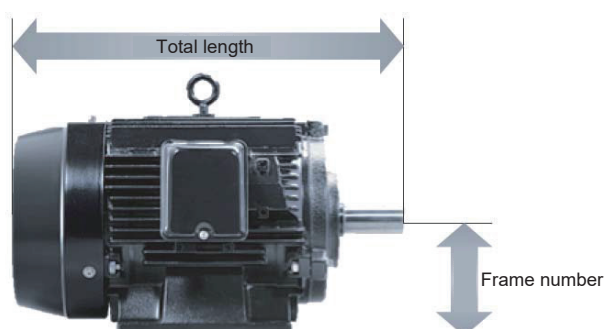


PM Motor

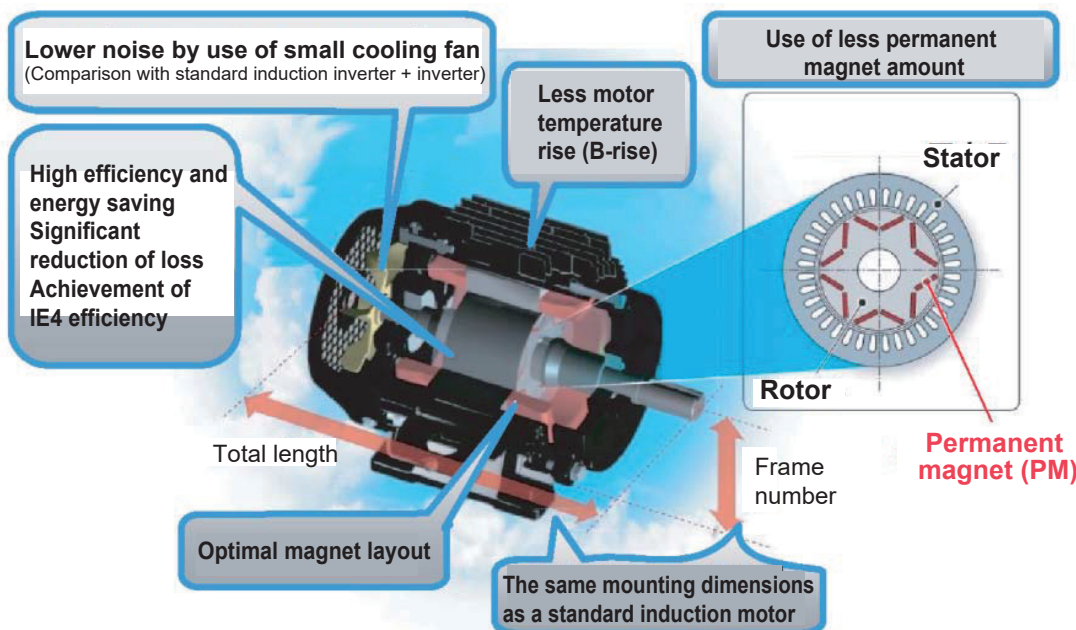
Features

- ◆ The PM Motor (Permanent Magnet Motor) has achieved the IE4 Super Premium Efficiency of IEC60023-30.
Combined with a general-purpose inverter, the efficiency of the motor unit has achieved the IE4 efficiency, realizing more energy saving than an induction motor (IM).
- ◆ The PM Motor, having the same mounting dimensions, can replace an induction motor easily.

Basic Concept or Summary



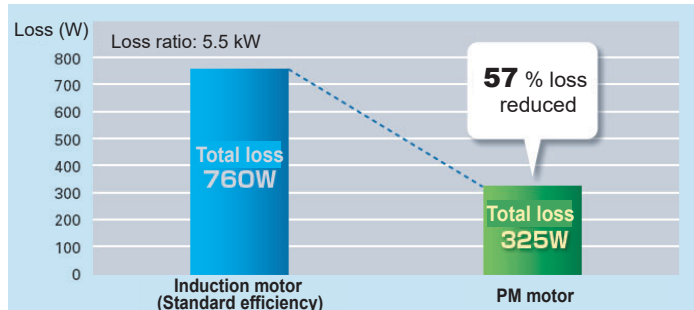
The same mounting dimensions as a conventional induction motor



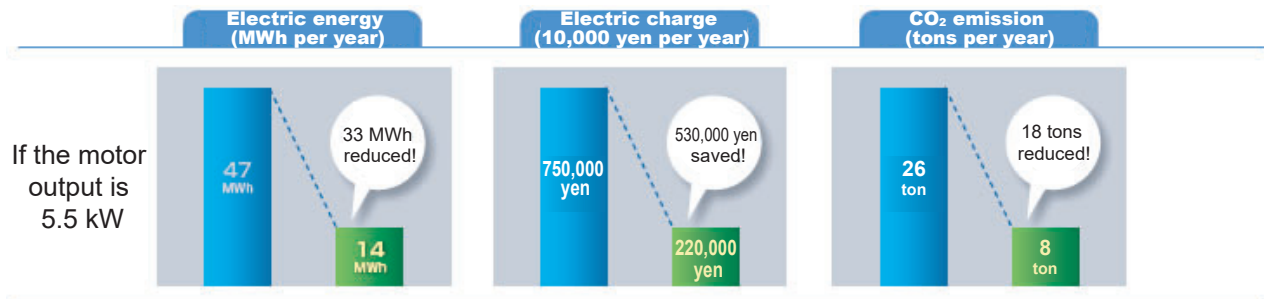
Structure of PM Motor

Effects or Remarks

- ◆ The PM Motor, having no loss generated at the rotor, has achieved a significant loss reduction in comparison with an induction motor.
(Loss comparison: 5.5 kW, 57 % reduction)
- ◆ A unique layout of magnet has reduced the amount of magnet in use and achieved a high efficiency.
- ◆ This motor was certified as an "Excellent ECP," a product with superior environment friendliness, in the Toshiba Group's internal certification activity.
(*ECP = Environmentally Conscious Product)
- ◆ Toshiba Excellent ECP program (URL) = <http://www.toshiba.co.jp/env/en/products/ecp.htm>



Loss comparison between induction motor and PM Motor



Example of energy saving effect (when a conventional induction motor was replaced with the PM Motor)

Calculation conditions

- 1) The electric energy was calculated assuming continuous operation for 24 hours per day and 365 days per year.
- 2) The inverter efficiency was taken into consideration for the PM drive.
- 3) The commercial operation was calculated assuming control by pump valves and dampers, and the PM drive under frequency control with 60 % flow rate and air volume.
- 4) The running cost was calculated with an electric rate of 16 yen per kWh.
- 5) The CO₂ emission coefficient was calculated at 0.554 kg CO₂/kWh.

Installation in Practice or Schedule

Domestic	Ratios of main clients
	- Trading companies and dealers 60 %
	- Pumps 15 %
	- Other machinery 25 %

Overseas

Contact: Toshiba Industrial Products and Systems Corporation
 URL: <http://www.toshiba-tips.co.jp/contact/>