

PACKAGE BOILERS

JOHN THOMPSON est. 1935

john thompson

ACTOM

A division of ACTOM (Pty) Ltd

Introduction

JOHN THOMPSON has a long history in the boiler industry and has its roots in the Industrial Revolution of nineteenth-century England. Now, John Thompson is a division of ACTOM (Pty) Ltd, with its principal focus on being the best boiler and environmental solutions company.

We specialise in the design and manufacture of package firetube boilers and industrial watertube tube boilers and also retrofit and maintain utility boilers and environmental equipment.

This brochure covers the products and services of our Package Boilers business unit. The firetube boilers range in steam capacity from 1 t/h up to 32 t/h and include coal-fired boilers, biomass-fired boilers, oil- / gas-fired boilers and custom-designed waste-heat boilers.

John Thompson's head office and factory are located near Cape Town and during the past 70 years we have supplied over 5 000 firetube boilers to customers in many industries in Africa, Europe, South-East Asia, the Middle-East, South America and Australia.

All of our boilers are designed focusing on low cost of ownership through designing for thermal efficiency and the use of high-quality attachments.

Our range of biomass-fired boilers uses renewable fuels with the option of generating process energy or combined heat and power solutions.

The boilers are currently designed and manufactured in compliance with the latest international standard, EN12953, and are inspected and certified by an Approved Inspection Authority before dispatch.

For further information about John Thompson, its boilers and services, please visit our website: **www.johnthompson.co.za**

BOILER PRODUCT RANGE

Oil / Gas

THOMPSON ENVIROPAC

Model number		TE500	TE650	TE800	TE1000	TE1200	TE1600	TE2000	TE2600	TE3200
Steam output	kg/h	5 000	6 500	8 000	10 000	12 000	16 000	20 000	26 000	32 000
Boiler rating	kW	3 134	4 075	5 015	6 269	7 522	10 030	12 537	16 298	20 059
Oil consumption	kg/h	302	392	482	602	723	961	1 202	1 565	1 922
Gas consumption	Nm3/h	329	427	525	656	788	1 047	1 309	1 702	2 094
Oil: GCV 43 400 kJ/kg, efficiency 86% on GCV, 92% on NCV										
Gas: GCV 41 300 kJ/Nm3, efficiency 83% on GCV, 89% on NCV										

Oil / Gas

THOMPSON REDIPAC

Model number		TR100	TR200	TR300	TR400	TR500
Steam output	kg/h	1 000	2 000	3 000	4 000	5 000
Boiler rating	kW	627	1 254	1 880	2 507	3 134
Oil consumption	kg/h	63	125	189	251	309
Gas consumption	Nm^3/h	69	136	206	273	337
Oil: GCV 43 400 kJ/kg, efficiency 84% on GCV, 90% on NCV						
Gas: GCV 41 300 kJ/Nm3, efficiency 82% on GCV, 88% on NCV						

Coal / Biomass

THOMPSON EUROPAC

Model number		TU180	TU320	TU500	TU675	TU800	TU1050	TU1350	TU1600	TU2100
Steam output	kg/h	1 800	3 200	5 000	6 750	8 000	10 500	13 500	16 000	21 000
Boiler rating	kW	1 128	2 006	3 134	4 231	5 015	6 582	8 463	10 030	13 164
Coal consumption	kg/h	177	314	491	663	785	1 031	1 326	1 571	2 062
Coal: GCV 27 500 kJ/kg, peas size grading, efficiency 84% on GCV, 87% on NCV										
Steam output on biomass is subject to the fuel analysis										

Biomass / Coal

THOMPSON OMNIPAC

Model number		TP320	TP500	TP675	TP1050	TP1600	TP2100
Steam output	kg/h	4 000	6 000	10 000	16 000	20 000	25 000
Boiler rating	kW	2 006	3 134	4 231	6 582	10 030	13 164
Wood chips: NCV 8 256 kJ/kg, moisture content 50%, efficiency 87.70% on GCV, 70.68% on NCV; Coal: GCV 15 000 - 27 500 kJ/kg, efficiency up to 84% on GCV, 87% on NCV							
Steam output: based on 105°C feedwater temperature, operating at 28 bar							
Performance and fuel consumption is subject to biomass analysis							

Biomass

THOMPSON TORRIPAC

Model number		TO400	TO600	TO1000	TO1600	TO2000	TO2500
Steam output	kg/h	4 000	6 000	10 000	16 000	20 000	25 000
Wood consumption	kg/h	1 509	2 264	3 776	5 996	7 490	9 363
Wood chips: NCV 8 256 kJ/kg, moisture content 50%, efficiency 87.70% on GCV, 70.68% on NCV							
Steam output: based on 105°C feedwater temperature, operating at 28 bar							
Performance and fuel consumption is subject to biomass analysis							

Note: Standard design pressures are 11, 14, 17.25, and 20 bar(g) (except the Omnipac and Torripac ranges).Steam output from and at 100°C (at a barometric pressure of 101.3 kPa absolute). While all information is given in good faith, it should be confirmed before establishing any contractual commitment.

