

Cooling & Heating



COMBIPAC

Moving Grate, Hybrid Design Boiler

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. Its business expertise covers heating, cooling, waste heat recovery, captive power, water treatment & recycling, air pollution control & waste management and performance chemicals. Thermax brings to customers extensive experience in industrial applications, and expertise through technology partnerships and strategic alliances.

Operating from its headquarters in Pune (Western India), Thermax has built an international sales & service network spread over South East Asia, Middle East, Africa, Russia, UK and the US. It has a full fledged manufacturing set up that is certified for ISO 9001:2000, ISO 14001 and safety management according to OSHAS (ISO 18000).

In **process heat**, Thermax offers a wide range of steam boilers, thermal oil heaters and hot water generators. It has expertise in a wide range of fuels - oil, gas, solid and agro-waste/ biomass. Supporting a broad array of industries in generating, transferring and conserving heat across a host of applications, Thermax process heat products and systems are exported to North and South America, South East Asia, Middle East, Africa, Europe, CIS, Australia, Antarctica and SAARC.

Thermax presents Combipac CPMG: the next level in moving grate boilers

Get the best of two technologies

Combipac CPMG is a hybrid boiler, which combines the best of both technologies - water tube and smoke tube. This new boiler from the Thermax stable, integrates four decades of extensive R&D and pioneering expertise in the combustion of over 100 different kinds of solid fuels. Combipac CPMG is specially designed to operate on low ash coal.

Product highlights

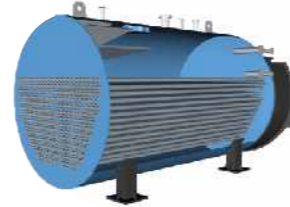
- Hybrid design - smoke and water tube
- External furnace with membrane panel
- Standard capacity range - 6 to 25 TPH
- Fuel - low ash coal and wood chips
- Automatic fuel firing
- Standard design pressure - 10.54 & 17.5 kg/ cm²
- Heat recovery through Economiser

Economiser



- Heat recovery through the Economiser ensures high thermal efficiency - up to 80%

Shell



- The fire tube section incorporates large area for water and steam
- Larger steam disengagement area ensures dry steam, with no carryover
- Dry steam prevents scale formation in steam lines and helps eliminate extra condensate, thus saving energy

Membrane Panel



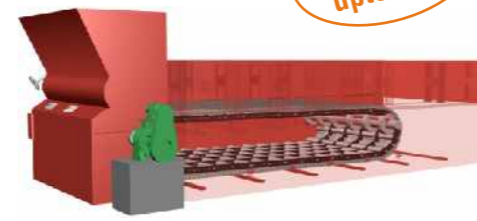
- This water tube section of the boiler is designed for abundant radiant heating area - allowing quick steam formation and improved response to fluctuating loads

Control Panel



- PLC based control panel for automatic boiler operations

Combustor



Accepts fines upto 50%

- Automatic fuel feeding
- Combustion chamber comes with moving grate that is rugged and proven
- Adjustable multiple damper system to control the volume of air entering the combustor along its length - making it adaptable to different fuels
- Design ensures constant fuel pile and complete grate coverage, improving combustion efficiency and emission control

