

Contents of QUBE system:

- Reception chamber with mono flow pump with maceration
- One bioQUBE digester
- 3.2kW powerQUBE CHP plant
- Heat exchangers
- Control panel
- Biogas storage bladder
- Connection points for export of heat and power – both island and grid tie
- Digestate Store
- PLC linked to GSM



Feedstock Specification:

Biodegradable wastes – equine manure with rape straw bedding, spent yeast, low MONG glycerol, crimped maize and household fruit and veg waste

Installed costs:

£68,382

System type:

bioQUBE

Dimensions:

powerQUBE – 3.2kW electrical
H; 2,500mm x W; 2,100mm x L; 6,100mm
(Standard 20ft Shipping container)

Plus area for gas store

Digester space nominal capacity:

One 16m³ module

Units:

1 no.

Weight:

5,000 Kg as shipped
21,000 Kg when filled

Engine CHP:

Petter with Bowman heat exchanger

CHP generator size:

Peak power: 3.2kWe
Peak Heat: 8.8kWth

Electrical Energy Output:

16,668 kWh(Electricity 29%) approx 6000 hours per year

Heat Output:

32,101 kWh (Heat 80% (as hot water at 60 – 80°C)) approx 6000 hours per year

Efficiency:

Electrical 29%
Combined 80%

Parasitic energy use:

Approx. 8%

Grid Export requirement:

Grid Tie G83 connection

Grid Connection:

Single Phase

Nominal Voltage:

240VAC

Safety features:

G83 grid connection with earth tying/bonding

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Gas output:	HS ₂ and CH ₄ sensor for leakage detection and automated shut down
Design flow rate:	Fault notification setting – GSM and web based relay
Gas Store Capacity:	Biogas (approx 54% CH ₄ and 40% CO ₂)
Bladder materials:	1.3m ³ /hr
CHP Fuel Consumption:	18m ³ bladder standard
Permit requirements (UK):	HPDE
	0.8-1m ³ per hour per kW
Routine Service:	T24 exemption and an exemption for digestate spreading from the Environment Agency (UK only)
	Monthly (H ₂ S and Moisture filter cartridge change)
Service Interval:	Engine oil check
	Engine oil change every 500 hours, spark plug, tappets. Full service every 3000 hours, timing, gaskets, head removal
Operating Temp, min to max:	45 to 75 degrees C
Sound Level:	56 dBLeq at 10m.
Installation and delivery:	100% self-contained; placed directly from off-loading lorry (6 wheeler with HIAB crane for easy access)
	Digester and other tanks installed on concrete.



Net Carbon Balance:	Production and embedded carbon 88 tonnes
	Carbon payback from electricity and heat production 14 months
Warranty:	12 months on CHP, 5 years on digester
Service:	Annual contract available but excluded from the quotation
Technical Support:	Provided for the first 12 months of operation
Design Criteria:	Designed to meet ATEX and DSEAR safety regulations and compliant with current UK biogas regulations.