Services

- Manufacturing
- Technical support
- Steam out-sourcing
- Turnkey installation
- Energy management
- High technology NDT
- Repairs & refurbishment
- Metallurgical inspection
- Boilerplant management
- Commissioning & testing
- After sales service & spares
- Operator & supervisor training
- Coal /Oil /Gas / Biomass conversions



Thompson Spiral - Tube Technology

Ancillary Plant

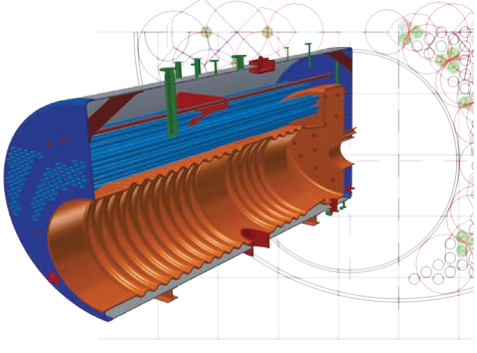
The following ancillary plant is available:

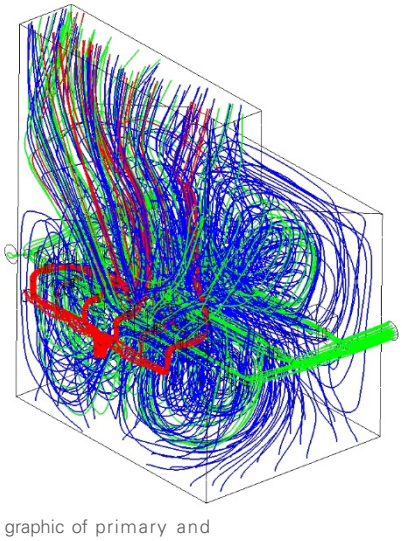
- Multi-cyclone grit collectors to reduce particulate emission to below 250 mg/Nm3
- Pulse-jet fabric filters (bag filters) to reduce particulate emission to below 50 mg/Nm3
- Atmospheric and pressure type deaerators
- Custom-designed waste-heat boilers
- Feedwater storage tanks
- Ducting and chimneys
- Fuel handling plant
- Ash handling plant
- Blowdown vessels
- Oil ring mains
- Economisers
- Pipework

Engineering Capabilities

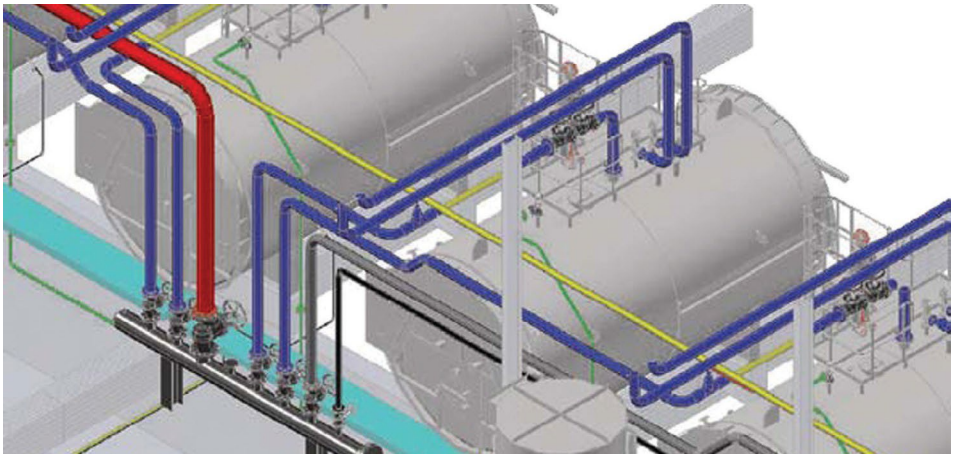
Our design and engineering staff undertake work in the following disciplines:

- Boiler design
- Pipe stressing
- Circulation modelling
- Combustion modelling
- Pressure vessel design
- Instrumentation and control
- On-site investigations and audits
- Computational fluid dynamics (CFD)





CFD graphic of primary and secondary air distribution



Boiler plant 3D model

Thompson Europac

Coal- /Biomass-fired Boiler with Euro-BMS Boiler Management System



Features & Benefits

- Thermal efficiency of 84% with GCV 27 500 kJ/kg provides 10 kg steam per kg coal
- Three-pass conventional firetube wet-back design with spiral-tubes in both tube passes
- Flanged end-plates instead of flat end-plates on selected boilers to eliminate tee-butt weld joints

