



PACKAGE BOILERS

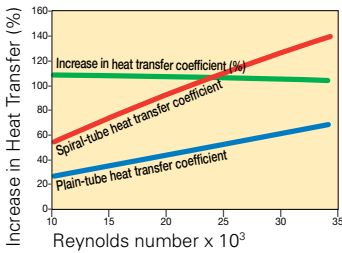
  
*Boiler and Environmental Solutions*

ACTOM



## THOMPSON SPIRAL-TUBE Technology

Heat Transfer Efficiency of Plain-tubes vs Spiral-tubes



**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 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 60 years we have supplied over 4000 firetube boilers to customers in many industries in Africa, Europe, South-East Asia, the Middle-East, South America and Australia.

All of our boilers now incorporate spiral-tube technology, developed in our test centre, which enhances thermal efficiency and reduces fuel consumption and CO<sub>2</sub> emission. 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](http://www.johnthompson.co.za)

## BOILER PRODUCT RANGE (standard design pressures 1 100, 1 400, 1 725 & 2 000 kPa, except AQUAGEN)

		<b>THOMPSON ENVIROPAC</b>									
		Model number	TE500	TE650	TE800	TE1000	TE1200	TE1600	TE2000	TE2600	TE3200
<b>Oil / Gas</b>	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	N/A	1 922
	Gas consumption	Nm <sup>3</sup> /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/Nm <sup>3</sup> , efficiency 83% on GCV, 89% on NCV									
		<b>THOMPSON EUROPAC</b>									
		Model number	TU180	TU320	TU500	TU675	TU800	TU1050	TU1600	TU2100	
<b>Coal / Biomass</b>	Steam output	kg/h	1 800	3 200	5 000	6 750	8 000	10 500	16 000	21 000	
	Boiler rating	kW	1 128	2 006	3 134	4 231	5 015	6 582	10 030	13 164	
	Coal consumption	kg/h	177	314	491	663	785	1 031	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									
		<b>THOMPSON AQUAGEN</b>									
		Model number	TQ110	TQ200	TQ310	TQ420	TQ500	TQ650			
<b>Coal / Biomass</b>	Generator rating	kW	1 100	2 000	3 100	4 200	5 000	6 500			
	Coal consumption	kg/h	164	298	461	625	744	968			
		Coal: GCV 27 500 kJ/kg, peas size grading, efficiency 88% on GCV, 91% on NCV Heat output on biomass is subject to the fuel analysis. Design pressure is less than 50 kPa									
		<b>THOMPSON REDIPAC</b>									
		Model number	TR100	TR200	TR300	TR400	TR500				
<b>Oil / Gas</b>	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 <sup>3</sup> /h	69	136	206	273	337				
		Oil: GCV 43 400 kJ/kg, efficiency 84% on GCV, 90% on NCV Gas: GCV 41 300 kJ/Nm <sup>3</sup> , efficiency 82% on GCV, 88% on NCV									
		<b>THOMPSON SIMPAC</b>									
		Model number	TS300	TS400	TS500	TS600					
<b>Wood</b>	Steam output	kg/h	3 000	4 000	5 000	6 000					
	Boiler rating	kW	1 880	2 510	3 140	3 760					
	Wood consumption	kg/h	593	791	990	1 186					
		Wood logs: NCV 15 000 kJ/kg, moisture content 25%, efficiency 77% on GCV, 85% on NCV									

Note: While all information is given in good faith, it should be confirmed before establishing any contractual commitment.

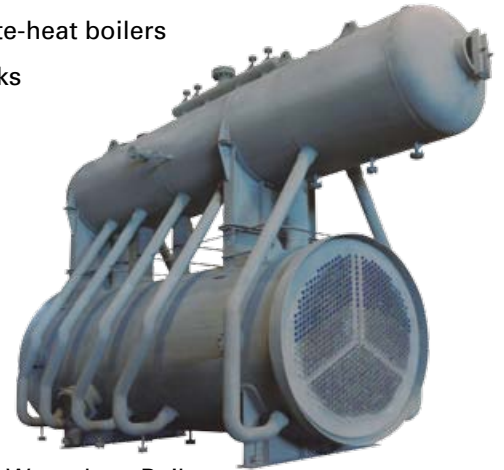
## SERVICES

- 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

## ANCILLARY PLANT

The following ancillary plant is available:

