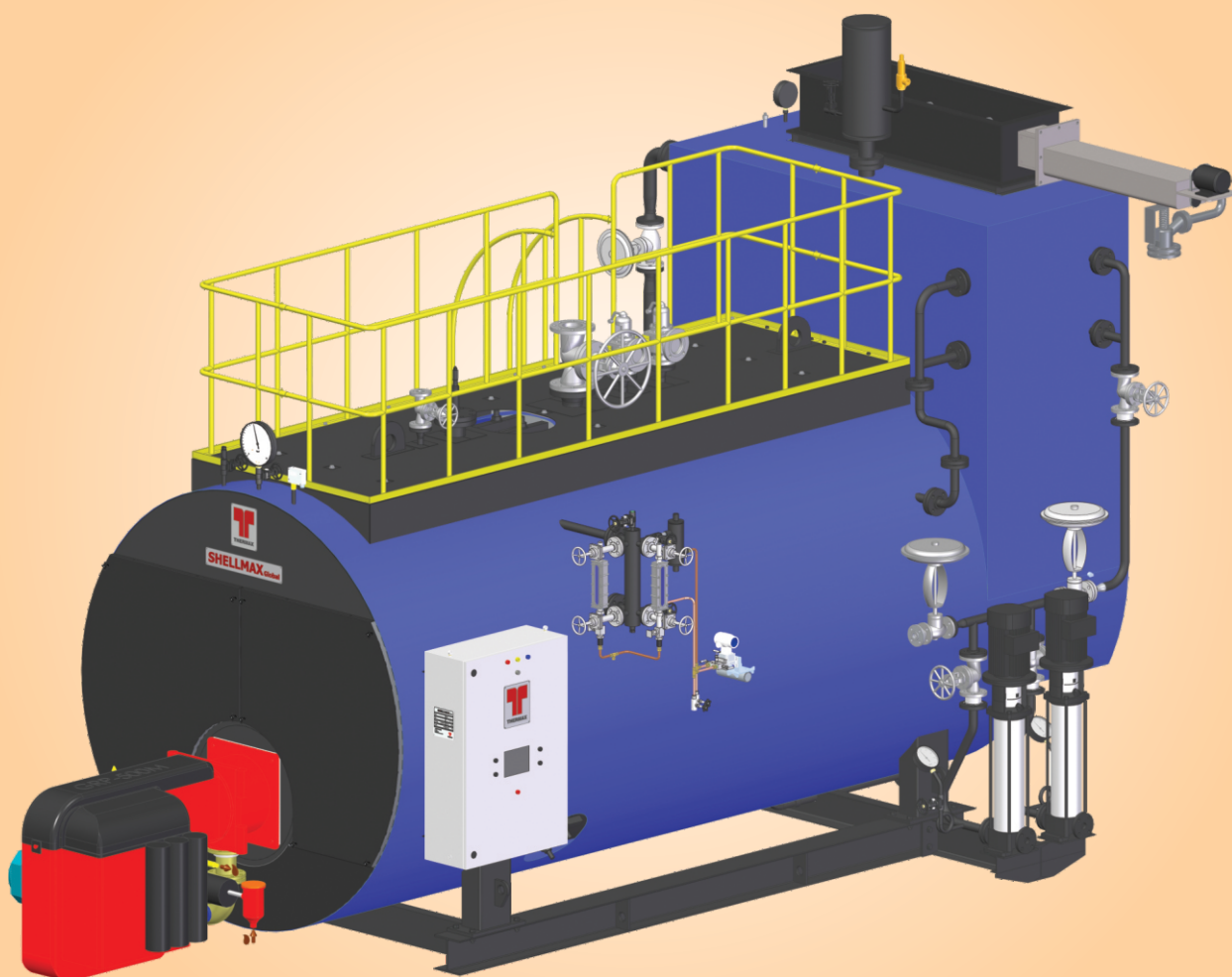


Shellmax Global[®]

Fully Packaged 3 Pass Smoke Tube Boiler



Capacity Range
1 TPH to 16 TPH

Standard Design Pressure
10.54 & 17.5 kg/cm² (g)

Heating Business



Improving your business is our business

Thermax is an engineering major providing sustainable solutions in the areas of energy and environment. Spanning over 86 countries, clients make use of Thermax's business-to-business solutions for heating, cooling, power and cogeneration plants; waste heat recovery units; systems for water & wastewater management and air pollution control; performance improving chemicals.

