

# **Power consumption of the battery pack itself**





## Overview

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Lithium ion batteries (LIB) are widely used to power electric vehicles. Here we report a comprehensive manufacturing energy analysis of the popular LMO-graphite LIB pack used on Nissan Leaf and Chev.

How much energy does a battery pack consume?

The specific energy consumption of compressed air is set at 4 cfm/hp, and an average power factor of 0.85 is used in calculating the electricity energy consumption. After the battery cells manufactured, the manual assembly of the battery pack consumes 3.9 Wh/kg energy for welding and screwing . 3.1.

How much energy does a 24 kWh battery pack consume?

As calculated, the specific energy consumption for the 24 kWh battery pack is 50.17 kWh/kg of the battery pack produced. Among that, 38% of energy is consumed during the electrode drying process, and 43% consumed by the dry room facility.

How much energy does a battery use?

When compared, the industrial scale battery manufacturing can reach an energy consumption as low as 14 kWh/kg battery pack, representing a 72% decrease in the energy consumption, mainly from the improved efficiency relative to the increased production scale.

How much energy does a lithium ion battery pack consume?

For instance, the energy consumed in lithium ion battery pack manufacturing is reported between 0.4–1.4 kWh/kg in Refs. , , , but between 16.8–22 kWh/kg as reported in Refs. , , , .



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Figure 1: Storage life comparison for two battery

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