



Product  
Specifications

# BHE-6



*THE REVOLUTION OF POWER™*

# Model BHE-6 Features/Benefits

- **Reliability**
- **Instantaneous Power**
- **Maintenance Free**
- **Remotely Monitored**
- **Green Technology**



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## Motor/Generator

Instantaneous conversion of stored kinetic energy.  
No data loss or voice interruption.

## Underground Installation

Efficient use of real estate, invisible to vandals.  
Architectural flexibility, no noise, simple installation.

## Remotely Monitored

Accurate, real-time information on key operating parameters via a computer screen.  
Certainty of operation.

## Vacuum Enclosure

Eliminates air drag on the flywheel and component corrosion issues.  
20 year operating life.

## Totally Enclosed "Green" Technology

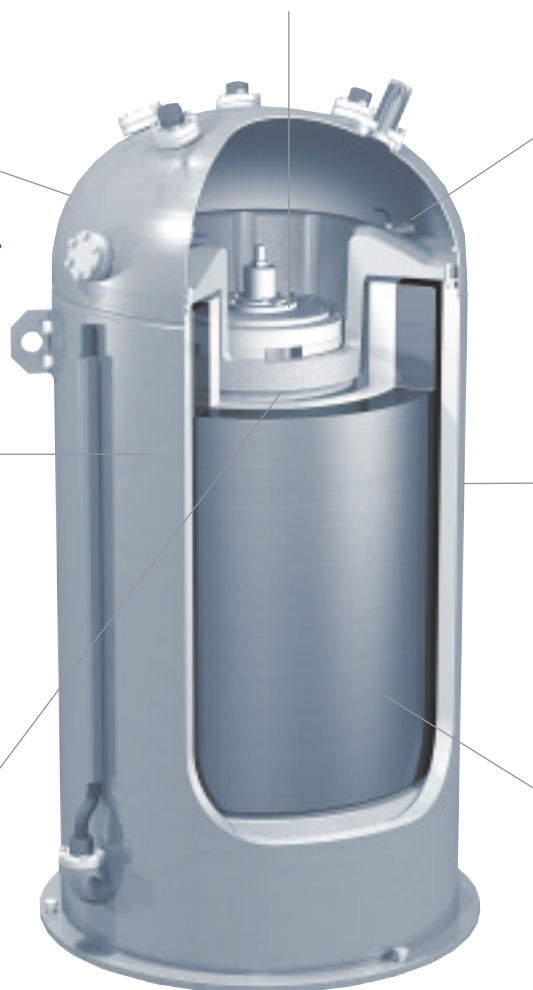
Contains no fuel or acid that could harm the environment.  
A green power solution.

## Advanced Bearings

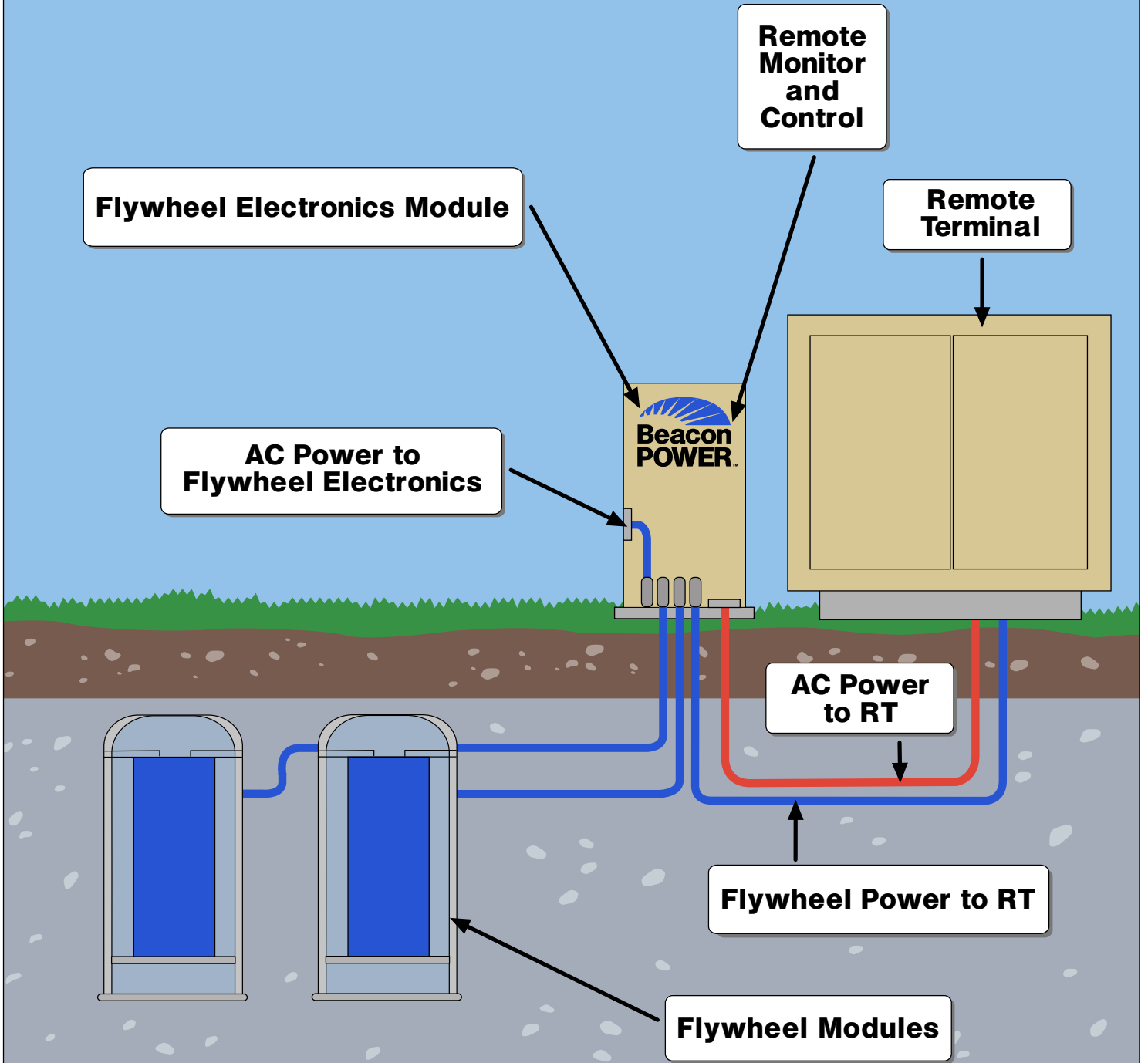
Magnetic bearing arrangement for extremely efficient flywheel rotation.  
Longer system backup.