Thermax's operations are supported by ongoing Research & Development, tie-ups with global technology majors, an international sales & service network spread over 27 countries and state-of-the-art manufacturing facilities in 14 locations including India, Indonesia, China, Poland, Denmark and Germany.

As a part of Thermax, Heating business - a strategic business unit offers packaged boilers, thermal oil heaters, waste heat recovery boilers, hot water and air generators. These are available in modular construction as a standard package configuration or a custom design for specific requirements. Innovated by a strong R&D that focuses on customer applications, we offer a range of heating systems designed to combust wide range of solid, oil & gas fuels including biomass and heavy liquid fuels. Heating SBU helps small and medium firms & fortune 500 companies to reduce energy cost with a worldwide presence of oil & gas based systems in Middle East and Europe, biomass and solid fuel fired equipment in South East Asia and Africa.

Plug & Play

- Save installation time & cost
- Minimum civil work
- Factory insulated Boiler Skid
- Pre wired and pre assembled and upto 10 TPH

Compact Footprint

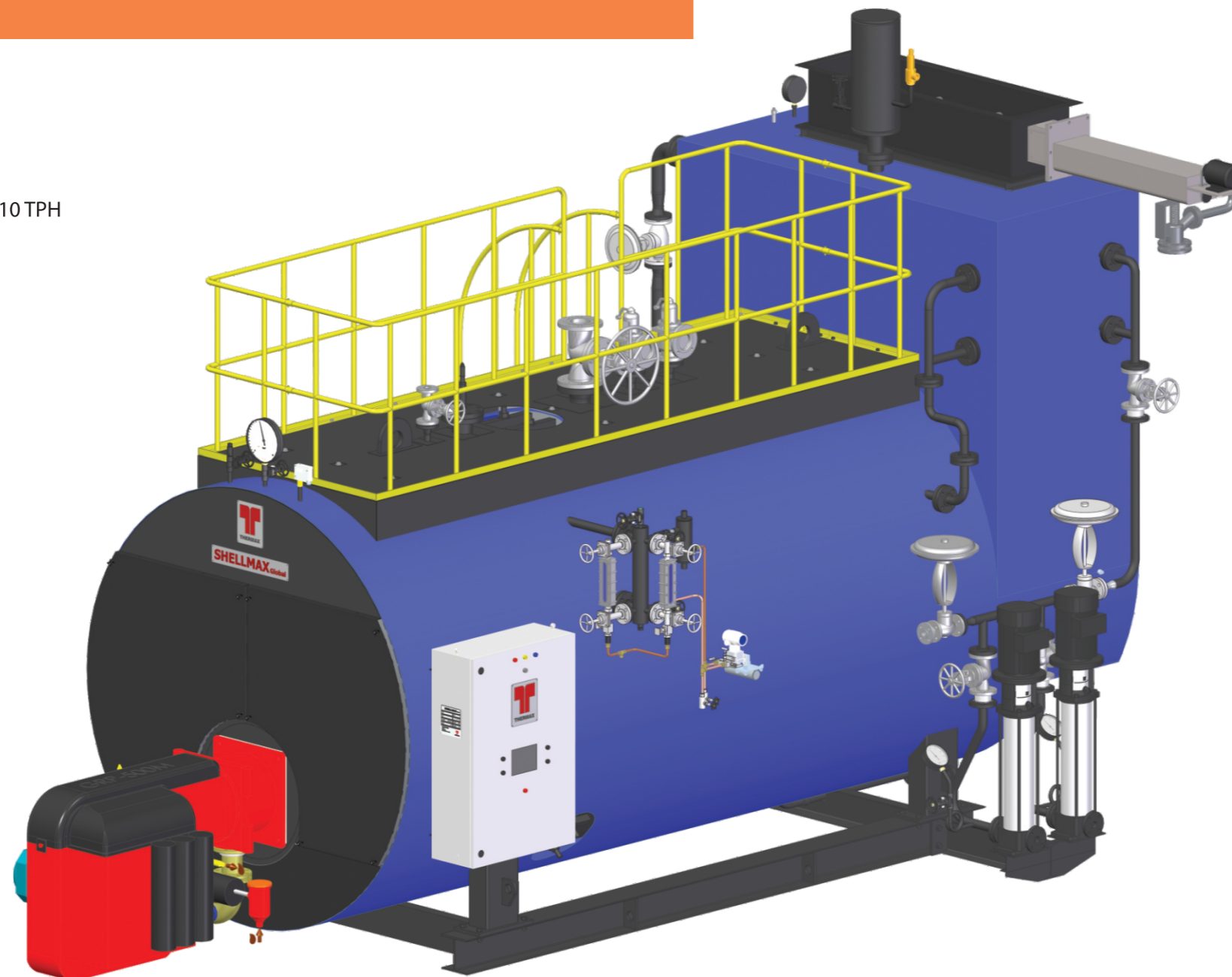
- 100% skid mounted unit
- World class aesthetics
- Ergonomic design
- Robust lagging

