



**MacroBurn
Incinerators
with Filtration**



MACRO  **TEC**
Engineering Simplicity

MacroBurn Incinerator Plant with Filtration

Macrotec design and manufacture a range of high-quality Incinerators for general waste, hazardous waste, animal carcasses and medical waste.

Lowest Emissions: Our Incinerators are designed to reduce emissions by controlling the rate of combustion, remove acid gasses through Dry Gas Scrubbing and to remove particulate matter through Ceramic Filtration.

Highest Quality: Macrotec is certified to ISO 9001:2008 Quality Management Systems, and strives to achieve the highest quality products and services. Our Incinerators are designed to operate in the harshest conditions, with minimal moving parts and maintenance required, making MacroBurn Incinerators extremely reliable.

Typical Uses

Macrotec manufactures Incinerator models for the following uses:

- General Waste
- Hazardous Waste
- Medical Waste
- Agricultural Waste
- Animal Carcasses
- Contraband
- Plastic
- Waste Water

Current Emission Standards

Common Name	Symbol	RSA	EU
Particulate Matter	n/a	10	10
Carbon Monoxide	CO	50	50
Sulphur Dioxide	SO ₂	50	50
Oxides of Nitrogen	No _x	200	200
Hydrogen Chloride	HCl	10	10
Hydrogen Fluoride	HF	0,5	1
Sum of Heavy Metals	Various	0,05	0,5
Mercury	Hg	0,05	0,05
Cadmium Thallium	Cd Tl	10	0,05
Total Organic Compounds	TOC	10	10
Ammonia	NH ₃	10	n/a
Dioxins and Furans	PCDD/PCDF	0,1	0,1

- All measurements are in mg/m³, except Dioxins which are ng/m³ (10% O₂ normalised for RSA; 11% STP for EU).

Our Incinerators

Due to the increasing concern of emissions and the impact people have on the environment, Macrotec has designed Incinerator Plants to help improve the environment we live in. Our solution provides a way to dispose of waste while negating harmful emissions, complying with both South African and EU regulations.

Refractory & Insulation: Each Incinerator is manufactured using dual layers of Refractory and Insulation Castable, forming a single monolithic structure of extreme strength and durability, with a service temperature of up to 1,500°C, Cold Crushing Strength of 110Mpa, and expected lifetime of over 15 years. Heat loss is extremely low, with a thermal conductivity of only 0.2 W/mK, ensuring high-energy efficiency.

PLC Panel: The PLC fully automates the Incinerator, leaving zero room for operator error. HMI screens display the status of different sections, with a central control room to monitor the system. Remote monitoring and troubleshooting assistance by Macrotec technicians ensures continuous and trouble-free operations.

Auto Feeder: All Incinerators are equipped with an Auto-Feeder, which automates the feeding process and greatly increases the safety of operators. The automation also ensures full utilisation of the Incinerator, without over feeding taking place, thereby increasing fuel efficiency and productivity.

Pre-Heated Combustion Air: Our pre-heated system is designed to recover heat from waste gasses, increasing fuel efficiency and ensuring complete combustion due to more stable temperatures.

Reliability: Macrotec designs and manufactures equipment with reliability in mind. We understand that your most important requirement is minimum downtime and thus we strive to ensure our machines require less maintenance, easily performed maintenance and extremely high reliability of all parts.

Dry Gas Scrubbing: Dry Scrubbers use no water with the dosing agent injected directly into the air stream for optimal removal of acid gasses. This results in a very high removal efficiency and no water contamination which Wet Scrubbers cause. Operating costs are also significantly lower, due to low water use and minimal power requirements.

Ceramic Filtration: Ceramic Filters have consistently achieved the highest removal efficiency of any technology and form a perfect relationship with dry scrubbing due to higher temperature and gas velocity resistance. Due to the higher temperature resistance, Gas Scrubbing becomes much more efficient, with lower maintenance due to failure of conventional bag house filters.

Quality

Quality is a critical aspect of everything we do at Macrotec. From the first contact with a customer, until decommissioning of equipment decades later, we strive to deliver great quality products and services.

To ensure our focus is always on quality, we are certified to ISO 9001:2008 Quality Management Systems, with stringent checks on everything we do. This goes beyond checklists and QCP's, to strict control of manufacturing and processes and even to the thickness of the coating applied to every single product.

Our ethos is straightforward: Quality, Reliability, Simplicity, Value and Technological Expertise.

How do we achieve such low emissions?

CO: Carbon Monoxide is reduced by controlling the rate of combustion and ensuring complete combustion. This is achieved using a two chamber process with temperatures between 850°C and 1,100°C, high turbulence and long retention times.

NOx: Oxides of Nitrogen are reduced using modern burners and controlling input of air and temperature to ensure low NOx formation. Residue NOx is removed by the gas scrubber.

SO₂, HCl and HF: Acid gasses are reduced using our proprietary gas scrubber. Gasses are scrubbed in two stages; firstly preventing their formation in the Incinerator and then “polishing gas” by removing the final constituents during the filtration process. Our gas scrubber is completely dry, resulting in no pollutant water or any water usage.

Heavy Metals and Dioxins: Heavy metals, along with Dioxins and Furans are scrubbed from flue gasses using an adsorbent. A dry scrubber is used resulting in no water use and no impact on the environment.

Particle Matter: Particle matter is removed using a Ceramic Filtration Plant, which removes over 98% of particle matter.

Our Incinerator with Filtration range

	V150	V220	V330	V500
Capacity Data				
General waste (kg/h)	150	220	330	500
Medical Waste (kg/h)	100	145	220	330
Animal Carcass (kg/h)	90	130	195	300
Plastic (kg/h)	80	120	180	275

