

June 2021

## **Ecodesign Regulation (EU) 2019/1781 for electric motors and variable speed drives (VSD)**

### **Context**

The COMMISSION REGULATION (EU) 2019/1781 of 1 October 2019 establishes ecodesign requirements for the placing on the market or the putting into service of electric motors and variable speed drives (VSDs), including where they are integrated in other products.

The first tier comes into force 1<sup>st</sup> of July 2021, the 2<sup>nd</sup> tier 1<sup>st</sup> of July 2023.

### **This Regulation applies to the following products:**

(a) induction electric motors without brushes, commutators, slip rings or electrical connections to the rotor, rated for operation on a 50 Hz, 60 Hz or 50/60 Hz sinusoidal voltage, that:

- (i) have two, four, six or eight poles;
- (ii) have a rated voltage UN above 50 V and up to and including 1 000 V;
- (iii) have a rated power output PN from 0,12 kW up to and including 1 000 kW;
- (iv) are rated on the basis of continuous duty operation; and
- (v) are rated for direct on-line operation;

(b) VSDs with 3 phases input that:

- (i) are rated for operating with one motor referred to in point (a), within the 0,12 kW-1 000 kW motor rated output range;
- (ii) have a rated voltage above 100 V and up to and including 1 000 V AC;
- (iii) have only one AC voltage output.

### **Exemptions:**

- Motors completely integrated into a product (here: into a refrigerant compressor) and whose energy performance cannot be tested independently from the product
- Motors with an integrated VSD (compact VSD) whose energy performance cannot be tested independently from the VSD;
- VSDs integrated into a product and whose energy performance cannot be tested independently from the product, that is to say that an attempt to do so would render the VSD or the product inoperative;

are exempted from the minimum energy efficiency requirements. But they nevertheless have to fulfill certain **product information requirements**.

### **Product Information Requirements (Annex I):**

#### **Motors (Annex I, Section 2):**

1. (3) compressor manufacturer's name or trade mark, commercial registration number and address;
  2. (4) compressor product's model identifier;
  3. (12) if the motor is considered exempt from efficiency requirement in accordance with Article 2(2) of this Regulation, the specific reason why it is considered exempt
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# STATEMENT



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## VSDs (Annex I, Section 4):

1. (3) VSD manufacturer's name or trade mark, commercial registration number and address;
2. (4) VSD product's model identifier;
3. (11) if the VSD is considered exempt from the efficiency requirements in accordance with Article 2(3) of this Regulation the specific reason why it is considered exempt.

The product information requirements set out above shall be visibly displayed on:

- a) the technical data sheet or user manual supplied with the motor/VSD;
- b) the technical documentation for the purposes of conformity assessment pursuant to Article 5;
- c) free access websites of the manufacturer of the motor/VSD, its authorised representative or the importer, (unless customer tailor made) and;
- d) the technical data sheet supplied with products in which the motor/VSD is incorporated.

In case of the exemption, we as *ASERCOM*, the Association of European Refrigeration Component Manufacturers, **recommend the following statements to explain the specific reason why the motor or VSD is considered exempt:**

**Stators – Rotors integrated in hermetic and semi-hermetic compressors** are exempted from energy efficiency requirements as they are completely integrated into a refrigerant compressor. They share common components with the driven unit (a shaft and a housing) and therefore the process of separation has the consequence of rendering these motors inoperative. They are designed in such a way that the motor cannot be separated in its entirety from the driven unit and **cannot operate independently**.

**VSDs integrated in hermetic and semi-hermetic compressors** are exempted from energy efficiency requirements. They share common components with the driven unit (a housing) and therefore the process of separation has the consequence of rendering these VSDs inoperative. They are designed in such a way that the VSD can't be separated in its entirety from the driven unit and **cannot operate independently as cooling by refrigerant is required**.

**Tailored VSDs external to the refrigerant compressor** shall provide energy efficiency data according to the compressor/VSD combination for the respective application the VSD is tailored for. This information can be provided in different form since it is impossible to fit onto the VSD. Outside of the respective/dedicated combinations, these VSDs **cannot operate independently as it is not possible to program individual motor settings / parameter**. The software of the VSD cannot be changed by the customer.

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These recommendations are addressed to professionals, industrial, commercial and domestic refrigeration system manufacturers/installers. They have been drafted on the basis of what *ASERCOM* believes to be the state of scientific and technical knowledge at the time of drafting, however, *ASERCOM* and its member companies cannot accept any responsibility for and, in particular, cannot assume any liability with respect to any measures - acts or omissions - taken on the basis of these recommendations

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