THERMOWIZ™

- Unleashing new PLC with HMI
- IOT enabled, with remote monitoring
- Connect over Web & Android

Burner

- Monoblock for FO upto 10 TPH
- Monoblock for Gas & LO upto 16 TPH
- Enhanced Safety
- Highest combustion efficiency

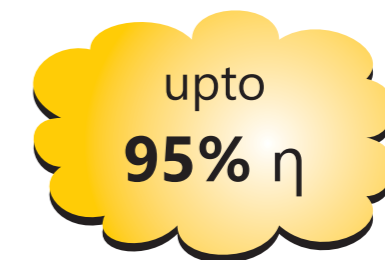


Shellmax Global™ Introduction

Continuing the legacy of product innovation Thermax has introduced the next generation of Shellmax™ - Shellmax Global™ series. These boilers are fully packaged, smoke tube type, 3 pass, light oil / gas fired boilers. They are conceptualized keeping in mind best in class efficiency, meeting global standards, low cost of ownership & world class aesthetic. With new series we have introduced unique patented design of heat recovery unit offering best in class efficiency and fuel flexibility. Ending the era of relay based panels we are providing PLC based IOT compatible smart controller as standard offering.

EFFIMIZER®

- Extra efficiency, save fuel cost at all loads
- Assured Fuel flexibility
- Save space, ducting, piping & installation cost



Probe Level Controller

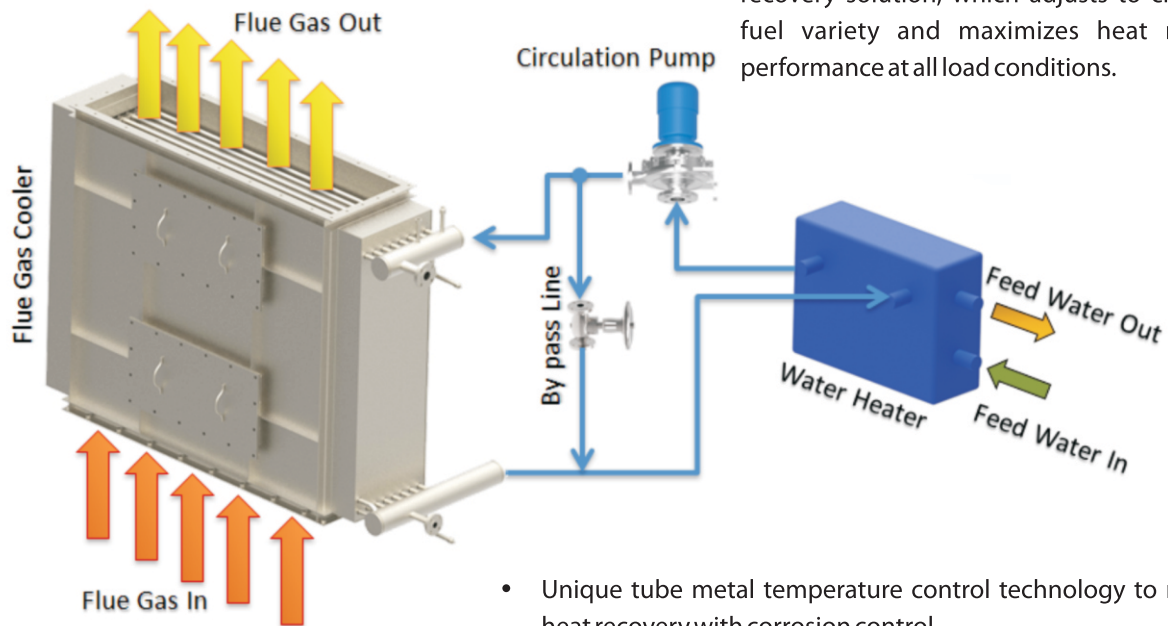
- Improve uptime
- Simple installation
- Enhanced safety
- Energy efficient



