

'The most thermally efficient, robust and reliable marine incinerators on the market
Simply Built Better!'



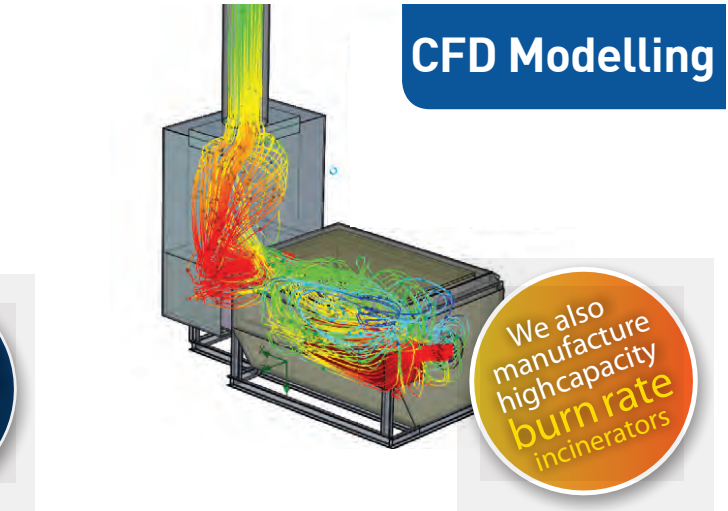
THUNDER AQUA 500kg Marine Waste Incinerator

Specifically designed for marine waste incineration and the aquaculture industry, the Addfield THUNDER incorporates some unique, class leading features whilst staying true to the Addfield robust, reliable and efficient principles. A top loading machine encased in a 10mm thick steel casing, this machine comes complete with a thermally efficient bricklined refractory and a pre-cast block abrasion/ impact resistant seal that protects it from mechanical loading. The THUNDER Aqua loading door has been sized with standard hatchery bins in mind. It is capable of a burn rate of <50kg per hour cleanly and efficiently every time. Our Aqua range comes with stainless steel fittings as standard to withstand the harshest of environments.



THUNDER AQUA

All Stainless Steel Fittings as standard on ALL models



CFD Modelling

We also manufacture high capacity burn rate incinerators



AI Controller



Refractory

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Incinerate • Cremate

THUNDER AQUA 500kg Marine Waste Incinerator

The Aqua (Marine) range is designed as a two stage incinerator unit comprising of a primary loading chamber and a secondary after burner chamber. This afterburner system draws the hot gases from the primary chamber, this ensures a clean (and compliant) burn at temperatures of 850- 1150°C.

The Addfield range of incinerators are CE Certified to BS EN 746-2 :1997, a recent emissions testing concluded the following results based on two second residue time within the secondary chamber, results are well below the EC limits.

Expected Emissions*	% by Volume
Carbon Dioxide (CO2)	7.4%
Water (H2O)	22%
Oxygen (O2)	6%
Nitrogen (N2)	64.5%
Smoke	0%
(Not detectable under standard operating conditions)	
Odour	0%
(Not detectable under standard operating conditions)	
Volume of ash	1-3%
(Dependent on waste stream)	

*These emissions are based on minimum waste calorific values 45.7MJ/kg (animal carcase). With no other waste streams present other than general packaging containers that do not make up more than 1.5% of the total load weight.

Composition of fuel being used:

Fuel Input	Diesel	Composition %
Carbon	C	86%
Hydrogen	H ₁	13.2%
Nitrogen	N ₂	0.70%
Oxygen	O ₂	0.00%

Machine Specifications: THUNDER

External Length (mm)	2549
External Width (mm)	1540
External Height/Less Flue(mm)	2495/3695

Primary Chamber Sizes:

Internal Length (mm)	1843
Internal Width (mm)	800
Internal Height (mm)	800

Chamber Volume (m ³)	0.76
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Weight (Approx. Tonnes)	3.85
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CE Certified	YES
EU Regulations Compliant	YES
DEFRA/SEPA/DARD Compliant	YES

Max Load Capacity (kg)	500
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Nominal Burn Rate UK*(kg/hr)	< 50
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Burn Rate [Export Only]*(kg/hr)	50-75
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Thermal Capacity† (kw/hr)	190
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Power Supply 50/60hz	210/230v
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Fuel Options:

Diesel	Yes
LPG	Yes
N-Gas	Yes

† Based on general municipal waste streams

* Depending on the type waste stream being loaded and excludes heat up time.

We reserve the right to change the specification, dimensions and quality of materials from time to time, so long as the alteration is minor or an improvement to the said products.