Fully automatic operations

- Single element control
- Combustion control

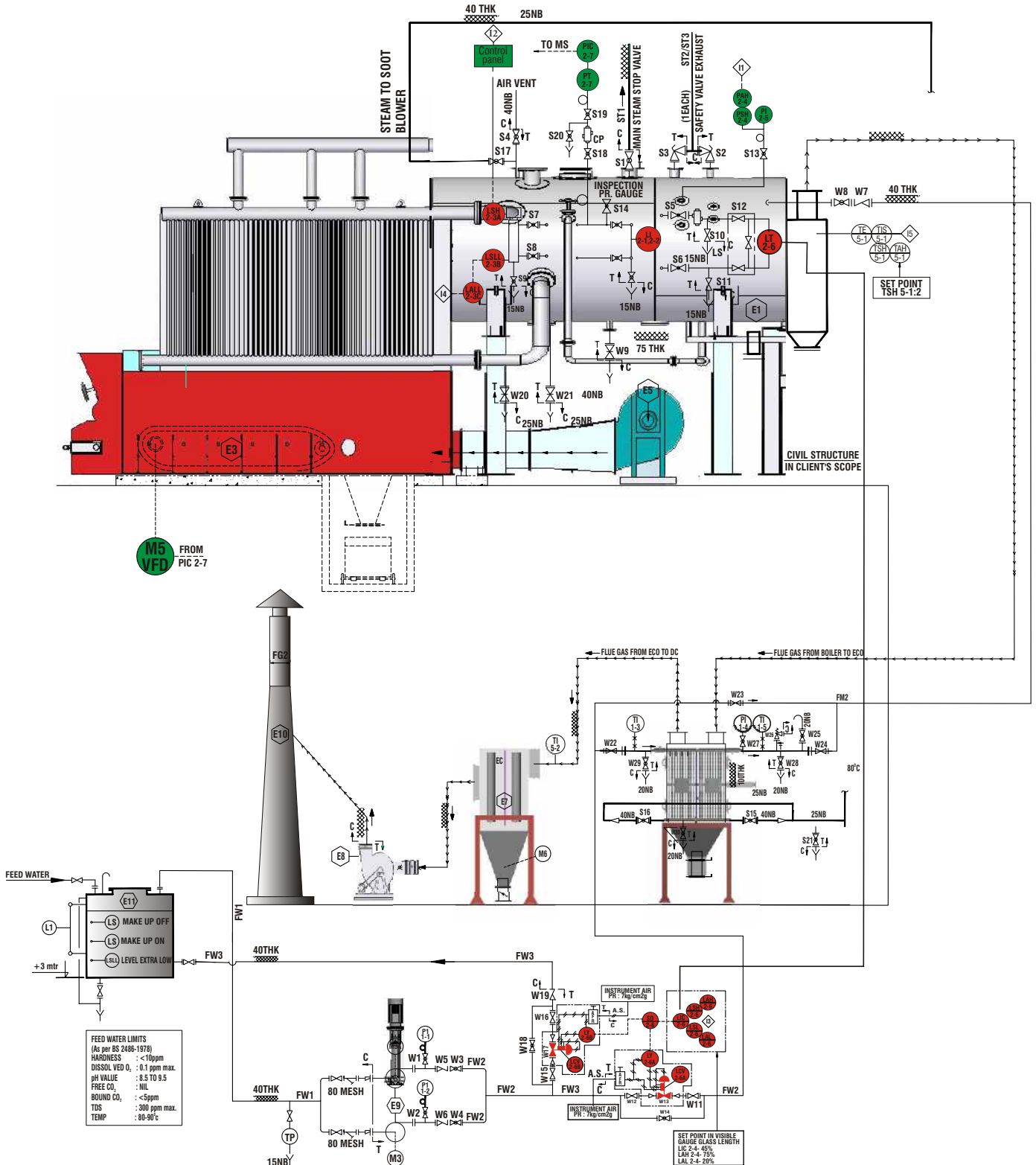
VALVE LIST (STEAM SIDE)	
TAG NO.	DESCRIPTION
S1	MAIN STEAM STOP VALVE
S2 & S3	SAFETY VALVE
S4	AIR VENT VALVE
S5, S6	ISO. VALVE FOR LEVEL TRANSMITTER
S7 & S8	MOBREY ISOLATION VALVE
S9	MOBREY DRAIN
S10, S11	DRAIN VALVE FOR LEVEL TRANSMITTER
S12	THREE WAY MANIFOLD
S13	ISO. VALVE FOR STEAM PRESSURE GAUGE
S14	ISO. VALVE FOR INSPECTOR PRESSURE GAUGE
S15, S16	SOOT BLOWER GLOBE VALVE
S17	SOOT BLOWER GLOBE VALVE
S18, S19	ISO VALVE FOR PRESSURE TRANSMITTER
S20	DRAIN VALVE FOR PRESSURE TRANSMITTER
S21	DRAIN VALVE FOR BOILER TO SOOT BLOWER PIPING

VALVE LIST (WATER LINE)	
TAG NO.	DESCRIPTION
W1 & W2	ISO VALVE FOR FEED LINE PRESSURE GAUGE
W3 & W4	F. PUMP OUTLET NRV
W5 & W6	F. PUMP OUTLET GLOBE VALVE
W7	SHELL INLET NRV
W8	SHELL INLET GLOBE VALVE
W9	SHELL BLOWDOWN
W11 & W12	ISO VALVE FOR CONTROL VALVE
W13	FEED WATER LINE CONTROL VALVE
W14	BY PASS VALVE FOR CONTROL VALVE
W15, W16	ISO VALVE FOR SPILL BACK CONTROL VALVE
W17	SPILL BACK CONTROL VALVE
W18	BY PASS VALVE FOR SPILL BACK CONTROL VALVE