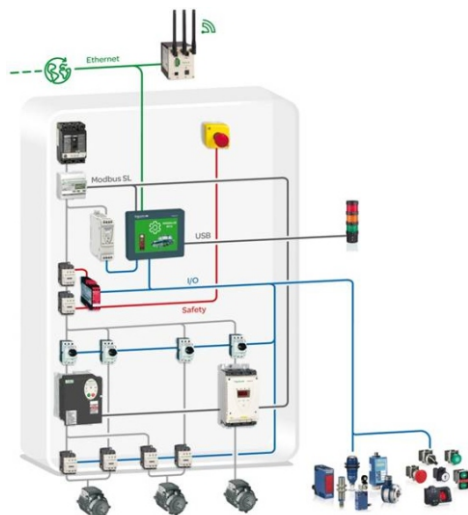
- Maximum Uptime – Zero moving parts & no electro-mechanical interface
- Energy Efficient – Blow-down is not required
- Compact & easy to install hence saves complicated piping
- Self monitoring controller complies with SIL 3
- CE marking, meets EC directive 97/23/EC

Heat Recovery System - EFFIMIZER®

Thermax is pleased to introduce unique heat recovery solution, which adjusts to change in fuel variety and maximizes heat recovery performance at all load conditions.



- Unique tube metal temperature control technology to maximize heat recovery with corrosion control.
- Save fuel cost – Additional efficiency 1% on Oil & 2% on Gas, as compared to conventional HRU.
- Fuel flexibility – Suitable for variety of fuels like Heavy Oil, Light Oil & Gaseous fuels.
- Improved uptime – No boiler stoppage for tube failure, bypass not required
- Reliability & long life – Higher resistance to corrosion by pitting.



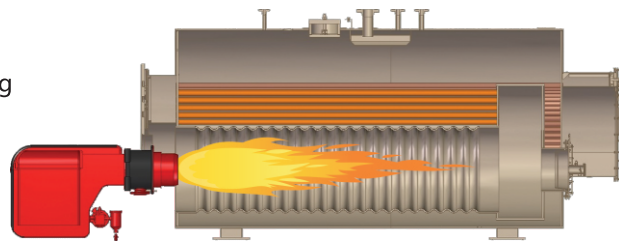
Thermowiz™

Experience the power of technology with Thermax, upgrade your system today with Thermowiz™ Smart Controller that will end the era of relay based panels

- User comfort – Touch screen graphical operator interface.
- MIS reporting – Real time trends, data logging on USB drive.
- Networking – Embedded ports on Ethernet, Serial, CAN Open protocols.
- Stay connected – via Web-gate using PC browser. Remote access on Smart Phones / Tablets.
- Program modification – Download programs through USB drive.

Furnace

- Liberally sized furnace (high volume) helps in achieving higher combustion efficiency & longer life of the boiler.
- Suitable for variety of burners.
- Low VHRR ensures lower emissions & higher efficiency.
- Higher HTA, lower exit temp ensures longer life.



Unique offering from Thermax – Corrugated Furnace* for reliability & longer life

The furnace of boiler is subject to high pressure, differential temperature across wall which causes bending stress due to differential expansion. Further, load fluctuations & pressure variation create enormous thermal cycling across the furnace, International codes for boiler design have recommended corrugation to improve mechanical strength of boiler by increasing the moment of inertia. Corrugated furnace are applicable 8TPH capacity and above

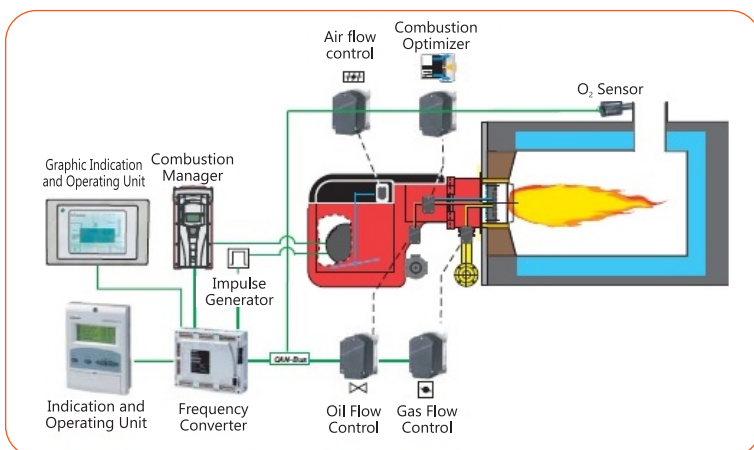
- Each corrugation acts as point of support, increasing the moment of inertia.
- Corrugation provides adequate flexibility to take care of differential expansion between furnace & tubes.
- Uniformity does not allow high stress concentration at discreet points, unlike bowling hoops / stiffener rings.
- The entire corrugation process is carried out at in-house facility, at normalizing temperature (hot forming at 950° to 980°C) to make sure the grain structure in the steel is oriented close to the parent metal to assure physical properties