Robust, Reliable...
...and Efficient

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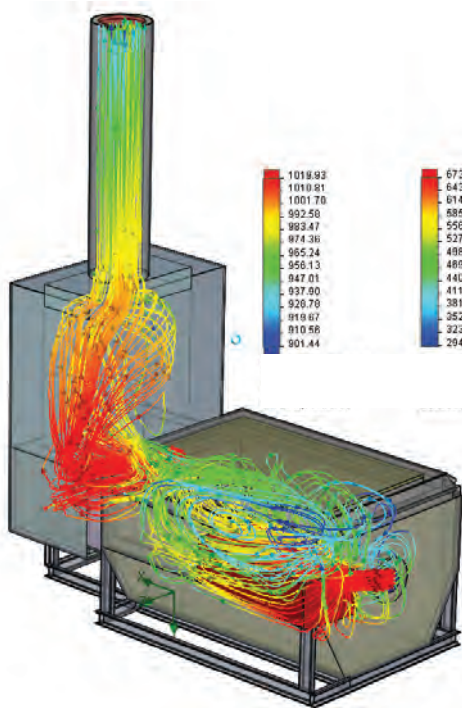
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Computational Fluid Dynamically Modelled Incinerators

Key Features:

We have CFD modelled all of our incinerators by utilising some of the most advanced software available. By using Computational Fluid Dynamics software it helps us to predict gas velocities /movements within the chambers along with external surface temperatures whatever the external ambient parameters maybe.

We also use this information to develop a more durable, robust and efficient incinerator by:

- Identifying heat build-up and stress points within the structure.
- Reducing thermal heat loss by increasing insulation systems.
- Designing out hot & cold spots to ensure complete combustion within the chamber.

General Construction

Robust, Reliable and Efficient

- Pre-fabricated 8 & 10mm robust mild steel casing, seam welded & suitably stiffened/ braced where necessary, with stainless steel fittings.
- Paint finishing - The steel structures are completely painted using a two pack high grade paint system that is baked onto the steel structure at 70°C for 10hrs. The standard colour of Aqua Series is ocean blue for the primary and secondary chambers, lid, flue and counter balance.
- Three layers of refractory lining in the primary & secondary chambers totalling thickness of 180mm, rated at 1430°C, provide increased fuel efficiency.
- Lightweight resilient refractory fibre insulation lid, providing a tight seal & gives excellent thermal efficiency.
- Removable roof and back plate for ease of maintenance.
- All combustion fuel pipe work and electrical systems are weather proof and in accordance with BS7671-17.
- A stack mounted excess air system aids cleaner more efficient burns.

Primary Chamber

- Fully insulated internal refractory lining, constructed from high grade refractory brick ensuring a self-supporting interlocked arrangement.
- One manually operated, access lid
- One waste ignition burner, temperature controlled on-off, complete with internal air fans
- A pre-cast block impact zone, that protects the refractory lining when loading.

Secondary Chamber

- Fully insulated internal refractory lining, constructed from high grade low thermal mass insulation.
- One secondary chamber burnout burner, temperature controlled on-off, complete with internal air fans
- Integrated combustion burner air fans with automatically controlled distribution to their designated area.
- One temperature sensor mounting point at the top of the chamber ensuring the chamber reaches the necessary 1100°C minimum.

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Addfield Intelligent Controller

Key Features:

- Plug and play design for easy & efficient replacement.
- Zone ramp sequence three zone controller
- Incoming and outgoing cable terminations
- Burner control gear
- Interface relays and contactors
- Temperature indication and control of the primary chamber
- Temperature indication and control of the secondary chamber
- Plant status indicators
- Cycle status indicators
- Fault status indicators
- Operator interface.



Waste Loading and De-Ashing

The Aqua (marine) series of incinerators are designed for top loading only through the main access door.

At the end of every incineration process it is recommended the ash should be removed prior to the next incineration cycle. In the UK regulatory requirements insist on sheep and cattle ash to be separated from other waste.

