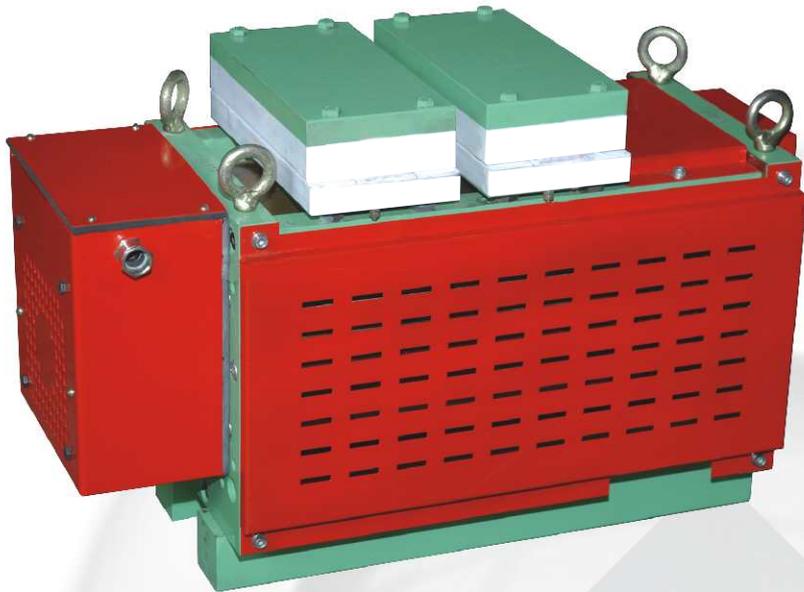


SMALL BUT

# POWERFUL



  
**OMEGA**  
**GEARLESS**

4  %  
Power Saving

## Advantages of Permanent Magnet Gearless Drive

Eco-friendly, oil-free operation.

Compact dimensions, with optimal shaft layout to free up building space.

Low weight and noise for maximum freedom in positioning the elevator

Up to 40% energy saving compared to conventional geared machines, benefitting both the environment and operating budget.

Cutting edge Technology with most advanced features.

Smoothest Travel

Zero Maintenance

Speeds up to 2.00 m/sec.

Engineering . Experience . Emagination

# Comparison between geared & gearless drive

## Geared Drive

Basically there are two major components in geared drive.

- a. **Electric Motor (Induction type)**
- b. **Reduction Gear**

The basic function of this electric motor is to convert the electrical energy into Mechanical Energy.

The efficiency of this motor is of the order of 72 to 75 %. Rest electrical power is wasted as heat. The mechanical power is in the form of shaft rotation at the speed of 960 / 1440 RPM. This speed can not be used to drive the lift. Also the torque generated is insufficient. To get the suitable reduction in speed and to achieve higher torque, we need to utilise the gear box. This gear box is of worm and worm wheel type of reduction gear unit whose efficiency is around 58%.

Hence the over all conversion efficiency of the combined Electric Motor and Reduction gear unit works out to be  $0.72 \times 0.58 = 0.420$  or let us say 42.0 %.

That means for 100 units of electrical units spent from electricity board, only 42 units of equivalent energy is available for lift.

Hence while drawing a comparison between Geared Drive and Gearless drives we get clear cut saving of 82 units - 42.0 units = 40 units

This means that we have 40% saving in electrical energy by simple change of lift drive technology from Geared to Gearless.

This is the reason why the entire World is going ahead with Gearless technology. This technology is called GREEN or ECOFRIENDLY technology as it saves electrical power and also does not need petroleum products for its routine maintenance.

## Gearless Drive

The basic of this system is a **Permanent Magnet Synchronous Motor** it is a special motor which gives low speed and very high torque. This eliminates the need for a reduction gear unit. In addition, the efficiency of conversion of electrical energy to mechanical energy to drive the lift is also quite high. Typically, of the order of 82 to 85 %. Also it does not require any type of oil bath for lubrication. All the bearings are prelubricated by high standard Molybdenum Grease.

That means for 100 units of electrical units spent from electricity board, only 82 units of equivalent energy is available for the lift.

In addition, these types of motors are most suitable for Rescue Operation in case of power failure. The lift can be brought to next floor by a push button provided in the cabin. The above operation can also be carried out automatically (ARD)



**Gear Machines**



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