

Case Study – “sugarQUBE” @ Toggam Farm 55m³ quickQUBE with a 9Kw powerQUBE CHP

Technical Specification: 55m³ quickQUBE digester with a 9Kw powerQUBE CHP



Developed by QUBE Renewables Ltd, quickQUBE is the rapid deployment version of bioQUBE designed to sanitise waste and create biogas for a variety of potential uses. Quick and simple to erect the quickQUBE is a robust, flexible fabric digester with all the functionality of the containerised bioQUBE.

With the purpose of providing power to a remote location on the Suffolk fens, this 55m³ quickQUBE digester utilises some new and innovative feedstocks. Running from a mixture of sugar beet pulp, sugar and horse manure the digester is connected to a 9Kw powerQUBE CHP to provide power and hot water to the remote site.



- 55m³ quickQUBE digester modules with a 9Kw powerQUBE CHP
- Feedstock; sugar, sugar beet pulp and horse manure
- Digester dimensions; 2m in height by 6.5m diameter
- Produces 55,734 kWh/yr of electricity and 62,981 kWh/yr of heat
- 8% IRR capital costs £192,000
- Benefit of powering a remote site
- Carbon saving of 43,936kg CO₂e per annum
- Producing approximately 100m³/day of biogas



QuickQUBE digesters are quick and simple to install. The lorry here is packed up and ready to depart for the site and contains all of the system. The site was prepared with a level concrete base so once shipped to the site installation only took one day. The day after installation the quickQUBE is “seeded” with digestate taken from another anaerobic digester to provide the correct bacteria and enable a faster start up for gas production and then feedstock can be introduced. The system was producing biogas in less than one week.

The quickQUBE needs some daily maintenance and to be fed daily. We have likened it to looking after a mechanical cow. The quickQUBE system has an automated feed system with maceration pump. This enables the site manager to deliver the feedstock into the feed reception hopper once a day and then set the feeding schedule to automatically deliver the feedstock gradually over a 24hr period. The system also comprises a gas mixing pod, biogas storage bladder, control panel housed in a separate container and 9Kw powerQUBE CHP.



At Toggam Farm the control panel is situated in a separate container and has a very easy user interface with all the variables being controlled by a touch screen unit. This data and control panel is linked to an app on a mobile phone which makes the remote control and monitoring of the unit very simple. The 9Kw CHP is quiet, efficient and reliable. It will start from 100% biogas and tolerate fluctuations in biogas quality which may occur due to feedstock. Heat from the CHP is used to heat the quickQUBE to a constant 37°C and the parasitic load of the system is very low.

Biogas is produced from the quickQUBE at approximately 100m³ per day. The methane content of the biogas has remained constant at about 59% with a retention time in the digester of 30 – 35 days. The biogas is collected in the domed roof and head space of the quickQUBE digester with additional biogas storage capacity being provided by a simple gas bladder made from a durable fabric.



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