## Composite Flywheel

Stores energy more cost effectively than metal flywheels.  
Cost effective packaging for competitive pricing.



# Typical Installation



**Efficient Use of Real Estate**

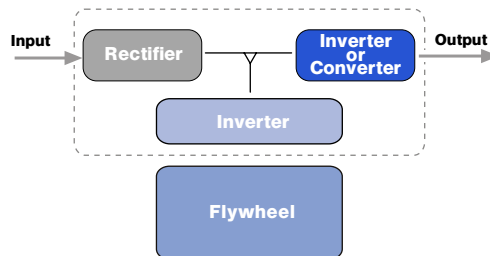
# BHE-6 Series Flywheel Energy Storage System Product Specification

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Description	The Flywheel Energy Storage System (FESS) will provide uninterruptible power for telecommunication networks. The FESS consists of a flywheel module and electronics module, and is designed to act as an energy reservoir to provide a stable supply of power, either when utility power lines are interrupted, or when the voltage bus falls below acceptable levels.
Output Power	2.0 kW maximum of continuous electrical power
Output Energy – Usable	6.0 kWh
Output Voltage	36, 48 or 96 VDC
Input Voltage	208/240 VAC (range 170 – 270 VAC), 50/60 Hz (120 VAC optional)
Discharge Mode	When the bus voltage drops below specified voltage the FESS automatically begins delivery of power to the bus.
Recharge Mode	The FESS automatically switches back to recharge upon return of charging voltage.
Recharge Time	2.5 hours or less, with 4kW of input power available
Dynamic Response	Output within 33 VDC to 42 VDC (36 V) or 44 VDC to 56 VDC (48 V) or 88 VDC to 112 VDC (96 V)
Size - Flywheel Module	49" high x 27" diameter
Size - Electronics Module	36" high x 17" wide x 15" deep
Weight - Flywheel Module	1660 lbs
Weight - Electronics Module	120 lbs
MTBF	200,000 hours
Design Life	20 years (without scheduled maintenance)
Operating Ambient Air Temperature	-40°F (-40°C) to 115°F (46°C) (per Telcordia Specification GR-487-CORE)
Acoustical Noise	< 55 dBA at 6 ft (installed underground).
Environmentally Induced Vibration	Meets Telcordia Specification GR-487-CORE, Section 3.35.5
Transportation Shock and Vibration	Meets Telcordia Specification GR-63-CORE, Section 4.4.4
Earthquake	Meets Telcordia Specification GR-63-CORE, Section 4.4.1, Zones 0,1,2
Immersion	Flywheel module is capable of full immersion
Lightning	Passes surge immunity test per Telcordia Specification GR-1089-CORE
Fire/Safety	UL Listed. Meets Telcordia Specification GR-487-CORE, Section 3.33.
EMI	Meets FCC Specification Part 15J for class A equipment
Remote Monitoring	Proactive 12 point operational and fault monitoring
Single and Parallel Units	FESS can be paralleled to 4 units with automatic load sharing.
Internal System Protection	The FESS has internal system protection which will shut-down the unit if one of the following parameters exceeds predetermined limits: <ol style="list-style-type: none"> <li>1. Speed</li> <li>2. Vibration</li> <li>3. Flywheel Power in Float Mode</li> <li>4. Output Voltage</li> <li>5. Motor Temperature</li> <li>6. Bearing Temperature</li> <li>7. Rim or Electronics Temperature</li> </ol>

## The System

Beacon Power's Flywheel Energy Storage System is designed to applicable Telcordia requirements contained in GR-2957, GR-487, GR-63. It provides standby power for telephone, wireless and cable TV networks. The FESS consists of the flywheel module and Flywheel Electronics Module (FEM). Power from the incoming line is used to drive the flywheel to rated speed thereby converting electrical power into stored kinetic energy. A bi-directional inverter directs the stored energy back into the system when power is lost or interrupted. The result is high quality, reliable, instantaneous standby power.



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