- Multi-cyclone grit collectors to reduce particulate emission to below 250 mg/Nm<sup>3</sup>
- Pulse-jet fabric filters (bag filters) to reduce particulate emission to below 50 mg/Nm<sup>3</sup>
- Atmospheric and pressure type deaerators
- Custom-designed waste-heat boilers
- Feedwater storage tanks
- Ducting and chimneys
- Coal handling plant
- Ash handling plant
- Blowdown vessels
- Oil ring mains
- Economisers
- Pipework

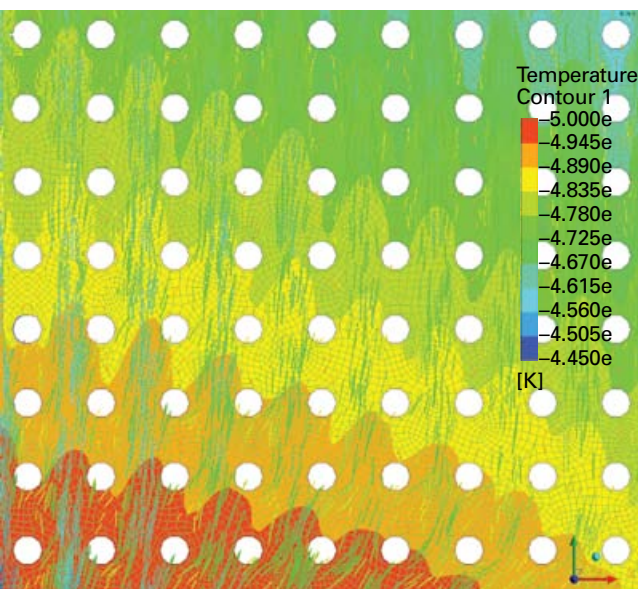
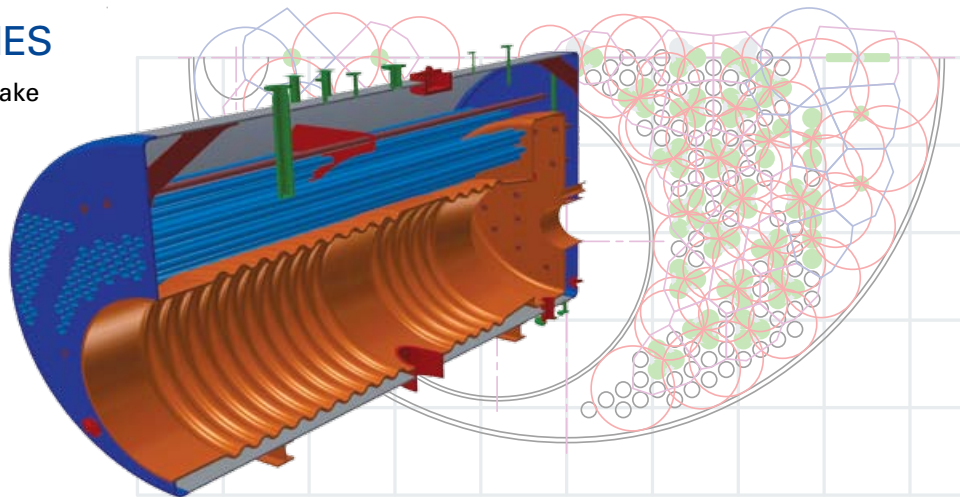


