

Accelerated Capital Allowances Eligibility Criteria

Category: Motors and Drives

Technology: Variable Speed Drives

A Variable Speed Drive is specifically designed to drive an electric motor in a manner that rotates the motor's drive shaft at a variable speed dictated by an external signal. Typically a Variable Speed Drive (VSD) is a system that uses an external signal to control the rotational speed and torque of an electric motor by adjusting the frequency of the power supplied to the motor.

Eligibility criteria

In order to be included on the ACA Specified list, a Variable Speed Drive (VSD) must meet *all* of the requirements listed below.

Note: Supporting documentation that clearly demonstrates ACA compliance according to the conditions below *will be required as part of the ACA checking process*. Detailed information on the types of documents accepted can be found in the separate Supporting Documentation guidelines.

No.	Condition
1.	Must be specifically designed to drive an electric motor in a manner that rotates the motor's drive shaft at a variable speed dictated by an external signal.
2.	While in operation, the output from the VSD shall be able to be automatically matched to the changing motor load.
3.	Must be able use an appropriate external control signal to vary it's output frequency between 50% (or less) and 100% (or more) of the frequency of the alternating current supply with reference to real-time load conditions.
4.	Functionality must be capable of being programmed by the user during the commissioning process without recourse to specialist equipment. In the event that specialist software is required it must be provided as part of the contract of sale.
5.	Must comply with, and ,have been tested according to, IEC 61800-3 "Adjustable Speed Electrical Power Drive Systems Part 3: EMC Requirements and Specific Test Methods", or scientific equivalent.
6.	Appropriate operating & maintenance manuals must be available to the end-user in order to optimise the achievement of any potential energy efficiency gains.
7.	Training: For units above 15kW, appropriate training must be available to the end-user, such that the end user can run the system in an energy efficient manner.

-----End of ACA eligibility criteria -----

Please see next section for guidance on:

- 1. Technical details required in product submission**
- 2. Supporting documentation required**

Guidance on product details and supporting documentation

NOTE: The following information is not part of the official criteria document published within the relevant Statutory Instrument. It has been added here for guidance purposes only in order to help you to provide (a) product details and (b) the required supporting documentation.

All information contained in this guidance document is subject to change without notice.

Technical information required in product submission

The following are the specific technical values required as part of the product submission for this technology:

Rated Size (kW)

The output power rating in kW of the VSD is required as a value for the product submission. It must be entered as whole number only (do not include kW symbol). There should also be no spaces or full stops after the number submitted. The figure must comply with the criteria requirements for minimum power rating values.

Supporting documentation required

Described below is the list of documents that are accepted as proof of compliance for the specific VSD condition.

Note: This information will only be requested AFTER you submit your product's basic details online.

Important Notes to Product Providers

Please ensure that you read the "Important Notes to Product Providers" section at the end of this document prior to submitting documentation.

No.	Condition	Supporting Documentation Requirement
1.	Must be specifically designed to drive an electric motor in a manner that rotates the motor's drive shaft at a variable speed dictated by an external signal.	Official and published manufacturer's technical data sheet or brochure that demonstrates the requirements of the condition. Information can be in the form of a wiring diagram that shows a suitable digital or analogue signal or communications port for controlling motor speed.
2.	While in operation, the output from the VSD shall be able to be automatically matched to the changing motor load.	Official and published manufacturer's technical data sheet or brochure which shows evidence of an integrated PID controller or other means of changing VSD output in response to a changing input signal representing changing motor load.
3.	Must be able use an appropriate external control signal to vary it's output frequency between 50% (or less) and 100% (or more) of the frequency of the alternating current supply with reference to real-time load conditions.	Official and published manufacturer's technical data sheet or brochure that demonstrates compliance with the requirements of the condition. The output frequency range must be clearly stated.
4.	Functionality must be capable of being programmed by the user during the commissioning process without recourse to specialist equipment. In the event that specialist software is required it must be provided as part of the contract of sale.	<p>Official and published manufacturer's technical data sheet or brochure which demonstrates that the drive parameters can be set at the unit itself, typically on an operator interface panel (OIP).</p> <p>OR</p> <p>Where there is no option for an OIP and where specialist software is required for commissioning, a copy of a signed official statement on headed paper is required that confirms that the software is provided as part of the contract of sale.</p>
5.	Must comply with, and ,have been tested according to, IEC 61800-3 "Adjustable Speed Electrical Power Drive Systems Part 3: EMC Requirements and Specific Test Methods", or scientific equivalent.	Official and published manufacturer's technical data sheet or brochure that demonstrates the requirements of the condition.

