

# Scope of Supply and Specifications for a standard BIGchar 2200 fixed installation

## Key Features:

- Self-fuelled two stage pyrolysis/combustion, by a patented fast rotary hearth process
- Tunable 60 – 240 seconds biomass residence time
- Double walled, insulated vessel with furnace steel lining and decks, allowing rapid start-up (30 minutes from dead cold)
- Designed to enable extended unattended operation, or single handed operation.

## General Features:

- Readily relocatable or convertible to mobile configuration.
- No wide load permit or escort required for road transport in most jurisdictions
- Programmable monitoring of operation rate, temperature and safety
- Simple maintenance
- Controlled emissions
- Industrial standard safety design
- Customisable to user requirements
- Shipping in 16 weeks from order

## Notes:

The standard system used a 3 deck configuration, which is optimised for char production. The alternative system is a 2 deck configuration optimized for processing fibrous, lighter grasses and crop wastes (e.g. cotton and cane trash, straw, hay, stubble, grass and weeds) and a 2 deck high temperature system for char activation or maximised heat yield.

### Standard scope of supply

BIGchar 2200 3 Deck Skid mounted unit with vertical oxidiser, consisting of:

Heavy duty equipment skid, including:

Vertical rotary hearth with 3 furnace metal decks/rakes and mineral insulated base.

Thermal oxidiser (no pilot burner in standard format), with 1000C/1830F fibre wool insulation and mineral insulated base. Manual secondary and tertiary air

adjustment

Char discharge auger 200 x 1800mm / 8" x 6 ft

3 Phase motors on all continuous drives, totalling 19.4kW / 27hp of installed capacity

Touchscreen PLC controls and industrial grade electrical cabinets

15kW / 20hp Induction air blower with floor mount frame

300mm/12" Volumetric feeder – Auger style for side mounting to hearth and overhead mounting of user supplied feed bin.

Package type push-button start-up burner

Single set of consumable spares.

<p><b>Typical performance</b></p> <p>Biomass feed rate (refer to biomass suitability table for permissible size, moisture and ash content)</p> <p>Heat production rate. Note, not all of the heat is recoverable, especially when the incoming biomass is greater than 15% moisture.</p> <p>Char/ash production rate (subject to biomass and machine settings)</p> <p>Emissions</p>	<p>500 – 1000 kg/h / 1100 – 2200 lb/hour</p> <p>1.5 MW – 3.5 MW / 5 - 12 MMBtu (IT)/hour @ 540 to 900 deg C / 1000 – 1650 deg F</p> <p>90 – 360 kg/h / 200 – 800 lb/hour</p> <p>No visible emissions on most feedstocks, however specific emissions are installation specific. Please consult with local regulators.</p>
<p><b>Utility requirements</b></p> <p>Electricity</p> <p>LPG / Propane (for start-up burner)</p> <p>Water (for char/ash quench duties)</p> <p>Fire water</p>	<p>25 kVA 3 phase (minimum 208VAC)</p> <p>9 kg / 20 lb per start</p> <p>250-750 lph @ 300 kPa / 65-200 US Gal/hour @ 45 psi.</p> <p>In accordance with local regulations however recommended is no less than 300 kPa / 44 psi and 2000 lph / 530 Gal/hour supply (for 4 hours)</p>
<p><b>Nominal dimensions</b></p> <p>Skid with blower attached</p> <p>Excluding 1.8m/6 ft feeder and feed bin.</p>	<p>10m / 30 ft long x 2.5m / 9 ft wide x 3.6m / 12 ft high (excluding flue)</p>
<p><b>Nominal equipment mass</b></p> <p>BiGchar 2200 Skid (as per scope of supply, except for the following):</p> <p>15 kW Induction air blower, on mount</p> <p>Volumetric feeder (does not include feed bin)</p>	<p>7700 kg / 17,000 lb</p> <p>340 kg / 750 lb</p> <p>300 kg / 660lb</p> <p>Masses are indicative only. May vary by +/-5%</p>

**Feedstock Suitability Envelope – Moisture and Ash Specification**

Moist% \ Ash%	5	10	15	20	25	30	35	40	45	50
<1	Green	Green	Green	Green	Green	Yellow	Yellow	Yellow	Orange	Orange
1.5	Green	Green	Green	Green	Green	Yellow	Yellow	Yellow	Orange	Orange
3	Green	Green	Green	Green	Green	Yellow	Yellow	Yellow	Orange	Orange
5	Green	Green	Green	Green	Green	Yellow	Yellow	Yellow	Orange	Orange
7	Green	Green	Green	Green	Green	Yellow	Yellow	Yellow	Orange	Orange
10	Green	Green	Green	Green	Yellow	Yellow	Yellow	Yellow	Orange	Orange
12.5	Green	Green	Green	Green	Yellow	Yellow	Yellow	Yellow	Orange	Red
15	Green	Green	Green	Yellow	Yellow	Yellow	Yellow	Yellow	Orange	Red
20	Green	Green	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Orange	Red
25	Green	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Orange	Red
30	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Orange	Red
>30%	Unsuitable									

This is a guide only. Feedstocks with a low volatility, rapidly released moisture, dust fractions and/or flame retardant components can increase the impact of moisture and ash content. Values represent LHV in MJ/kg

**Colour code**

- Suitable for direct use in char unit. Suitable for light-up and commissioning
- Significant loss of throughput will be experienced. Recommend a pre-drying stage using waste heat from the system. Will experience difficulties lighting up on this feedstock. Recommend alternative light-up fuel.
- Major loss of throughput & emissions control. Generally unsuitable for use unless pre-dried and/or deashed
- Unsuitable unless blended with a more suitable feed. May be better suited to composting