VALVE LIST (WATER LINE)	
TAG NO.	DESCRIPTION
W19	SPILL BACK NRV
W20, W21	MEMBRANE PANEL BLOWDOWN
W22	ECO-INLET GATE VALVE
W23	ECO - BY PASS GATE VALVE
W24	ECO - OUTLET GATE VALVE
W25	ECO - AIR VENT VALVE
W26	ECO - SAFETY VALVE
W27	ISO VALVE FOR ECO - PR GAUGE
W28	ECO - WATER OUTLET HDR DRAIN VALVE
W29	ECO - WATER INLET HDR DRAIN VALVE
W30	ECO - BOTTOM HDR DRAIN VALVE

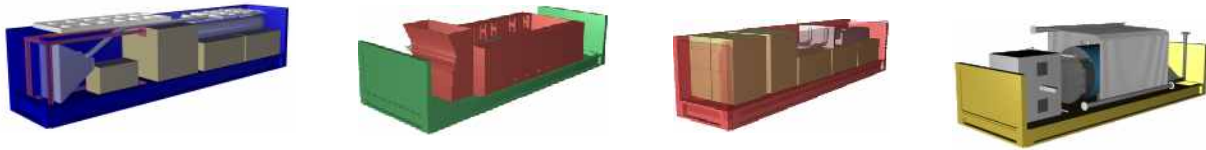
Sr No	DESCRIPTION
E1	COMPACT BOILER - SHELL
E2	MEMBRANE SHELL
E3	MOVING GRATE
E4	FUEL FEEDER
E5	PRIMARY FD FAN
E6	ECONOMISER
E7	DUST COLLECTOR
E8	ID FAN
E9	FEED PUMP ASSEMBLY
E10	CHIMNEY
E11	FEED WATER SERVICE TANK

INTER LOCK NO	ALARM/ INTERLOCK SCHEDULE	TRIP
I1	STEAM PRESSURE HIGH	M1, M2 & M5
I2	WATER LEVEL HIGH	M1, M2, M3/ M5A & M5
I3	WATER LEVEL LOW	M1, M2 & M5
I4	WATER LEVEL VERY LOW	M1, M2 & M5
I5	FLUE GAS TEMP HIGH	M1, M2 & M5

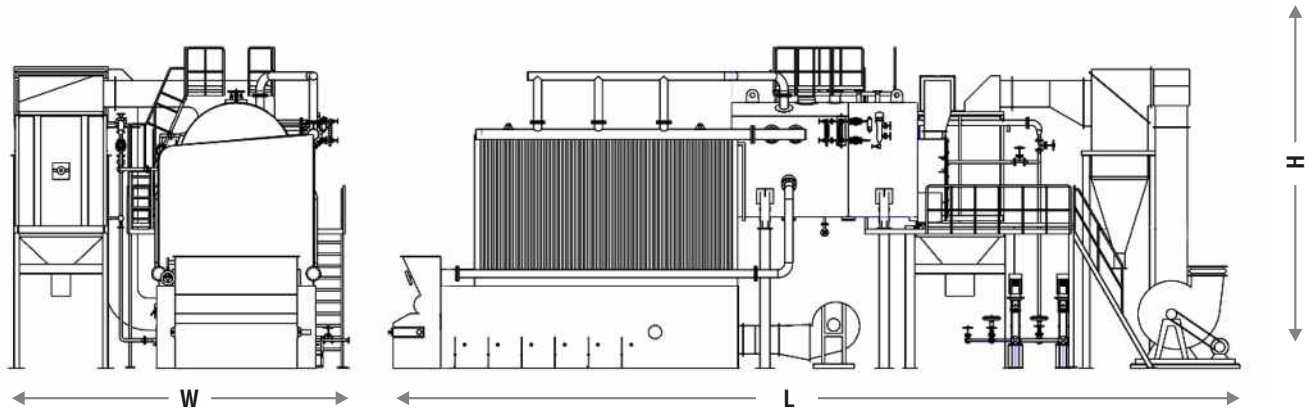


Easy to ship

- Combipac CPMG is designed and engineered for easy container shipping through optimal space and weight utilisation, thus meeting container limitations and ensuring cost effective shipment
- The result is that the complete boiler is delivered to your doorstep in CKD form



General Arrangement



Technical specifications

PARAMETER	Units	CPMG 60	CPMG 80	CPMG 100	CPMG 120
Maximum output (F&A 100°C)	kg/hr	6,000	8,000	10,000	12,000
Safety Valve set pressure	kg/cm ²	← 10.54 →			
Fuel		Indonesian Coal, 5800 kcal/kg, 10% moisture			
Efficiency	%	With Economiser 80 ± 2%			
Fuel Consumption on MCR	kg/hr	698	931	1164	1397
Power Supply option		220/380/415 volts AC ±6%, 50Hz ±3%			
Total electrical connected load	KW	38	55	65	77.5
Length	mm	15680	16768	17616	17925
Width	mm	6545	6892	7128	7128
Height	mm	5798	6273	6743	6743

