DUMAREY

info-flybrid@dumarey.com

Dumarey Flybrid

Peak Power 200 Flywheel System

Cut generator fuel usage

and reduce CO_2

Energy stored, **power** delivered,

savings made

DUMAREY

Cut Generator Costs and Reduce CO_2

The Peak Power 200 is an industrial flywheel system, designed for use alongside generators, batteries or mains connections. The system provides a boost of high-power exactly when needed and with a fast response time. This allows smaller than normal generators to be used. As a result, this reduces fuel consumption, emissions and saves you money.

- Substantial generator downsizing.
- Reduced fuel consumption.
- Huge CO_2 reduction.
- Immediate power delivery.
- Improved voltage and frequency stability

When a high load is detected, the flywheel delivers up to 85kW / 133kVA for a short burst of power.

Industrial applications often use “Direct on Line” motors (DOL motors) which require a high power to start but then much lower power to run. As a result, generators powering DOL motors need to be sized for the very short start-up requirements and therefore are then oversized for the normal running. This effect is most pronounced on highly dynamic applications which are starting and stopping motors regularly.

Examples of highly dynamic applications include tower cranes, rock crushers, pumps and many more. Using a flywheel allows you to downsize your generator, often by a factor of 2 or 3. This results in huge fuel savings and reduces your carbon footprint.

info-flybrid@dumarey.com

One Product, Numerous Applications

Construction

The Peak Power 200 system enhances dynamic duty cycles across various equipment like tower cranes, hoists, concrete pumps, batching plants, and welding gear.

Mining & Excavation

The Peak Power 200 system is used alongside dynamic equipment such as rock crushers, graders, washers, conveyers and more.

Green Energy

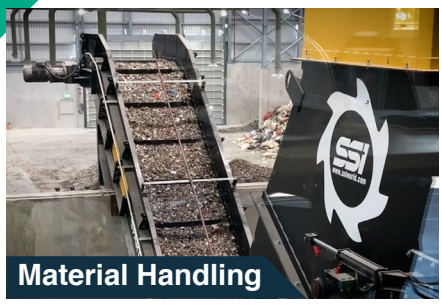
The Peak Power 200 can be used to load-level outputs from intermittent and dynamic sources such as wind and wave power. This helps avoid excessive production and associated sanctions whilst avoiding energy wastage.

HVAC and Chillers

HVAC & chillers often require regular motor starts for compressors and chillers. This makes them excellent candidates for generator downsizing using the Peak Power 200.

Pumping

The Peak Power 200 is known for its use in industrial pumping, such as concrete, water, waste, and dewatering. These applications are highly dynamic and too can benefit from a reduction in emissions.



Material Handling

Material handlers are in use across a wide range of applications, for example ports, rail terminals, scrap and recycling. These are highly dynamic applications and as such are well suited to flywheel deployment.

Testimonials

Select

"It is quite staggering when you see the **environmental savings** this technology can have on just one crane."

John F Hunt POWER

"If your project features equipment with fluctuating load such as motors, pumps, hoists or cranes, then the Flybrid units offer the perfect solution. "

