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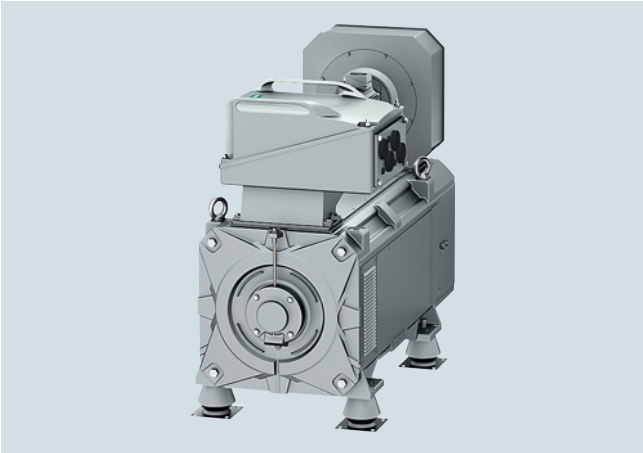
Overview



The energy storage devices can be integrated in drive systems that are used for dynamic energy management. Three different cooling methods are possible:

- Forced ventilation 1LQ17 (IC416; degree of protection IP55)
- Forced ventilation 1LP17 (IC06; degree of protection IP23)
- Water-jacket cooling 1LH17 (IC71W; degree of protection IP55)

Torque transmission via the shaft is not envisaged, which is why the energy storage devices are designed without a shaft extension.

To increase the maximum speed the energy storage devices are supplied with vibration dampers which are mounted as standard on the feet of the stator housing. Without vibration dampers the maximum speeds are reduced to the values of the motors in chapters 4 to 9.

The standard version of the energy storage devices comprises two hybrid bearings for preventing bearing currents:

- Frame size 315: DIN 625-6218-C3
- Frame size 355: DIN 625-6220-C3

Benefits

The main benefit of the SIMOTICS FD energy storage devices is in combination with SINAMICS converters – as an optimized drive system – in highly dynamic energy conversion.
This has been achieved in particular by an adapted winding, an increase in the maximum speed and with maximum intrinsic moment of inertia.

A further benefit is that no protective measures on account of rotating parts are required as there is no shaft extension.

Application

The SIMOTICS FD 1L.17 energy storage devices have been optimized for applications in which converter-fed induction motors are used as kinetic energy stores. They are rotating energy storage devices without shaft extension, preferably for pressing plants or comparable applications in which for a brief period a large amount of electrical energy needs to be converted into mechanical energy or vice versa depending on the process.

Function

The motors are operated permanently with a base speed in no-load duty and – in order to absorb energy – are accelerated to a significantly higher speed. If energy is to be removed from the rotating storage device, the drive is operated in generator mode and braked electrically down to base speed. Acceleration is then performed with maximum torque or at the current limit of the converter.