Accelerated Capital Allowances Eligibility Criteria

Category: Electro-Mechanical Systems

***Technology*: Injection Moulding Machines**

An Injection Moulding Machine (IMM) is a machine for the injection moulding of thermoplastics that:

- Melts and plasticizes the thermoplastic raw material
- Closes the mould and clamps the mould closed
- Injects the plasticized raw material into the mould and holds it under pressure until it has solidified
- Opens the mould and ejects the completed product

IMMs have traditionally been powered by hydraulic systems using a hydraulic pump and hydraulic motors. The newer generation of IMMs uses electrical servo-motors to provide variable power to the machine; these are called 'all-electric machines'.

Eligibility criteria

To be included on the ACA Specified List, an Injection Moulding Machine (IMM) must meet *all* the requirements set out 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	All equipment and/or components must be CE-marked as required by the specific EU directive(s).
2	The IMM drive system is to be primarily servo-motor-controlled. Limited hydraulic motors are allowed for hybrid systems but hydraulic motor energy use is to be less than 40% of total IMM energy use.
3	The average power consumption of the IMM shall be less than: kW = 0.6 x (Production Rate) + 4 where the 'Production Rate' is measured in kg/hour of machine throughput (product + any sprues and runners).
4	Appropriate operating and maintenance manuals must be available to the end-user in order to maximise the achievement of any potential energy-efficiency gains.

Notes:

1. Some manufacturers use a 'hybrid' technology combining both electric and hydraulic operation for specific applications. This allows processors to benefit from the advantages of both electric and hydraulic operations. In these cases, the hydraulic element of the power consumption (kW) shall be less than 40% of the total power consumption of the IMM.
2. In some existing tooling, hydraulic control of mould movements is needed and is currently powered from the IMM's hydraulic system. In these cases a hydraulic power pack may be required to allow existing tooling to be used on all-electric machines. The power consumption use of any such hydraulic power pack is not included in the power consumption assessment of the machine.

---------- *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.

Note: *All information contained within this guidance document is subject to change without notice.*

Technical details required in product submission

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

Injection Moulding Machine product type

As part of the product submission you must select which type of IMM your product is. Only one type can be chosen per submitted product. The allowable designations are Hybrid or All-Electric.

Production Rate (kg/hour)

The Production Rate of the product in kg/hour is required as a value for the product submission. It must be entered as a number only without any unit symbol. There should also be no spaces or full stops after the number submitted.

Average Power Consumption (kW)

The Average Power Consumption in kW when the machine is operating at maximum throughput is required as a value for the product submission. It must be entered as a number only without any unit symbol. There should also be no spaces or full stops after the number submitted. The figure should comply with the Average Power Consumption requirements detailed in the criteria.

Supporting documentation required

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

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

<u>Important Notes to Product Providers</u>

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

No.	Condition	Supporting Documentation Requirement
1	All equipment and/or components must be CE-marked as required by the specific EU directive(s).	Official and published manufacturer's technical data sheet or brochure that demonstrates CE marking compliance **OR** A copy of an official signed declaration on headed paper that confirms CE marking compliance. Official declarations should explicitly state the product for which CE marking is being confirmed (i.e. do not provide a letter simply stating general compliance with the relevant ACA condition). Where a document is used to demonstrate conformance for a number of products or range of products, it should clearly specify each individual product covered by that document.
2	The IMM drive system is to be primarily servo-motor-controlled. Limited hydraulic motors are allowed for hybrid systems but hydraulic motor energy use is to be less than 40% of total IMM energy use.	Official and published manufacturer's technical data sheet or brochure that demonstrates compliance with the requirements of the condition. • The submitted documentation should confirm that the product is an all-electric or hybrid IMM that meets the requirement that any hydraulic motor energy usage is less than 40% of the total machine energy usage. • The submitted documentation must confirm the unique machine designation and clearly specify the tonnage of the machine, the drive/s used and the platen size of the machine. **Note:** Changes to drives by the manufacturer to meet customer requirements will require a separate ACA submission. This does not include minor changes that do not affect the basic energy consumption of the EBMM.

No.	Condition	Supporting Documentation Requirement
3	The average power consumption of the IMM shall be less than: kW = 0.6 x (Production Rate) + 4 where the 'Production Rate' is measured in kg/hour of machine throughput (product + any sprues and runners).	Evidence of official testing by manufacturer or independent test lab according to the principles of EUROMAP 60. Test reports should be of the format described in the 'Important Notes for Product Providers' section of this document **Note:** • The specific machine related energy consumption of the machine must be declared as per EUROMAP 60, e.g. Cycle II, 0.95 kWh/kg, 20 kW, 30 s, cos φ = 0.95 ,and be calculated from: Acceptable Power Consumption (kW) = 0.6 x (Production Rate) + 4 • The production rate (in kg/hour) shall be calculated for the relevant EUROMAP cycle from the IMM settings.
4	Appropriate operating & maintenance manuals must be available to the end-user in order to maximise the achievement of any potential energy-efficiency gains.	A copy of an official signed declaration on headed paper that confirms that the appropriate operating and maintenance manuals are provided. Where possible, a link to technical documentation available to download online should be included. **Note:** A signed declaration is required to comply with this condition in all cases. Submitting copies of user manuals is not sufficient (and not required) for this condition.

Important notes for product providers

General

There should be a clear link between the product submitted and all supporting documentation. This will typically take the form of a *product code* or *product name* that can be cross-referenced between the submitted product and the relevant supporting documentation.

If product codes/names have been changed since publication of the supporting documentation, then you must provide official evidence of this with the supporting documentation supplied.

If there is any deviation from these requirements, the supporting documentation will not be 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 makes reference to compliance with appropriate rather than specific standards, the onus is on the product provider to ensure that the 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 it is subsequently found that any product submitted does not meet the performance or specification criteria, it will cease to be considered eligible for the ACA.

Note: When supplying the supporting documentation through the online process, you must ensure, when demonstrating compliance with the relevant condition, that the correct page number(s) of the document is referenced. When referencing more than one page number, add an explanatory note.

Test report

A test report must include 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
- √ 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.

If 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 is on the product submitter to demonstrate satisfactory equivalence of the standards. Submissions which reference such supporting documentation may take longer to process. 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 used once *agreed in advance* with SEAI.

Such testing is where only representative products are tested from a technically similar group or range of products. Representative testing may form an acceptable basis for supporting documentation if:

- A clear correlation can be demonstrated between the tested product and a technically similar non-tested product

  and

- Such a correlation clearly demonstrates the compliance of the non-tested product

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.