

**This technology category has been removed as of  
6<sup>th</sup> October 2016.**

## **Integrated Motor Drive Units**

Date added to ETL 2001 (Revised 2009).

### **1. Definition of Technology**

An integrated motor drive unit is a product that is specifically designed to rotate a drive shaft and vary its speed in a controlled manner in response to an external signal, by means of an electronic variable speed drive (VSD) and 3 phase ac induction motor. The VSD and motor are permanently mechanically and electrically connected in a manner that does not require an external connection to be made between the VSD and the motor prior to use.

### **2. Technology Description**

An integrated motor drive unit is a combination of an electronic variable speed drive (VSD) and an ac induction motor. The VSD is physically mounted on the motor, and is specifically designed to drive that particular motor and thus is optimally matched to it. This makes an integrated motor drive unit easier to deploy than purchasing two separate components.

An integrated motor drive unit may be purchased as a stand-alone product or purchased as part of another item of plant or machinery. These products are included on the Energy Technology Product List because they can realise substantial energy savings when used to control the speed of non-positive-displacement type machinery, instead of traditional methods of flow regulation such as mechanical dampers and throttle valves.

Investments in integrated motor drive units can only qualify for Enhanced Capital Allowances if the specific product is named on the Energy Technology Product List. To be eligible for inclusion on the Energy Technology Product List, products must meet the eligibility criteria as set out below.

### **3. Eligibility Criteria**

Eligible products must:

- Incorporate a 3 phase ac induction motor.
- Incorporate an electronic VSD that generates a controlled variable frequency, variable voltage, 3 phase power output (with each phase displaced by approximately 120 degrees) that is suitable for operating the 3 phase ac induction motor.
- Be configured for direct connection to the UK public electricity supply system, or a private alternating current supply of nominally fixed frequency and voltage.
- Provide an adjustable, controlled variable-torque output that can be matched to the torque-speed characteristic of the load (being driven by the product's motor), including both loads with a quadratic torque-speed and linear torque-speed characteristics. The relationship between the speed of the product's output and the torque applied to the load must either be:

- a) Predefined prior to sale to match a number of specific motor loads, which can be selected during commissioning; OR
  - b) Programmed into the product during installation using a multi-point approximation as part of a clearly defined commissioning procedure; OR
  - c) Determined during commissioning by a self-tuning algorithm that automatically minimises the energy consumption of the drive; OR
  - d) Automatically adjusted during operation in a manner that ensures the product's output matches the characteristics of the motor and its load; OR
  - e) Any combination of (a) to (d) above.
- Be able to automatically vary, in response to an external control signal, the frequency of its output between 5% (or less) and 100% (or greater) of the frequency of its alternating current supply.
  - Be CE Marked.
  - **Not** incorporate any type of mechanical apparatus that derives its motive force from the product's motor, except for fans or pumps incorporated solely for the purpose of product cooling or lubrication.

#### 4. Scope of Claim

Expenditure on the provision of plant and machinery can include not only the actual costs of buying the equipment, but other direct costs such as the transport of the equipment to site, and some of the direct costs of installation. Clarity on the eligibility of direct costs is available from [HMRC](#).