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Type BA2 Cremators

Manufactured under license from Johnson Thermal Engineering (JTE), Engineered Thermal Systems can supply the latest model of the JTE Cremator, associated crematorium equipment and Incinerators. The JTE Cremator design has been around for more than a decade and has a proven track record of successful operation that meets the Air Emission requirements for new plants as specified by the National Environmental Management: Air Quality Act (NEM:AQA).

Our design, manufacture, testing and commissioning is done in accordance with SANS329 (Industrial Thermo-Processing Equipment) and it conforms to SANS347 (Categorization and conformity assessment Criteria for all Pressure Equipment). Adherence to these Standards is required by SASOL and SAGA (South African Gas Association) of which Engineered Thermal Systems is a proud member of.

Lenasia Crematorium

Rear View of Cremators

All controls arranged for ease of access at maintenance time. The controls shown here have rarely been touched for maintenance in the 5 years since handover. The incoming gas supply is shown on the extreme left-hand edge of the photo. The isolation valve is the yellow handled valve (handle pointing downwards) followed by equipment that is registered with the Safe Gas Equipment Scheme, per SANS requirement. The Combustion Air Fan is noise attenuated and located on top of the Cremator roof at the rear of the Cremator.

The feed across to each cremator can be seen. The main shut-off isolation solenoid valve is in this leg. Thereafter is a branch to the primary burner and secondary burner. The secondary burner can be seen on the lower right-hand side. This is the green object that the beige gas pipe enters. Above the secondary burner are the orange actuators that control the air supply to the burner and secondary chamber.

The hydraulic power pack is the blue box on the black shelf. An hydraulic pipe feeds to the front of the Cremator where two hydraulic cylinders open/close the Cremator door. The cylinders also ensure an airtight seal by locking the Cremator door in a door surround seal during the Cremation process.

The electrical/instrumentation box with PLC and fan VFD is located above the hydraulic power pack. An HMI (touchscreen) at the front of the Cremator communicates with the PLC and the HMI affords the Operator full control of the Cremator.

View of stacks

The sampling ports on each stack can be easily seen. These are standoffs 100NB pipe by 150 long. They are fitted with a 4-bolt flange and closed with a blank.

Note the rain skirts attached to the stack and upstand fitted to the roof. This arrangement provides ventilation around the stack itself and is totally rainproof.

City of Tshwane (Rebecca St) Crematorium

The bottom blue panel on the LHS Cremator that surrounds the ash box has an extra hole on the right-hand side. This is to gain access to the secondary chamber thermocouple without having to remove the blue panel. This is now a standard feature on all BA2 cremators.

Only 2 thermocouples have been replaced on the nine cremators operating in Gauteng since 2012. The secondary thermocouple is generally the one to fail since the temperatures are higher in that chamber. Can rise to above 1100°C with an obese case.

The end of a lift table can be seen between the Cremators. Battery powered, hydraulically driven (to raise / lower caskets) lift tables and Cremulators are manufactured locally by Engineered Thermal Systems and these can be included as part of our offer.

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Designers and builders of thermal process equipment

Attention: To Whom It May Concern

May 03, 2022

Dear Sir/ Madam

JTE BA2 Cremator Machine Emission Compliance

We confirm that Johnson Thermal Engineering are the designers of the JTE BA1 and BA2 Cremator Machines, locally manufactured and distributed in South Africa by Engineered Thermal Systems (PTY) Ltd.

Our JTE BA2 Cremator Machines are designed as a starved combustion or sub-stoichiometric primary chamber cremator, that ensures the gas velocities are reduced, resulting in lower particulate pickup.

Our JTE BA2 Cremator Machines are configured to only start the cremation process if the secondary chamber is above 600°C in temperature. This ensures that during the cremation process the secondary chamber temperature will rapidly rise to control at 850°C or higher to result in complete combustion of the gases and odours before existing the cremator stack.

The secondary chamber of the JTE BA2 Cremator Machines is designed with sufficient volume to provide 2 seconds of high temperature exhaust gas residence time, to ensure low carbon monoxide emission and total combustion of complex volatile organic compounds.

Our JTE BA2 Cremator Machines is equipped with an ejector in base of the cremator stack to aid with the drafting of the cremator to maintain a slight negative pressure within the primary chamber, to ensure that no gases or noxious fumes are emitted into the cremator machine room when the door is opened.

Yours faithfully,

Peter Johnson
Johnson Thermal Engineering cc