SkyMotion™ 400 Machine

SkyRise® system

Otis SkyMotion™ machines optimize Permanent Magnet (PM) motor technology and variable frequency drive technology to provide the ultimate in high-rise building elevator propulsion.

**Higher energy efficiency**

The SkyMotion 400 machine uses permanent magnet motor technology, resulting in increased efficiency and near unity power factor. This significantly decreases energy consumption and operating costs and lowers heat release in the machine room.

A conventional asynchronous machine (induction motor) requires an additional electric current to create the rotor magnetic field. This current represents 6-10% of the total current used by the machine to generate torque, leading to increased losses. In a PM machine, the permanent magnets provide a constant magnetic field, thus decreasing the electric current requirements and motor losses.

**Smaller footprint**

By design, the power density of a PM motor is higher than induction motors, thus reducing weight and volume. This provides for a smaller footprint and machine room space savings. Weight savings and reduced size enable easier and faster installation.

**High reliability**

The SkyMotion 400 machine utilizes a compact low-noise disc brake designed to meet the most stringent of codes and provides built-in Uncontrolled Car Movement and Ascending Car Overspeed (ACO) protection as required by ASME 17.1, EN81 1 and GB-7588. The SkyMotion machine technology uses an encoder with no wearable parts, along with fully encapsulated electronics. Otis provides high-capacity bearings with oil bath lubrication that extends the life of the machines.

**Advanced control**

Using advanced field-oriented vector control drives, the SkyMotion 400 machine ensures optimal velocity profile control and smooth operation for greater passenger comfort. The compact rotor design reduces rotational inertia, enabling smoother and faster acceleration, which is of great importance in high-rise and high-traffic buildings.
Designed for high-traffic and high-rise applications, the SkyMotion 400 machine provides optimal energy efficiency with reduced size compared with power induction motor technology.

**Energy-efficient**

50% less energy loss than conventional induction machines

95% rated efficiency in a compact package

**Smaller footprint**

50% Up to 50% smaller footprint than conventional machines

50% Up to 50% less weight than conventional machines resulting in lower construction costs

**High reliability**

High-reliability, compact design disc braking system provides ample clamping power with low noise actuation

**Long life**

High-capacity bearings with oil lubrication extend the life of the machine. Variable-speed cooling fan and proven brake design, enhancing performance.