps – With mechanical seals for zero leakage, low NPSH requirement, high operating efficiency, long & reliable operation
- Fuel feeders – VFD operated for precise control, good turndown for operation over large operating range, long & reliable operation

Revolutionary Thermowiz™ Boiler Power & Control Panel



- User Comfort - Touch screen HMI
- MIS Reporting - Track & record data effectively
- Web connectivity - For remote monitoring & control
- Easy to trouble shoot - Program modification with USB possible
- Features - Online efficiency monitoring, SCADA, IIOT services

Co-Generation Industry

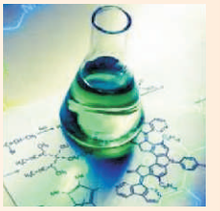
Distillery

Paper & Pulp

Rice Mill

Pharma

Food



Chemical

Process Heating

Textile

Rubber & Tyre

Edible Oil

TECHNICAL SPECIFICATIONS

Description	PowerPac™ Saturated Boiler						
	Units	SD-80	SD-100	SD-120	SD-140	SD-160	SD-180
Boiler Type	Modular Water Tube Boiler						
Design Code	IBR						
Steam output F&A 100°C	kg/hr	8000	10000	12000	14000	16000	18000
Design Pressure (SVLOP)	kg/cm2 (g)	11.25/17.5					
Steam Condition	°C	Saturated, 98% dry					
Efficiency wih FB combustor							
- Rice Husk/Indonesian Coal/Indian Coal	%	87 / 88 / 87.5					
Efficiency with RG combustor							
- Briquettes/WoodChips/Indonesian Coal/Pellet		88 / 88 / 87.5 / 88					
Footprint for unit- SDFB							
- Length	mm	6250	6960	7480	7770	8280	8890
- Width	mm	3940	4050	4300	4550	4750	4750
Footprint for unit- SDRG							
- Length	mm	12810	12810	12810	12810	12910	12910
- Width	mm	3640	3890	4140	4640	4890	4890

Description	PowerPac™ Superheated Boiler						
	Units	SD-60	SD-80	SD-100	SD-120	SD-140	SD-160
Boiler Type	Modular Water Tube Boiler						
Design Code	IBR						
Steam output MCR 105°C	kg/hr	6000	8000	10000	12000	14000	16000
Steam Pressure	kg/cm2 (g)	32 / 45					
Steam Temperature	°C	380 ± 10 / 450 ± 10					
Efficiency wih FB combustor							
- Rice Husk/Indonesian Coal/Indian Coal	%	87 / 88 / 87.5					
Efficiency with RG combustor							
- Briquettes/WoodChips/Indonesian Coal/Pellet		88 / 88 / 87.5 / 88					
Footprint for unit- SDFB							
- Length	mm	6250	6960	7480	7770	8280	8890
- Width	mm	3940	4050	4300	4550	4750	4750
Footprint for unit- SDRG							
- Length	mm	12810	12810	12810	12810	12910	12910
- Width	mm	3640	3890	4140	4640	4890	4890

Note - Efficiency is calculated based on NCV basis as per BS 845 Part 1 Indirect method.NCV of fuels - Rice Husk as 2916 kcal/kg, Indian Coal as 4290 kcal/kg, Imported Coal as 5599 kcal/kg.NCV of fuels - Briquettes as 3356 kcal/kg, Wood Chips as 2953 kcal/kg, Imported Coal as 5599 kcal/kg, Biomass Pellet 4197 kcal/kg.Refer technical offer for more details. Performance parameters hold good only if fuel specifications remain constant. Footprint for assembled unit dose not include Economiser, PCE

THERMAX

Registered Office

D-13, MIDC Industrial Area,
R. D. Aga Road Chinchwad, Pune - 411019, India
Tel.: +91-20-66122999, 66155000, Fax: +91-20-27472049
Email: heating.enquiries@thermaxglobal.com
www.thermaxglobal.com
Toll free no. 1800-209-0115

www.linkedin.com/company/thermax

Thermax Business Portfolio

- Heating
- Cooling
- Power Generation
- Air Pollution Control
- Chemicals
- Water & Wastewater Solutions
- Solar
- Specialised Services