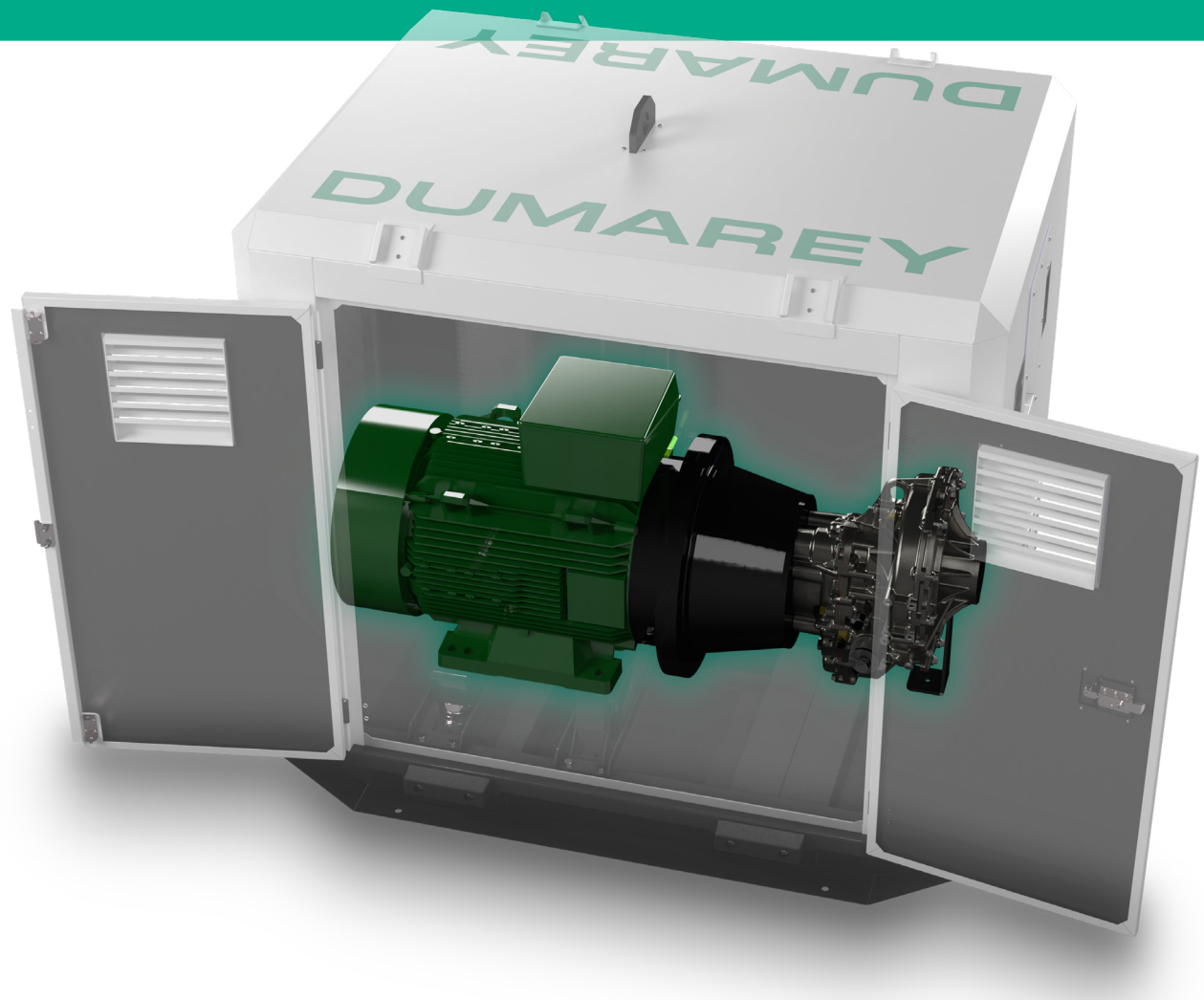
BOWMER + KIRKLAND

"Each unit hired saves **44,000kg** of carbon per year."

DUMAREY

Features

- Electrically connected flywheel energy storage system.
- Enables generator downsizing with subsequent fuel and CO_2 savings.
- 85kW of real power and up to 133kVA available to support generator for around 5 seconds.
- Power factor correction and power monitoring with external CT clamps.
- Designed for 10 years of life and over 15 million full charge-discharge cycles.
- System response time less than 0.03 seconds.
- Power limit, frequency control and voltage control modes.
- Connection terminal 125A IEC or 800A Powersafe options.
- Remote communication, monitoring, control & diagnostics.
- Single point central lifting eye and fork pockets.
- HMI with user-friendly GUI.
- CE & UKCA certified.



Three savings are made when deploying the Peak Power 200:

- The lower fuel costs associated with a smaller generator.
- Saving on the rental cost of smaller generator.
- Saving CO_2 emissions due to lower fuel usage.

The combination of these factors makes the Peak Power 200 environmentally friendly and economically attractive.

info-flybrid@dumarey.com

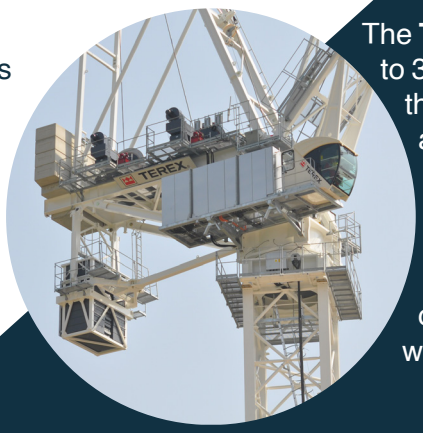
Control Panel

- 4.3” display complete with a custom interface to provide intuitive and robust operation.
- Power, voltage and frequency data for plant, generator and energy storage system.
- Flywheel module parameters: State of Charge (%), Oil Pressure, Oil Temperature, Vacuum Level.
- Event log management and diagnostics.
- Alarms and faults, including: oil pressure, oil temperature, vacuum and emergency stop button.
- Integrated start/stop based on schedule timing.
- Communications: Cloud based telemetry tool using on board 3G/4G router.

Case Study

The Problem...