* For specific sizes

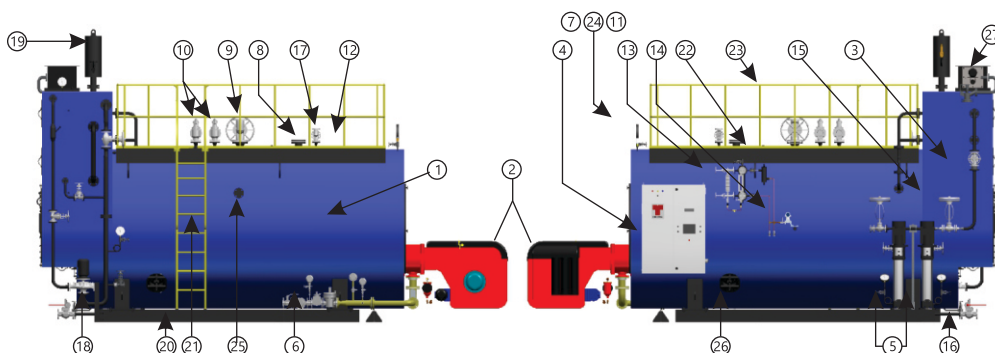
Burner

Fundamentals of burner design & manufacturing are efficiency, safety, service & environment friendliness. Shellmax Global series of boilers are provided with pressure jet, mono-bloc type burners..

- For 12 TPH onwards, dual block for FO & FO-NG fired units and Mono block for LO + GAS upto 16TPH with ECR
- Safe & reliable – Designed as per international standards EN 676, EN 267.
- Meeting stringent emission norms.
- Sourced from specialist manufacturers, having extensive R&D and testing facilities.
- Advance technologies like ECR, O₂/CO trimming, Low NO_x, speed control for CA fan are available on request.



Scope Of Supply



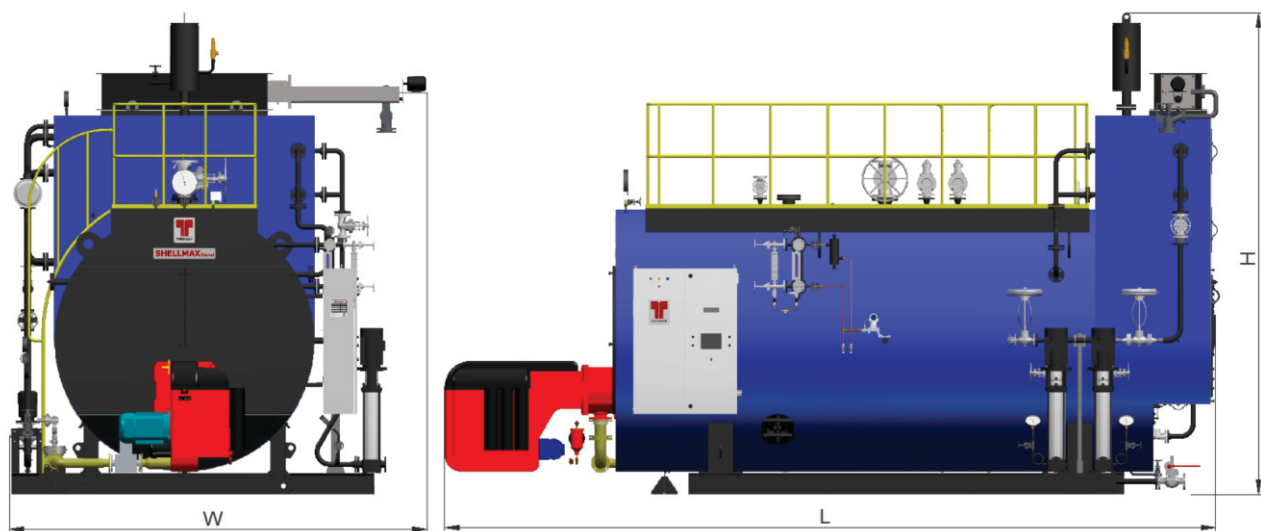
1 Unit Assembly	8 Level controller	15 Feed Control Valve	22 Platform
2 Burner	9 MSSV	16 Blow down Valve	23 Railing
3 Effimizer	10 Safety Valves	17 Air Vent Valve	24 Inspector's Pr. Gauge
4 Thermowiz	11 Main Pr. Gauge	18 Circulation Pump	25 Nozzle for ABS
5 Feed Pumps	12 Lifting Hook	19 Expansion Vessel	26 Headhole
6 Gas Train	13 Level Gauge	20 Skid	27 Soot blower for FO fired units
7 Pr. Tansmitter	14 Level Transmitter	21 Ladder	