Waste types to be used in the Addfield THUNDER Incinerator

- Fish
- Sheep
- Pigs
- Chickens
- Butchers Waste
- Breeders
- Pet Cremation
- General Waste

Combustion System

The burner system comprises of fully automatic package burners, these burners come complete with the following features:

- Flame failure controls
- Adjustable flame patterns
- Integral fuel pump
- Solenoid valves
- Integral continuous air fan
- Fuel sensors

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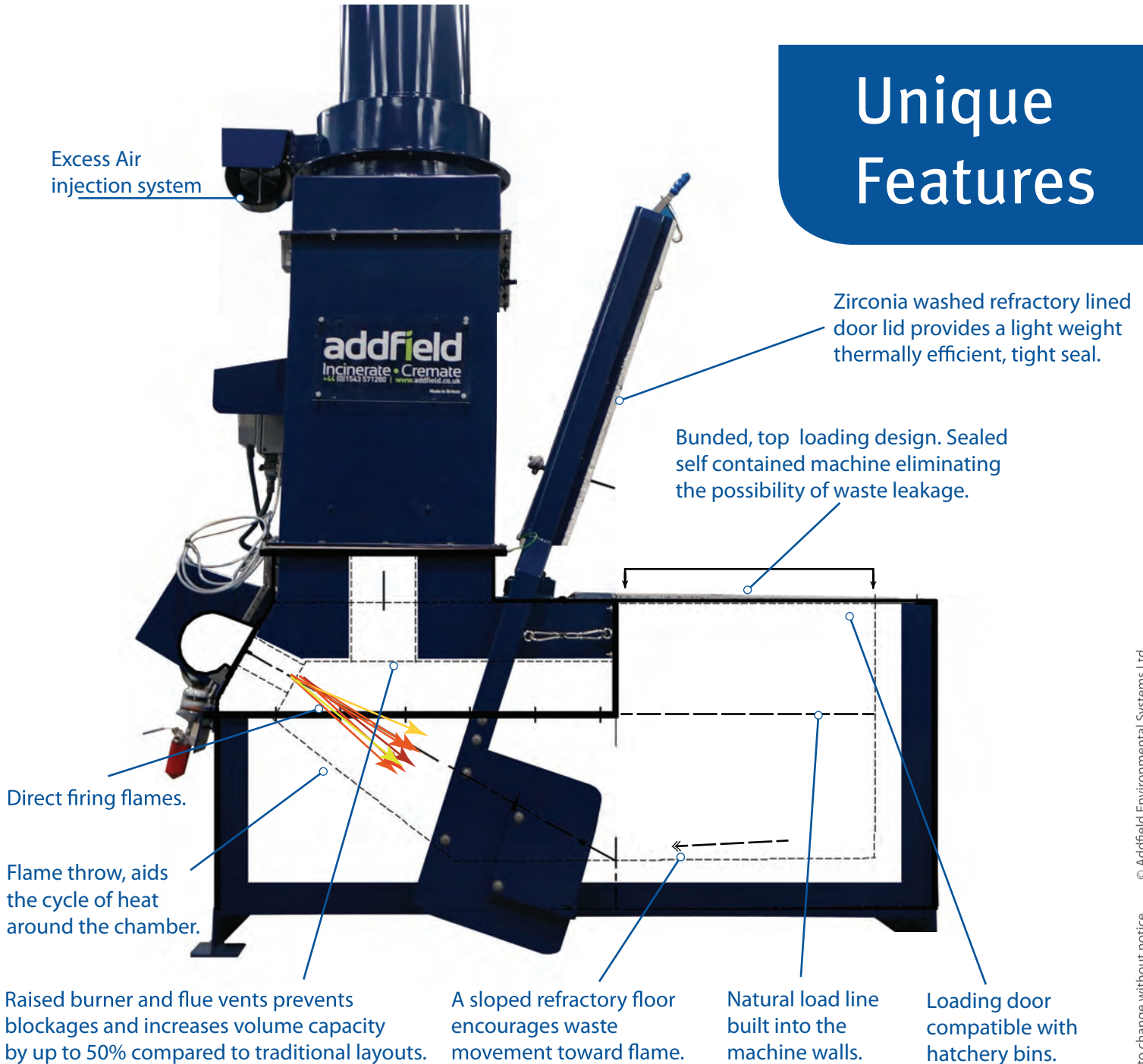
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THUNDER AQUA

500kg Marine
Waste Incinerator

Unique Features



THE CHOICE INCINERATOR FOR AQUACULTURE

Design Features:

The Thunder Aqua machines as been specifically design with aquaculture and marine use in mind

The revolutionary unique design features are not found anywhere else and are unique to the Addfield Thunder Aqua machine.

Why choose anything else?