A **Terex CTL1600** tower crane (right) is specified to use an 800 kVA generator to operate on a dynamic duty cycle, needlessy costing the site money and producing excess CO_2.



The Solution...

The **Terex CTL1600** tower crane was successfully downsized to 350kVA, enabling a crane to operate for 83 weeks. During this period, it saved approximately 52,000 litres of diesel and prevented nearly **139 tonnes** of CO_2 emissions from entering the atmosphere. This is the same amount of CO_2 as burning over **70 tonnes** of coal, or a Boeing 747 aircraft flying constantly for 16.5 hours, at maximum capacity. The net cash saving, taking into account rental of the smaller generator, flywheel rental, and fuel savings was over **£100,000** during the rental period of 83 weeks.

Return on Investment

Metric	800 kVA	350 kVA
Diesel usage (Litres)	57,750	26,400
Total fuel cost @ £1.50	£86,625	£39,600
Fuel savings	-	£47,025
Downsizing savings @ £980 pw	-	£49,000
Flywheel rental	-	£25,000
Net Benefit	-	**£61,625**
CO_2 savings (Tonnes)	-	**84**

Running the above downsizing of a 800kVA genset to a 350kVA over 50 weeks yields the following savings.

These calculations are based on a Stage V generator, for alternate calculations, please contact Dumarey Flybrid.

84 Tons of CO_2 is roughly equivilent to:

42,680 kgs of coal burned...

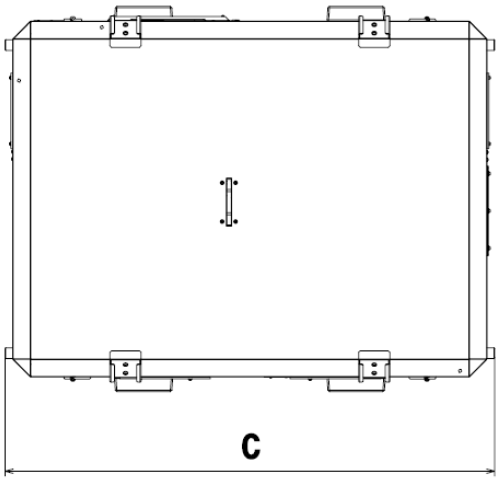
139.7 Homes’ electricity use in a year...

194 Barrels of oil consumed...

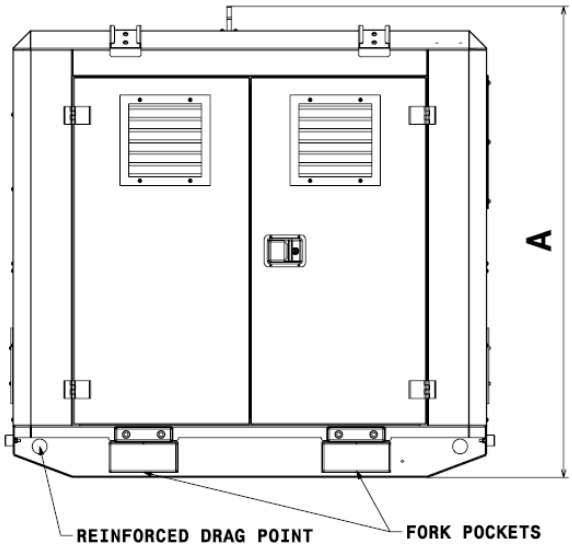
58 Petrol cars ran for a year...