Note : For 12 TPH onwards a) OPU for LO fired boiler is separate; b) Combustion air system & OPH for FO fired boiler is separate. For 12 TPH onwards & for offering with ECR / O₂ trimming, control panel will be foot mounted. Expansion vessel, soot blower system, burner, ladder, railing shall be sent in knock down condition.

Technical Specifications

Parameter for Shellmax Global with Effimiser													
Parameter	Capacity	1	1.5	2	3	4	5	6	8	10	12	14	16
Output F&A at 100 Deg C	kg/hr	1000	1500	2000	3000	4000	5000	6000	8000	10000	12000	14000	16000
Design Pressure		10.54/17.5	10.54/17.5	10.54/17.5	10.54/17.5	10.54/17.5	10.54/17.5	10.54/17.5	10.54/17.5	10.54/17.5	10.54/17.5	10.54/17.5	10.54/17.5
Thermal efficiency on NCV (as per BS 845 Part 1)													
FO	%	93.5	93.5	93.5	93.5	93.5	93.5	93.5	93.5	93.5	93.5	93.5	93.5
LO (HSD/LDO)	%	94	94	94	94	94	94	94	94	94	94	94	94
NG	%	95	95	95	95	95	95	95	95	95	95	95	95
Fuel consumption													
FO	kg/hr	60	90	120	180	240	300	360	479	599	719	838	958
LO	HSD-kg/hr	55	82	110	165	219	274	329	438	548	657	766	876
	LDO-kg/hr	57	85	113	169	226	282	338	451	564	676	789	902
NG	nm3/hr	67	101	134	201	268	335	402	535	669	803	937	1070
Connected load													
FO	SVLOP 10.54 kw	13.9	13.9	14.9	25.2	26.3	27.3	36.8	42.3	51.8	66.5	81.3	89.3
	SVLOP 17.5 kw	14.0	14.0	15.0	27.0	28.1	30.1	39.6	51.1	60.6	66.8	83.3	91.3
LO	SVLOP 10.54 kw	6.1	6.8	8.6	10.9	14.0	15.0	18.5	20.0	27.5	57.0	57.0	65.0
	SVLOP 17.5 kw	6.9	7.6	9.4	13.4	16.5	18.5	22.0	29.5	37.0	60.2	63.7	71.7
NG	SVLOP 10.54 kw	6.1	6.8	8.6	10.9	14.0	15.0	18.5	24.0	27.5	51.5	51.5	59.5
	SVLOP 17.5 kw	6.9	7.6	9.4	13.4	16.5	18.5	22.0	33.5	37.0	55.5	59.0	67.0
Length (L)	Meter	4.19	4.69	4.72	5.26	5.36	6.53	7.21	8.13	8.43	9.25	9.60	10.19
Height (H)	Meter	3.51	3.64	3.73	3.90	4.22	4.53	4.53	4.86	5.33	5.15	5.88	6.20
Width (W)	Meter	3.24	3.33	3.33	3.44	3.67	3.46	3.61	3.75	3.94	5.09	5.56	5.81
Flooded weight of boiler skid	Ton	9.84	12.70	12.93	17.01	22.19	27.13	28.91	34.48	43.72	51.16	64.43	81.06

Note : Efficiency as per BS 845 Part 1 Indirect Method at full load, ambient temp 40°C. Feed water temp at Effimiser inlet should exceed 80°C.



THERMAX

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Thermax Business Portfolio

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