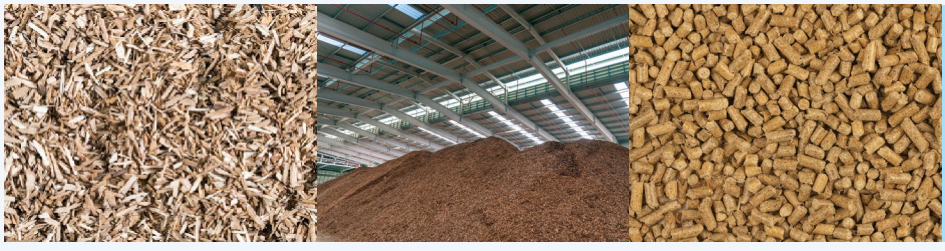
This reduces susceptibility to corrosion fatigue and extends boiler life

- Euro-BMS PLC²-controlled boiler management system to increase efficiency and reduce operating and maintenance costs. The system offers online monitoring and remote assistance.
- Variable-speed drives for FD fan, ID fan, feedpumps and stoker to reduce power consumption
- Options include standard coal-fired stoker, low grade coal-fired stoker and biomass-fired stoker
- Total package incorporates swinging chute, chaingrate stoker, feedwater pumps, control panel, grit collector, fans and all necessary valves and fittings

ThompsonTriumph

Chaingrate Stoker

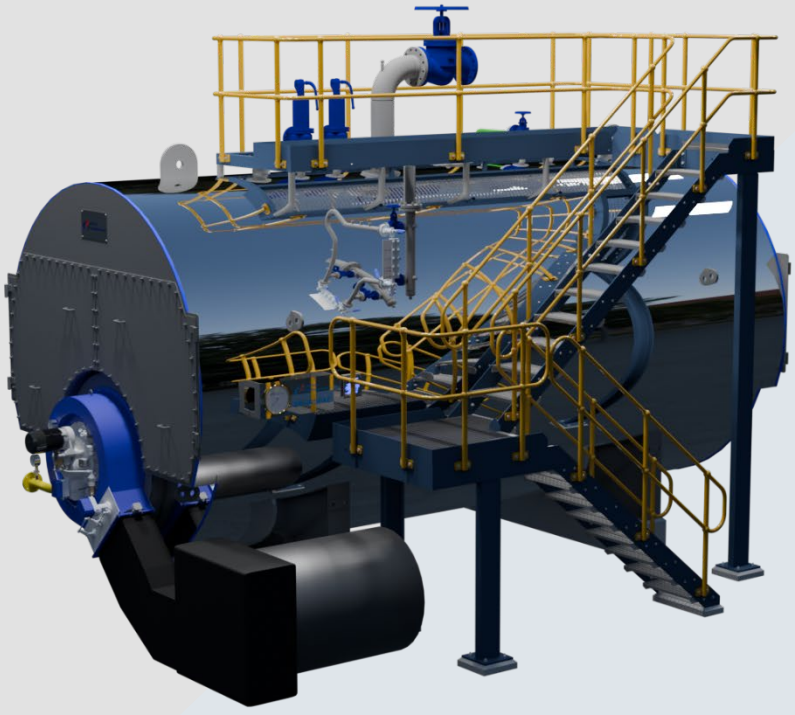




Biomass Fuels burnt on our Chaingrate Stoker and Vibrating Grate include palm kernel shell, wood chips, wood pellets, cashew nut shells, rice husk pellets, nut shells, torrified biomass and sunflower husks.

Features & Benefits

- Swinging chute for uniform fuel distribution
- Robust design and construction for long life
- Planetary gearbox with electronic shearpin protection
- Motorised undergrate dampers for optimal air zoning
- Combustion efficiency 97% based on peas size coal GCV 27 500 kJ/kg
- Combustion efficiency 93% for smalls size coal GCV 25 500 kJ/kg
- Total package incorporates a chaingrate stoker with variable-speed drive, oxygen trim (with PLC option) FD fan, combustion controls and control panel
- All cast iron components are produced at the John Thompson facility.
- All cast iron components are produced at the John Thompson foundry under the Meehanite process – the international benchmark for guaranteed quality



Thompson Enviropac

Oil- / Gas-fired Boiler

Features & Benefits

- High thermal efficiency of up to 91.5% at rated output to reduce fuel consumption and CO2 emission (An economiser can be provided for ultra-high efficiency)
- Three-pass conventional firetube wet-back design with spiral-tubes
- Flanged end-plates in place of flat end-plates on selected boilers to eliminate tee-butt weld joints. This reduces susceptibility to corrosion fatigue and extends boiler life
- Combustion equipment to suit a wide range of oil viscosities and gas compositions
- Total package incorporates burner, fan, feedwater pump, control panel and all necessary valves and fittings
- PLC- / Microprocessor-based combustion control system for optimum combustion efficiency
- Simultaneous firing solutions available for biogas-fired and secondary fuel options