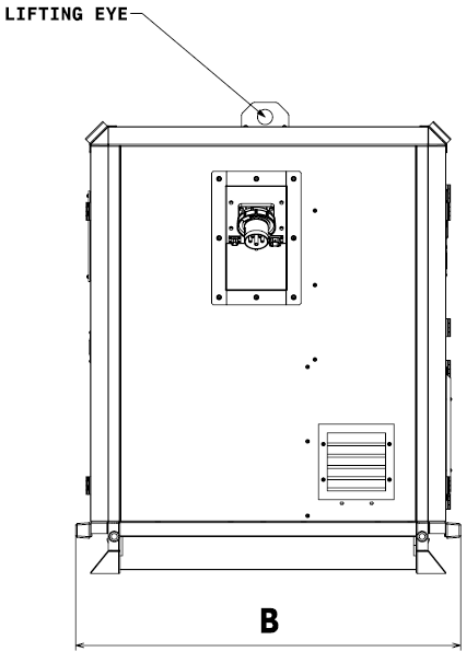
DUMAREY

Dimensions & Weight

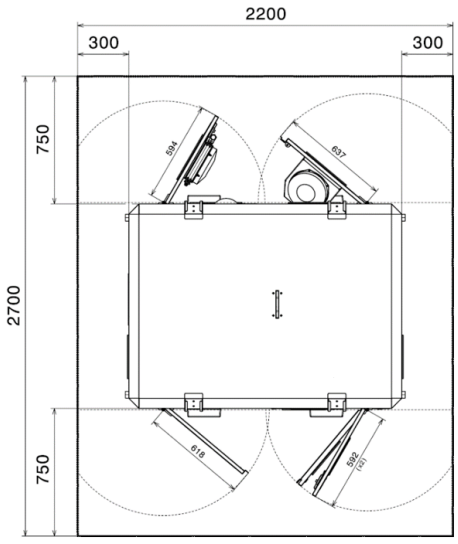


PP200	
A	1591mm
B	1300mm
C	1654mm
Mass	1280kg





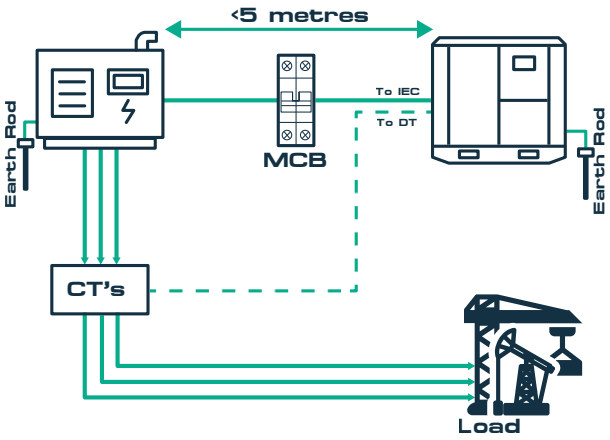
Recommended Access Clearance



Dumarey Flybrid recommend a space of 2700mm x 2200mm be left around the unit. This is to ensure that there is enough space to open the front and rear service doors to enable maintenance of the unit.

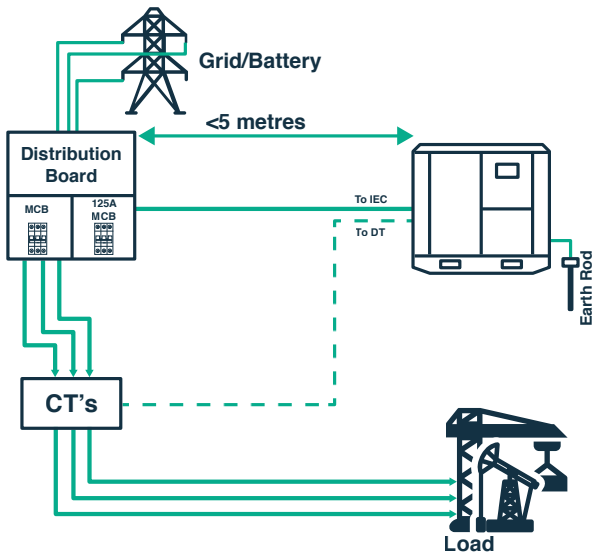
Installation

Diesel Generator



Peak Power 200 reacts to frequency voltage and power changes on the microgrid between power source and application. The Peak Power 200 can be used alongside a diesel generator or it can be connected to the grid / battery.

Grid/Battery Connection



Electrical connections	1 x 125A three phase IEC form plug, MCB protected. Powersafe (Optional)

*Custom distribution options availabale upon request.

Rapid installation and set-up in under ten minutes.

Specification & Maintenance

General Characteristics	
Operating temperature	-20 °C to 45 °C
Acoustic sound pressure level at 1m, 50 Hz (60% SoC)	68 dB(A)
Acoustic sound pressure level at 7m, 50 Hz (60% SoC)	58 dB(A)
Design Life	80,000 hours

Oil cooling	
Oil system capacity	3.0 L
Oil sump capacity	1.0 L

Electrical Characteristics	
Peak power rating	85 kW
Peak power rate	2,500 kW/s
Voltage	400/480 V
Frequency	50/60 Hz
Load reaction time	<30 ms
Reactive Power	133 kVAr

Maintenance	Oil and filter service every 12 months

Warranty	2 years from delivery

About us

Originally designed for the high intensity life of motorsport, Dumarey Flybrid's systems have demonstrated their performance under demanding conditions in various applications in off-highway, power generation, commercial vehicles and passenger cars.

Dumarey Flybrid is located next to the Silverstone Circuit in the United Kingdom and is part of the Dumarey Group, a family owned Tier 1 manufacturer and integrator of driveline and powertrain solutions.

DUMAREY

info-flybrid@dumarey.com
+44 (0) 1327 856861
www.dumareyflybrid.com

PP200-BR-V5 08/24