

Steam and Hot Water Systems

Summary of proposed Triple E eligibility criteria changes.

To facilitate a refinement of the eligibility criteria for steam and hot water systems it is proposed to make the following amendments:

- It is proposed to change the category title to Steam and Hot Water Systems
- It is proposed to include the installation of economisers and flue gas shut off dampers on hot water boilers
- It is proposed to include Boiler Blowdown Heat Recovery and Flash Steam Heat Recovery Vessels to this category, thus enhancing energy savings on steam boiler system operations.

The proposed eligibility criteria document is contained on the following pages.

Please follow this [link](#) to view the currently published eligibility criteria.

Triple E Eligibility Criteria

Category: Process and Heating, Ventilation and Air-conditioning (HVAC) Control Systems Technology: Steam Systems

A Steam System is defined as equipment specifically designed to maximise the energy efficiency of a boiler and/ or a heating system as a whole.

Steam Systems equipment is considered to include the following:

Economisers

Economisers are heat exchangers installed in steam boiler flues whose purpose is to recover heat from the flue gases and thereby increase the overall efficiency of the steam boiler system.

TDS Boiler Blow-down Control

A TDS (Total Dissolved Solids) Boiler Blow-down Control replaces manual or timed control with an automatic control based on the percentage of TDS in the steam. This reduces the number and frequency of boiler blow-downs which in turn saves energy on steam boiler systems.

Flue Gas Shut off Damper

Flue Gas Shut off Dampers are installed in steam and hot water boiler flues to restrict airflow through the flue and thereby prevent heat loss from the boiler during standby.

Steam and Hot Water Systems Eligibility Criteria:

In order to be included on the Triple E Register, steam and hot water systems must meet *all* of the relevant conditions set out below.

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

Economisers specific Eligibility Criteria:

No.	Condition
1.	<p>Thermal Efficiency</p> <ul style="list-style-type: none"> • Condensing: Minimum of 9% increase in the net boiler thermal efficiency for which it is designed • Non-condensing: Minimum of 3% increase in the net boiler thermal efficiency for which it is designed
2.	Economiser performance must be measured using EN 308 “Heat exchangers - Test procedures for establishing performance of air to air and flue gases heat recovery devices”, or scientific equivalent.
3.	It must be declared what boiler fuel the economiser is suitable for use with.

TDS Boiler Blow-down Control specific Eligibility Criteria:

No.	Condition
4.	Must include automatic control of boiler base blow-down valve with manual override bottom blow-down valve.
5.	Continuously monitor the % TDS level in boiler water at steam level
6.	Only allow blowdown when TDS concentration exceeds a minimum allowable level to maintain the TDS level below a set limit.
7.	All equipment and/or components must be CE marked as required by the specific EU directive(s).

Flue Gas Shut Off Damper specific Eligibility Criteria:

No.	Condition
8.	Automatic control & operation. Damper to close after post combustion purge operation.
9.	Damper to be to gas tight in accordance with DIN 25 414 or scientific equivalent.
10.	Safety interlocks to be included to prevent boiler firing when damper is closed.

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

Please see next section for technical detail submission and supporting documentation guidance

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 provide assistance with the submission of product details and the provision of the required supporting documentation.

Note: All information contained within 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:

Steam system product type

You must select which type of steam system your product is. Only one type can be chosen per product.

Supporting documentation required

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

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

Important Notes to Product Providers

You must read this entire document prior to submitting products to the SEAI system, including the "Important Notes to Product Providers" section at the end of this document prior to submitting documentation.

All documentation supporting the product submission must clearly reference the correct product name and/or product code being submitted. The correct page number(s) must be detailed with each document supporting the submission.