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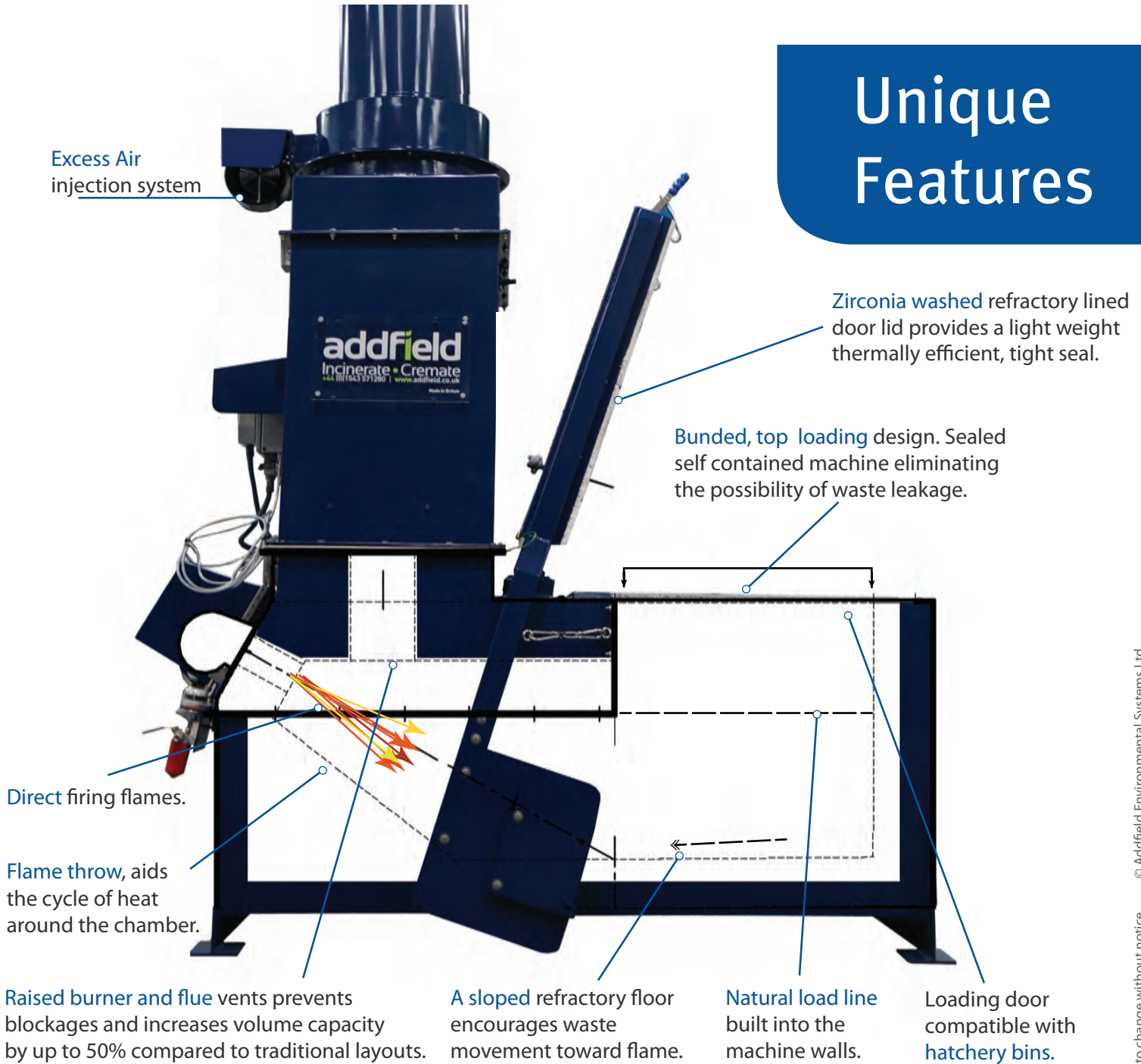
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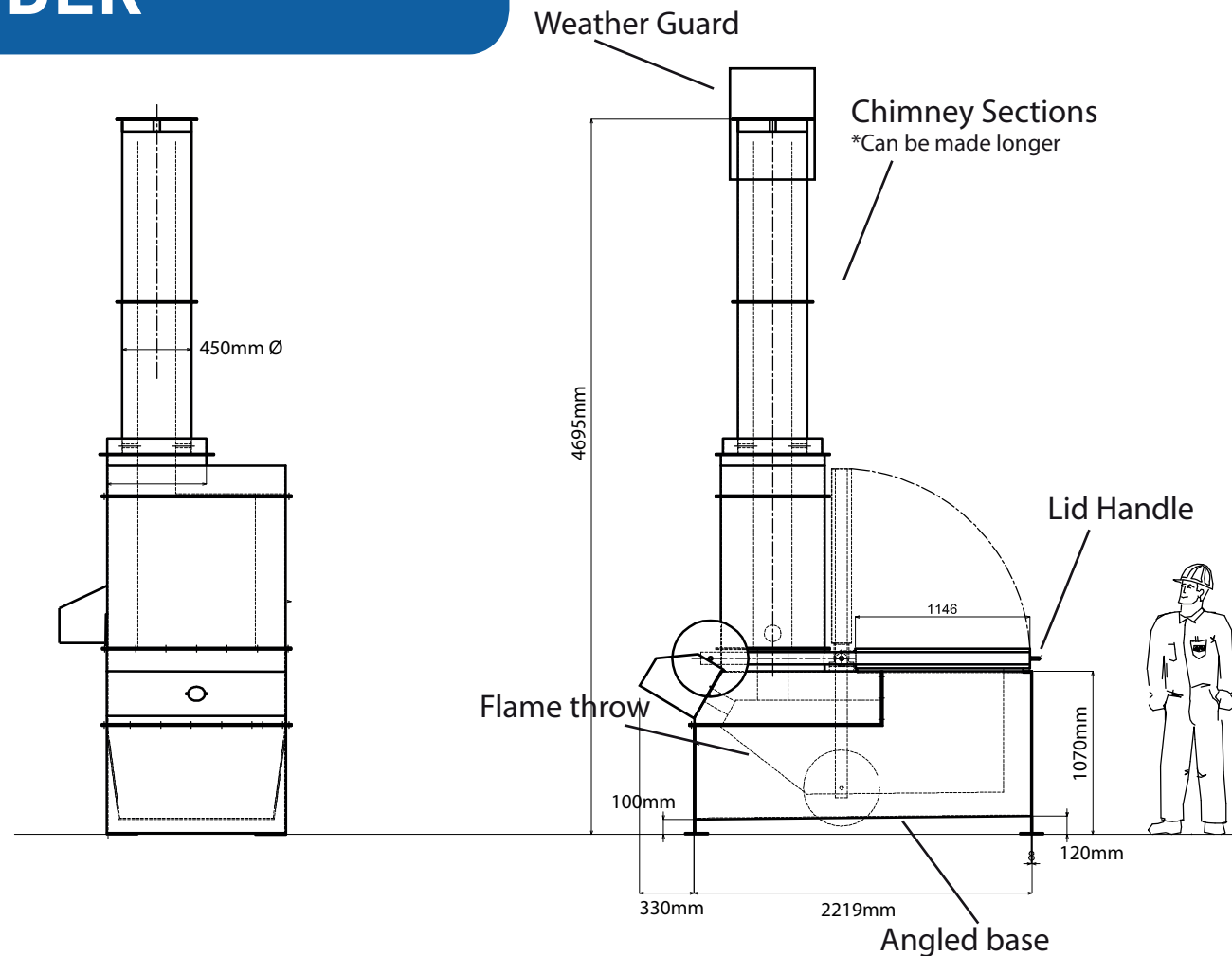
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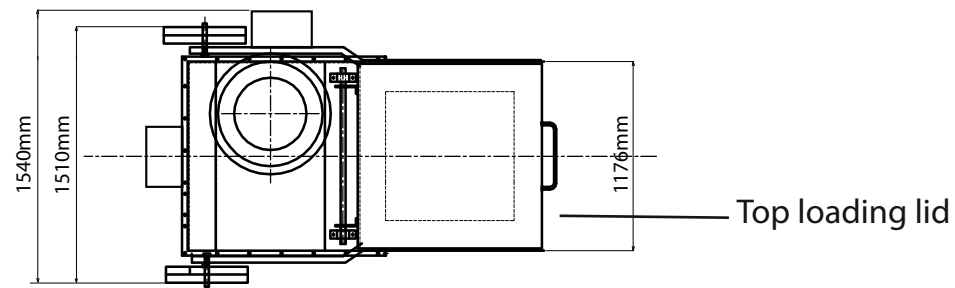
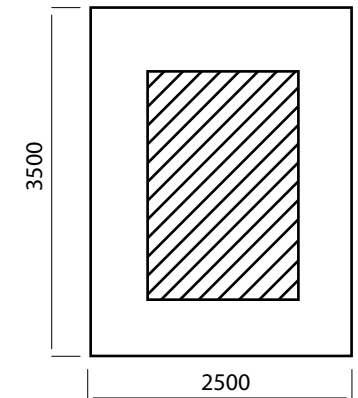
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THUNDER



FLOOR PLAN
150mm concrete base



rev.	description	
	addfield	
	Addfield Environmental Systems Ltd Unit 9, Zone 4, Burntwood Business Park, Staffordshire, WS7 3XD www.addfield.com	
	title GENERAL ARRANGEMENT OF AQUA INCINERATOR	
	scale:- Not to scale	
drawn:-	RLC	date:-
drg. no.	AQUA	rev.