Thompson Redipac

Oil- / Gas-fired Boiler

Features & Benefits

- High thermal efficiency of up to 90% when oil-fired and 88% when gas-fired
- Three-pass reverse-flame, spiral-tube, wet-back design with a low furnace rating
- Combustion equipment to suit a wide range of oil viscosities and gas compositions
- PLC- / Microprocessor-based combustion control system for optimum combustion efficiency
- Total package incorporates burner, fan, feedwater pump, control panel and all necessary valves and fittings

Thompson Omnipac

Biomass Boiler with Vibrating-grate or Chaingrate

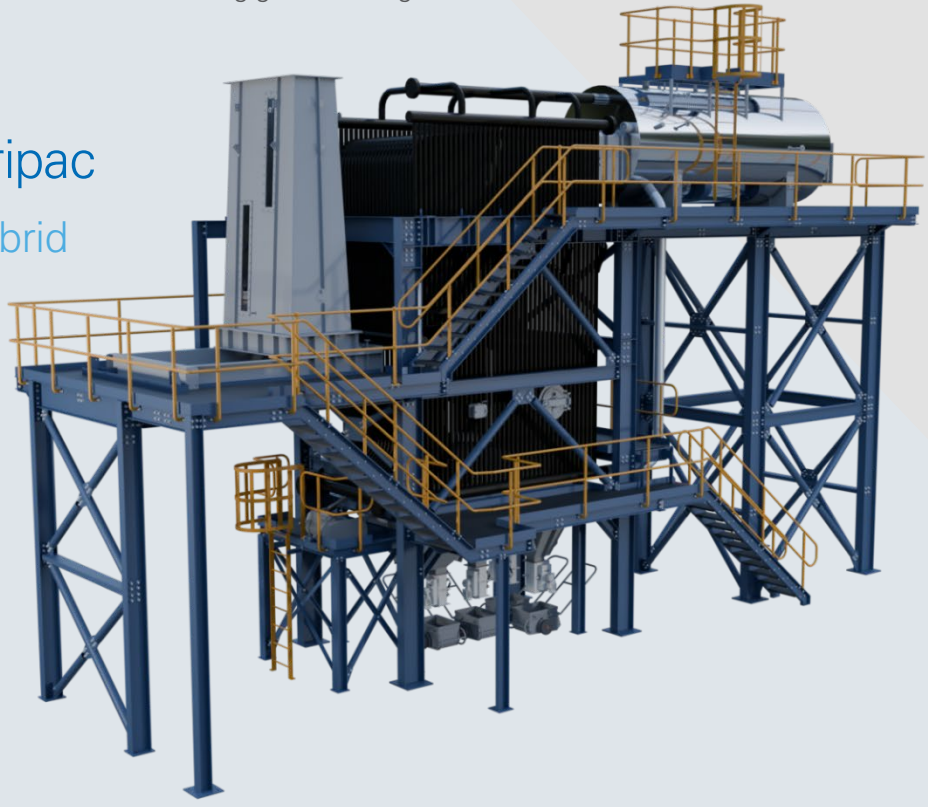


Features & Benefits

- Hybrid boiler design with high thermal efficiency up to 85%
- Full boiler rating can be achieved with biomass moisture content up to 50% and coal up to 42% moisture content.
- Configurable water-cooled furnace and evaporator options depending on the fuel characteristics
- Combustion options of Triumph chaingrate stoker, air-cooled vibrating grate or water-cooled vibrating grate for long life
- High design pressure options of up to 40bar to allow for flexibility, including combined heat and power solutions.

Thompson Torripac

Biomass-fired Hybrid Steam Boiler



Features & Benefits

- High thermal efficiency
- Vertical orientated 3-pass water-cooled furnace to achieve a low excess air ratio and low radiation loss
- Air preheat to >190°C for effective combustion of fuels with moisture content up to 50%
- Cooled robust vibrating grate, spreading and agitating the fuel
- Design pressure of up to 40bar
- Option for a controlled steam superheater to achieve steam temperatures up to 350°C

JohnThompson Branches

CAPE TOWN

Sacks Circle, Bellville South, 7530

P.O. Box 129, Bellville, 7535

Tel: (021) 959-8400

info@johnthompson.co.za

ISANDO

42 Diesel Road, Isando, 1609

P.O. Box 8382, Edenglen, 1613

Tel: (011) 392-0900

infojhb@johnthompson.co.za

DURBAN

4 Belfast Road, Bayhead, 4001

P.O. Box 32292, Mobeni, 4060

Tel: (031) 408-9700

infodbn@johnthompson.co.za

www.johnthompson.co.za