

JOHN THOMPSON TRIUMPH®
Chainrate Stoker



ACTOM

JOHN THOMPSON TRIUMPH® Chaingrate Stoker

Features & Benefits

- Swinging chute for uniform coal distribution
- Overfire air to enhance combustion
- Planetary gearbox with electronic shear pin protection
- Motorised undergrate dampers for optimal air zoning
- Robust design and construction for long life
- All cast iron components are produced at the John Thompson foundry under the Meehanite process - the international benchmark for guaranteed quality
- Combustion efficiency 97% for Peas size coal GCV 27 500 kJ/kg
- Combustion efficiency 93% for Smalls size coal GCV 25 500 kJ/kg
- Suitable for boiler ratings from 1 800 kg/h to 10 500 kg/h
- Suitable for brickset furnace ratings from 1 400 kW to 8 000 kW
- Biomass fuels that can be burnt include: wood pucks, wood chips, wood pellets, grape pomace pellets, nut shells, torried biomass and sunflower husks
- Quality system is accredited to SANS 9001:2000
- Full range of support services available

Combustion on the John Thompson Triumph Chaingrate Stoker takes place in three stages:

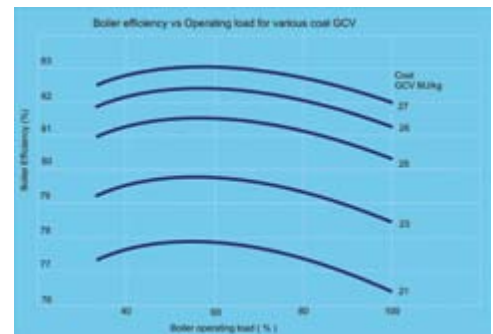
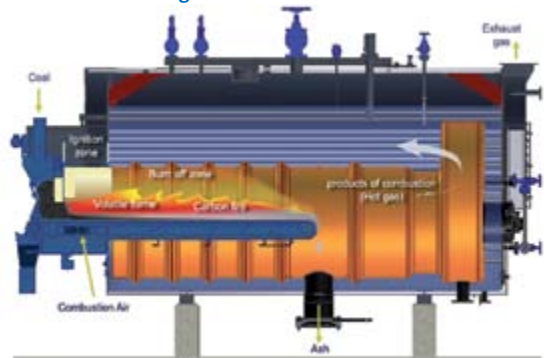
- Firstly, the volatiles or tarry fraction is distilled off and the coal ignited, then
- the coke formed during the first stage is burned leaving a layer of ash on the grate, and finally
- the ash is transported to the ash port through a high temperature oxidizing atmosphere to burn off most of the remaining carbon.

For efficient combustion to take place the air provided by the forced draught fan must be evenly distributed across the fuel bed. There are three devices inside the stoker for controlling air distribution. These are:

- Fixed inlet guide vanes to distribute the air evenly across its width;
- Controllable undergrate dampers to regulate the amount of air which is allowed to flow to the tail end of the stoker; and
- Fixed vanes located at the end of the stoker to distribute the air through the carbon lean ash layer which has a low resistance to air flow.

From a fundamental analysis of combustion on the stoker it follows that there are three coal characteristics which affect performance:

- The rate at which the coal can be ignited. This is measured to a certain extent by the volatile content because volatiles can contain inert gases, samples are best tested in a combustion pot which is designed to measure the rate of ignition of a particular sample;
- The particle size distribution which dictates the resistance to air flow through the fuel bed; and
- The ash fusion temperature. Low ash fusion temperature coals cannot be burnt at high combustion intensities without fear of slag formation on the grate.



Stoker Model Number		TT180	TT320	TT500	TT675	TT800	TT1050
Nominal Grate Area	m ²	1.4	2.3	3.1	4.3	5.0	6.6
Overall Length	mm	2 661	3 891	3 660	4 120	4 270	4 955
Minimum Inside Diameter of Furnace	mm	925	925	1 240	1 420	1 610	1 778
Length in Furnace	mm	1 407	2 638	2 256	2 716	2 786	3 396
Approximate Mass of Complete Stoker	kg	1 944	2 466	3 250	4 358	4 459	5 908
Stoker Drive Motor	kW	0.12	0.12	0.12	0.12	0.12	0.12
FD Fan Motor	kW	1.1	3.0	5.5	7.5	11	15
Overfire Air Motor	kW	1.1	1.1	1.1	2.2	2.2	2.2

Note: All dimensions and masses are approximate only. Whilst all information is given in good faith, it should be confirmed before establishing any contractual commitment.