Waste-heat Boiler

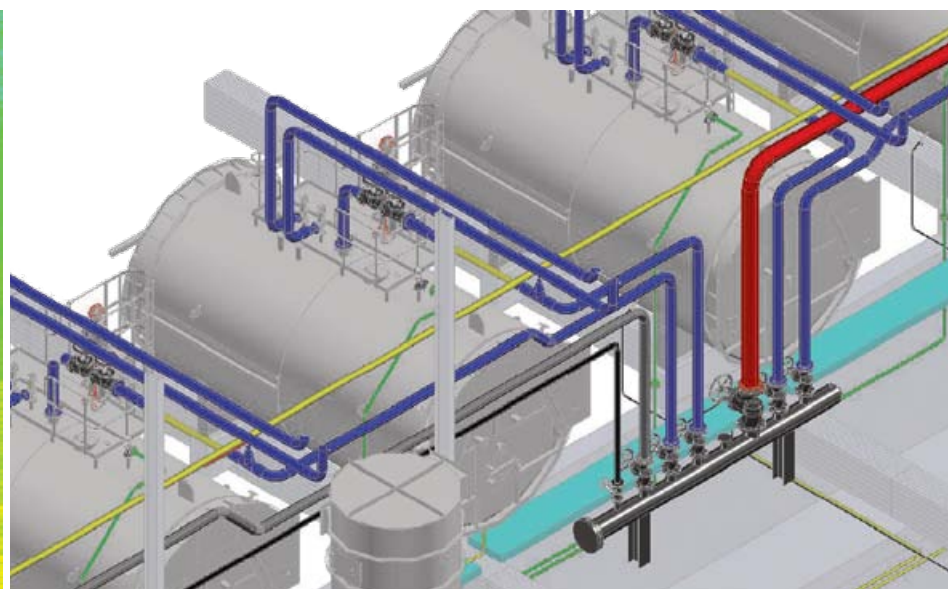
## ENGINEERING CAPABILITIES

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

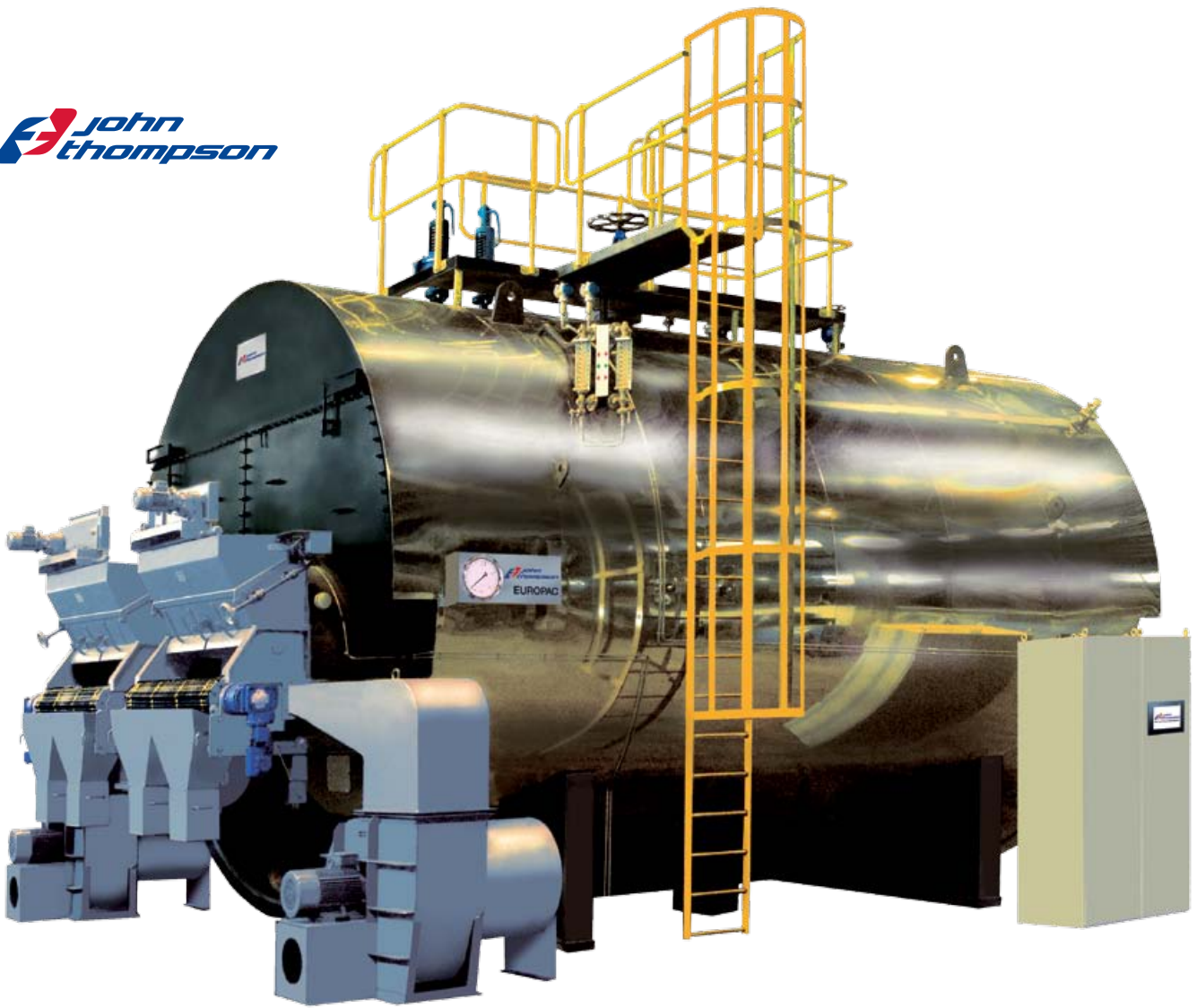
- Boiler design
- Pipe stressing
- Circulation modelling
- Combustion modelling
- Pressure vessel design
- Instrumentation and control
- On-site investigations and audits
- Computational fluid dynamics (CFD)