No.	Condition	Supporting Documentation Requirement
6.	Appropriate operating & maintenance manuals must be available to the end-user in order to optimise the achievement of any potential energy efficiency gains.	<p>A copy of an official signed declaration on headed paper which confirms that the appropriate operating and maintenance manuals are provided. Where possible, a link to technical documentation available to download online should be included.</p> <p>NB: A signed declaration is required to comply with this condition in all cases. Submitting copies of user manuals is not sufficient and not required by this condition.</p>
7.	Training: For units above 15kW, appropriate training must be available to the end-user, such that the end user can run the system in an energy efficient manner.	<p>A copy of a signed official statement on headed paper confirming that the appropriate end-user training is available is required in all cases.</p> <p>The signed declaration must explicitly state that training is available to the end-user, rather than simply stating that the system is compliant with the relevant ACA Condition.</p> <p>NB: Submitting copies of training manuals is not sufficient and not required by this condition.</p>

Important Notes to Product Providers

General

There should be a clear link between all supporting documentation supplied and the product being submitted. This will typically take the form of a product code or product name that can be cross referenced between the submitted product and relevant supporting documentation. If product codes / names have been changed since publication of the supporting documentation, then official evidence of this must be provided with the supporting documentation supplied.

Any deviation from these requirements will result in the supporting documentation not being considered adequate for the purposes of demonstrating compliance with the criteria conditions. This will in turn delay the submission and/or result in the product not being considered eligible.

Where the ACA criteria or help documentation reference compliance to appropriate rather than specific standards, the onus is on the product provider to ensure that supporting documentation supplied references recognised standards that apply to the submitted product, i.e. the product must be covered under the scope of a recognised standard.

If any product submitted is later found not to meet the performance or specification criteria, then this product will cease to be considered eligible for the ACA.

Note: When supplying the supporting documentation through the online process you must ensure that the correct page number(s) of the document is referenced when compliance with the relevant condition is being demonstrated. An explanatory note should also be given where more than one page number is referenced.

Test Report

A test report must comprise of the following elements:

An outline of the complete test including introduction, details on test conditions, the specific model details of the product tested, the steps taken in the test, the results, graphical representations, and a conclusion. All documents should be on headed paper and the document should be officially signed off. **All documentation must be in English**, or include adequate translation.

Certification

Where certificates are provided, all tests must be carried out by an organisation that is accredited by a national accreditation body recognised via the European Cooperation for Accreditation (preferred) or the International Accreditation Forum. **All documentation must be in English**, or include adequate translation.

Scientific Equivalence

Some ACA criteria conditions allow for scientifically equivalent tests and/or standards to be used. In the event that a product has not been designed, manufactured or tested to the specific standard named, then documentation relating to an equivalent internationally recognised standard may be used (where the phrase 'Or scientific equivalent' is included in the ACA condition or help documentation). In such applications, the onus will be on the product submitter to demonstrate satisfactory equivalence of the standards. However, submissions which reference such supporting documentation may take longer to process, and if the product provider does not provide satisfactory evidence of equivalence, then

the product will not be considered eligible for the ACA. **All documentation must be in English**, or include adequate translation.

Note: Where specific standards are cited in a condition or in the ACA help documentation, then documentation demonstrating that the relevant products have been designed, manufactured or tested to these specific standards is preferred. Scientific equivalence is considered the exception rather than the norm.

Representative testing

Where test information is required for a range of technically similar products (e.g. configurations of one base product) then in exceptional instances a form of representative testing may be utilised once agreed in advance with SEI. Such testing is where only representative products are tested from a technically similar group or range of products. Provided a clear correlation can be demonstrated between the tested product and technically similar non-tested product, and that such a correlation clearly demonstrates the compliance of the non-tested product, representative testing may form an acceptable basis for supporting documentation.

Note: Where representative testing is used for a group or range of products, if the tested or representative product is removed from the list of eligible products then all related products are also removed.