Economisers specific Eligibility Criteria:

No.	Condition	Supporting Documentation Requirement
1.	<p>Thermal Efficiency</p> <p>Condensing: Minimum of 9% increase in the net boiler thermal efficiency for which it is designed</p> <p>Non-condensing: Minimum of 3% increase in the net boiler thermal efficiency for which it is designed</p>	<p>Official and published manufacturer’s technical data sheet or brochure that demonstrates the requirements of the condition.</p> <p>Note that the increase required is given in percentage points, so for example increasing boiler with an efficiency of 84.0% to at least 93% for condensing or 87% for non-condensing.</p>
2.	<p>Economiser performance must be measured using EN 308 “Heat exchangers - Test procedures for establishing performance of air to air and flue gases heat recovery devices”, or scientific equivalent.</p>	<p>Accredited certification that the equipment has been tested in accordance with test procedure EN 308.</p> <p>OR</p> <p>Evidence of official testing by manufacturer or independent test lab carried out according to the principles outlined in the named performance standard. Test reports should be of the format described in the ‘Important Notes to Product Providers’ section of this document.</p> <p>The assessment of transfer of heat power shall be done in accordance with the procedures set out in EN 305:1997: Heat exchangers - Definitions of performance of heat exchangers and the general test procedure for establishing performance of all heat exchangers , EN 306:1997: Heat exchangers - Methods of measuring the parameters necessary for establishing the performance and/or BS EN 308:1997: Heat exchangers. Test procedures for establishing the performance of air to air and flue gases heat recovery devices.</p> <p>See note on ‘Scientific Equivalence’ in Important Notes to Product Providers section at end of this document.</p>

3.	It must be declared what boiler fuel the economiser is suitable for use with.	Official and published manufacturer's technical data sheet or brochure that specifically states which boiler fuels that the equipment is suitable for use with.
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TDS Boiler Blow-down Control specific Eligibility Criteria:

No.	Condition	Supporting Documentation Requirement
4.	Must include automatic control of boiler base blow-down valve in addition to manual bottom blow-down valve.	Official and published manufacturer's technical data sheet or brochure that demonstrates the requirements of the condition.
5.	Continuously monitor the % TDS level in boiler water at steam level	Official and published manufacturer's technical data sheet or brochure that demonstrates the requirements of the condition.
6.	Only allow blowdown when TDS concentration exceeds a minimum allowable level to maintain the TDS level below a set limit.	Official and published manufacturer's technical data sheet or brochure that demonstrates the requirements of the condition.
7.	All equipment and/or components must be CE marked as required by the specific EU directive(s).	<p>Official and published manufacturer's technical data sheet or brochure that demonstrates CE marking compliance.</p> <p><u>OR</u> A copy of an official signed declaration on headed paper which confirms CE marking compliance.</p> <p>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).</p> <p>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.</p>

Flue Gas Shut Off Damper specific Eligibility Criteria:

No.	Condition	Supporting Documentation Requirement
8.	Automatic control & operation. Damper to close after post combustion purge operation.	Official and published manufacturer's technical data sheet or brochure that demonstrates the requirements of the condition.
9.	Damper to be to gas tight in accordance with DIN 25 414 or scientific equivalent.	<p>Official and published manufacturer's technical data sheet or brochure that demonstrates the requirements of the condition. The product provider should include a product provider note stating the page number on the document supplied where compliance with the condition is demonstrated.</p> <p><u>OR</u></p> <p>Evidence of official testing by manufacturer or independent test lab carried out according to the principles outlined in the named standard. Test reports should be of the format described at the end of this document.</p> <p>Other relevant standards include: EN 61058-1-1 Switches for appliances - Part 1-1: Requirements for mechanical switches, EN 50156-1:2015 Electrical equipment for furnaces and ancillary equipment, BS EN 16475-4:2020 Chimneys. Accessories Flue dampers. Requirements and test methods, This document covers only flue dampers for biomass boilers > 1 000 kW and industrial applications with limit switches in accordance with EN 61058-1 or EN 50156-1.</p> <p>See note on 'Scientific Equivalence' in Important Notes to Product Providers section at end of this document.</p>
10.	Safety interlocks to be included to prevent boiler firing when damper is closed.	Official and published manufacturer's technical data sheet or brochure that demonstrates the requirements of the condition.

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 Triple E criteria or help documentation references 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 Triple E.

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 demonstrating compliance with the relevant condition. An explanatory note should also be given where more than one page number is referenced.

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 Triple E 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 Triple E 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 Triple E register.

All documentation must be in English or include adequate translation.

Note: Where specific standards are cited in a condition or in the Triple E 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.