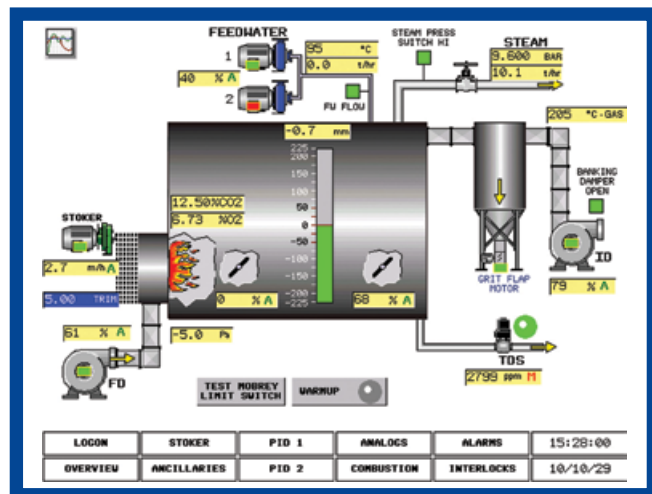
CFD graphic of an economiser bank



Boiler plant 3D model



## THOMPSON EUROPAC Coal/Biomass-fired Boiler with MICROPAC 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 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
- MICROPAC boiler management system to increase efficiency and reduce operating and maintenance costs
- Variable-speed drives for FD fan, ID fan, feedpumps and stoker to reduce power consumption
- Total package incorporates swinging chute, chaingrate stoker, feedwater pumps, control panel, grit collector, fans and all necessary valves and fittings



**BIOMASS FUELS** burnt on our Chaingrate Stoker include wood pucks, wood chips, wood pellets, grape pomace pellets, nut shells, torrefied biomass and sunflower husks.



## THOMPSON TRIUMPH Chaingrate Stoker

### 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% for 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, FD fan, combustion controls and control panel
- 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 CO<sub>2</sub> emission (An economiser can be provided for ultra-high efficiency)
- Three-pass conventional firetube wet-back design with spiral-tubes in both tube passes
- 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
- Microprocessor-based combustion control system for optimum combustion efficiency
- Twin burner boilers are available for boiler ratings above 26 000 kg/h

## 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
- 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 SIMPAC Wood-fired Boiler with Fixed-grate



