

# MBS ENGINEERING DEVELOPS GAS-TURBINE POWERED MOBILE HEMP DRYER, FOR 'BLACK HEMP BOX'

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Engineering, Inc. has completed a working prototype for a mobile hemp dryer, powered by the Flex Energy (Portsmouth, NH) GT333S gas turbine, for sale exclusively by Oregon-based Black Hemp Box, LLC. MBS Engineering, a California general engineering and natural gas contractor, will deliver a handful of units for commercial use by year's end. The units are an industry innovation, in concept or iteration, and could have a significant impact on hemp growers' operations and infrastructure purchases.



The primary benefit of a 'mobile hemp dryer', versus stationary gas turbine-powered dryers in use, is the ability for growers to redeploy dryers to different locations as needed. Static dryers are costly and may go unused for long periods. The units may be introduced to the industry in a variety of ways: leased, purchased and shared by consortia of growers, or kept for exclusive use by one grower, as a redeployable, 'overflow' drying solution.

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*MBS Engineering President  
and Chief Engineer, Brian  
James*

Hemp has historically been used to make paper, rope, clothing and in the textile industry, but recent years have seen a burgeoning interest in CBD oil, a non-mind-altering substance extracted from dried, pressed hemp. CBD oil can alleviate an array of neurological and psychological symptoms, from chronic pain to epileptic seizures. Many

experts expect the hemp and CBD oil industry to top \$20B annually in the next few years.

While different uses of industrial hemp mandate different processes, CBD oil production requires drying harvested hemp before it can be pressed, distilled, and finally packaged. The drying process requires significant amounts of thermal energy, as well as electricity to power concomitant machines. Gas turbines are ideal for this application because they generate substantial amounts of thermal energy, or 'waste heat' - after combustion has powered an electric generator. The Black Hemp Box will capture and utilize this thermal energy, or 'waste heat', through mass air ducting, and use it to dry hemp. This process, called 'CHP' (combined heat and power), or 'cogeneration', brings gas turbines close to 90% efficiency. By contrast, grid (utility) electric and solar power are each 30% efficient. Power plants cannot operate by cogeneration, or use 'waste heat', because thermal energy cannot be effectively transported and must be utilized at an industrial location.



The 'black box' namesake is not for branding, but a marriage of design form and function. The 'black box' is steel, and absorbs radiant heat while functioning as a thermal 'blanket' to retain energy, with mobility afforded by a trailer. The dryer is powered by a single Flex Energy 333 kW gas turbine generator, with an onboard LPG (liquid propane gas) fuel source, and ancillary equipment. Harvested hemp is deposited into a hopper, moved along a conveyor and treated with heated air before being expelled from the unit for bagging. The unit has an electric starter, and can be started, stopped, and redeployed with minimal assembly. The unit is estimated to dry up to 37 tons of freshly harvested ('wet') hemp per hour, and fill up to two 'hemp super sacks' in a minute.

Ordinarily, a stationary gas turbine dryer would sit in one location for its lifetime. A mobile hemp dryer takes the benefit of distributed power generation up a notch, it's not just more efficient on-site, it's capably moved to any site, forever. "Whether it's LED lighting for grow rooms or mobile dryers, competition in the 'green' industry is sparking innovation. Gas turbines are naturally suited for hemp drying purposes, but mobility is new. We are always excited by something new," said MBS Engineering President and Chief Engineer, Brian James.

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