



MONO FUEL GENSET



POWERED BY HYDROGEN

H₂ MONO FUEL TECHNOLOGY

CMB.TECH has developed a 45 kVA zero-emissions, hydrogen monofuel genset capable of saving up to 1 tonne of CO₂ per day (24-hour operation), compared to the equivalent standard diesel genset. The hydrogen monofuel genset can provide clean energy at 0.0g/kWh HC + NO_x (with no CO or CO₂ either) and is certified as zero emission, making it equivalent to a fuel cell on emissions. It has been measured over the ISO 8178 standard cycle and does not require an after treatment system. For reference, the Euro Stage V emissions standard (the current requirement for all new gensets) for a Spark Ignition (SI) engine in this category is 2.7g/kWh for HC + NO_x [Hydrocarbons plus NO_x].

Unlike other zero emissions genset alternatives, the CMB.TECH monofuel genset is cost competitive to diesel gensets and perfectly suits the normal use pattern of the existing genset rental market, where hardware can be left in storage for several weeks, but can still be started at the press of a button.



PERFORMANCE

Based on CAPEX and OPEX, this hydrogen monofuel genset provides the most cost-effective solution for zero CO₂ portable power. Compared to a hydrogen fuel cell (the only technology producing cleaner power), the CAPEX costs for this monofuel hydrogen genset are significantly (up to 75%) lower. It requires no complicated and expensive emissions after treatment systems. The monofuel genset has greater resistance to impurities in the hydrogen supply compared to fuel cells. The load response times of this genset is comparable to that of other Internal Combustion (IC) engines, easily meeting G2 requirements for 100% load acceptance/rejection. Additionally, the hydrogen supply and control are as simple as possible minimising trapped gas volume and potential failure points.



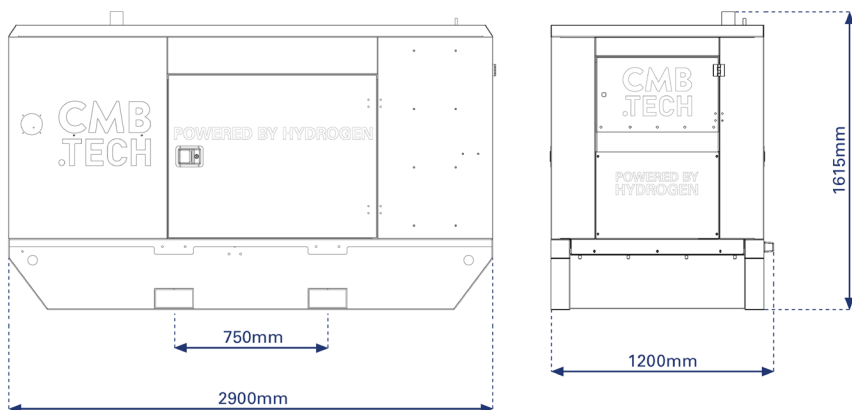
SPECIFICATION

Power	-	45 kVA
Frequency	-	50 Hz
Voltage options	-	230 & 400 V
Efficiency @45kVA	-	41 % (>70% in CHP mode)
Socket outlets	-	63 A & 32 A (Choice of 3-phase and/or 1-phase outlets)
H ₂ consumption	-	3.8 kg/hr at 45kVA
H ₂ Purity Grade	-	>99 %
Dry Weight	-	1100 kg



SAFETY

Within the engine, a pressure sensor detects any hydrogen pre-ignition, and if it is detected, the engine is shut down. An additional mechanical fail safe is provided by the CMB.TECH developed thermal fuse; should burning hydrogen exist in the inlet manifold, the thermal fuse melts (at 110°C) cutting off the power to the hydrogen injectors, stopping the engine and preventing any damage. Additionally, a shut-off solenoid in the hydrogen low pressure line is linked to ignition and E-stop, so the low-pressure hydrogen is isolated at power down.



CMB
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TO THE INDUSTRY**

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