### FEATURES & BENEFITS

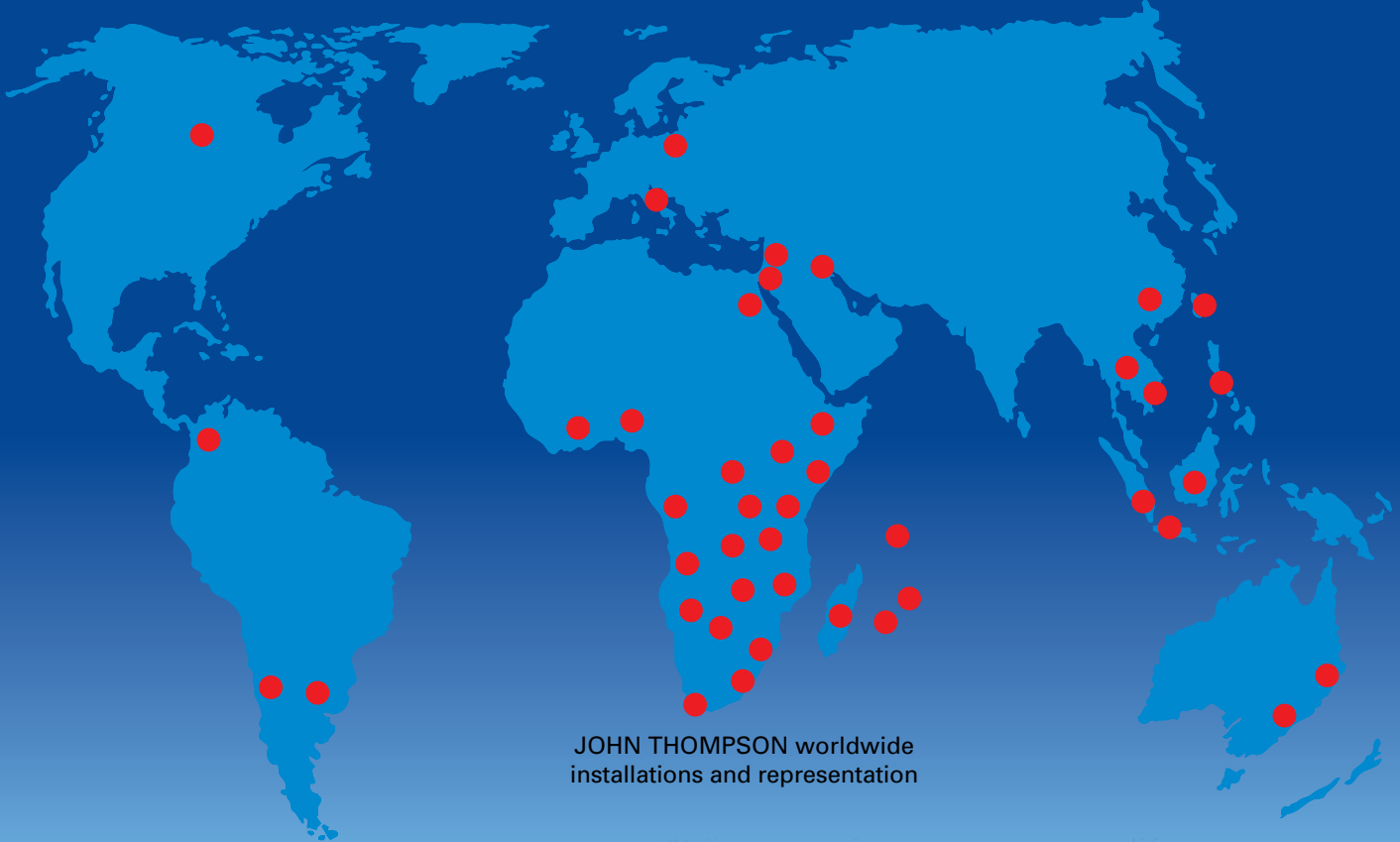
- High thermal efficiency of 85%
- Full boiler rating can be achieved with wood moisture content up to 25%
- Three-pass conventional wet-back design with spiral-tubes in both tube passes
- Fixed-grate of robust construction with high quality Meehanite cast iron grate bars for long life
- Total package incorporates a fixed-grate, feedwater pumps, control panel, ID fan with variable-speed control, and all necessary valves and fittings

## THOMPSON AQUAGEN Coal-fired Hot Water Generator



### FEATURES & BENEFITS

- Thermal efficiency of 88% with GCV 27 500 kJ/kg
- Variable-speed drives for FD fan, ID fan and stoker to reduce power consumption
- Three-pass conventional firetube wet-back design with spiral-tubes in both tube passes
- Electronic control system to increase efficiency and reduce operating and maintenance costs
- Total package incorporates swinging chute, chaingrate stoker, control panel, grit collector, fans and all necessary valves and fittings



JOHN THOMPSON worldwide installations and representation



JOHN THOMPSON head office and works near Cape Town



JOHN THOMPSON a division of ACTOM (Pty) Ltd.

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