PARAMETER	Units	CPMG 48	CPMG 64	CPMG 80	CPMG 96
Maximum output (F&A 100°C)	kg/hr	4,800	6,400	8,000	9,600
Safety Valve set pressure	kg/cm ²	← 10.54 →			
Fuel		Wood chips, 3100 kcal/kg, 30% moisture			
Efficiency	%	With Economiser 74±2%, Without Economiser 68±2%			
Fuel Consumption on MCR	kg/hr	1130	1506	1883	2260
Power Supply option		220/380/415 volts AC ±6%, 50Hz ±3%			
Total electrical connected load	KW	38	55	65	77.5
Length	mm	15680	16768	17616	17925
Width	mm	6545	6892	7128	7128
Height	mm	5798	6273	6743	6743

Manufacturing for excellence



CNC Plasma cutting



Shot blasting and painting



Hydro testing



Stress Relieving



Down Hand welding



Tube expansion



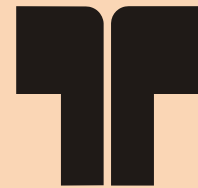
Submerged arc welding



Rolling

A global network

- 17 Thermax offices and subsidiaries across the continents ensure prompt sales, service and spares support anywhere in the world



THERMAX

Sustainable Solutions in
Energy & Environment

COOLING & HEATING DIVISION

RUSSIA

Tel.: 00-7095-9350490 / 91. Fax: 00-7095-1347410
E-mail: thermax-sm@concord.ru

BELGIUM

Tel.: 00-32-2-7369244. Fax: 00-32-27369256
E-mail: alain.dessoy@thermaxprocessheat.be
jacques.pipart@thermaxprocessheat.be

FRANCE

Tel.: 00-33-3-274728701, H/p: 00-33-6-84479907
E-mail: jacques.wnuck@thermaxprocessheat.com

CHILE

Tel.: 00-56-2-7842250/44. Fax: 00-56-2-7842257
E-mail: jar@energiasindustriales.cl
sumedhdesai@thermaxindia.com

INDIA

Tel.: + 91-20-2747 5941
Fax: + 91- 20-2747 2049 / 2747 5679
E-mail: jnatesan@thermaxindia.com,
skamble@thermaxindia.com
sumedhdesai@thermaxindia.com,
pkelkar@thermaxindia.com

THAILAND

Tel.: 00-66-2-6555790. Fax: 00-66-2-6555791/ 7120608
E-mail: ngupta@thermaxindia.com, nitingupta29@rediffmail.com

MALAYSIA

Tel.: 00-603-21-669801 / 02. Fax: 00-603-21-612685
E-mail: pathak_kaustubh@rediffmail.com

PHILIPPINES

Tel.: 00-632-9-296964 / 296980. Fax: 00-632-9-296982
E-mail: pathak_kaustubh@rediffmail.com

INDONESIA

Tel.: +91-62-21-83793257/59/60
Fax: 00-62-21-83793258
E-mail: venkat@thermaxindonesia.co.id

U. A. E.

Tel.: 00-971-48861424. Fax: 00-971-48816039
E-mail: rautvm@thermaxdubai.ae, pmittal@thermaxdubai.ae

KENYA

Tel.: 00-254-20-4440233 / 206 / 207
Fax: 00-254-20-4451919
E-mail: berjeesh@spenomatic.net
sayaji@spenomatic.net

NIGERIA

Tel.: 00-234-1-7763709. Fax: 00-234-1-2704697
E-mail: thermax.ing@hyperia.com, nawzar@yahoo.com

SRI LANKA

Tel.: 00941-1-4614204. Fax: 00-941-1-4614210
E-mail: mendis@lalangroup.com
darshaka@lalangroup.com

BANGLADESH

Tel.: 00-880-2-8311511/9347754. Fax: 00-880-2-8312963
E-mail: anilbjami@yahoo.com

U. K.

Tel.: 0044 -1476-584300
Fax: 0044 -1476 -584301
E-mail: post@thermaxprocessheat.co.uk

www.thermaxindia.com

Thermax Business Portfolio

Water & Waste Solutions

Air Pollution Control

Chemicals

Boilers & Heaters

Absorption Cooling

Captive Power



In view of our constant endeavour to improve the quality of our products, we reserve the right to alter or change specifications without prior notice. All photographs shown in this publication are representative in purpose, and to be used for reference only. For actual details and specifications, please refer to Thermax offer document.