



Energy Technology List

Product application checklist

Please complete in BLOCK CAPITALS

Hot Water Boilers

Manufacturer/supplier name:

Applicant's name:

Telephone number:

Product information

Product name:

Model number:

Please complete each section of this form based on your product's characteristics. Incomplete or incorrect data could affect the processing of your product application.

Each product application should be made on a separate form unless a product's design characteristics are common to all the products. In this instance a single application can be made for multiple products.

1. Product testing and certification

No Yes

Where type testing has been applied to demonstrate product performance ensure that the information supplied is sufficient to demonstrate the performance of all the products for which applications are being made.

1.1 Does the product conform to the requirements of the The Pressure Equipment (Safety) Regulation 2016 in respect of its design, manufacture and testing procedures?

1.2 Does the product have an appropriate Conformity Assessment mark?

1.3 If the product's thermal input is greater than or equal to 1MW, and less than 50MW, does it comply with the minimum requirements as stated in annex II of the Medium Combustion Plant Directive (EU) 2015/2193?

1.4 How was the product(s) performance tested? *(Please select one).*

- a) Tested in the manufacturers in-house laboratory, in accordance with a registered Quality Management System (i.e. 'self-tested').
- b) Tested in a laboratory either in house or on-site, witnessed by an independent body (i.e. 'witnessed testing').
- c) Tested by an independent laboratory (i.e. 'independent testing').
- d) Tested as part of on-site acceptance tests or field trials, because laboratory testing was not practical due to product size, or lack of a suitable laboratory.
- e) Representative model/s used.

Please refer to Section 2 of ETL Guidance Note 5 "ETL Testing Programme: Energy Technology List (ETL) Product Testing Framework" for details of the requirements that must be satisfied for each of these product testing options.

1.5 Where product testing has been done in accordance with a registered Quality Management System, what is its registration number?

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1. Product testing and certification (continued)	No	Yes
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1.6 Where product testing has been witnessed by an independent body, what was the name of the witness?
(Please include contact details).

1.7 Where products have been tested by an independent laboratory:

a) What is the name of the independent laboratory?

b) What is the laboratory's registration number (where accredited)?

1.8 Is the application for: *(please select one)*

- a) A product submitted with individual performance test data *(go to question 2)*.
- b) A product with the same constructional design as other products where 'Representative models' have been tested and are listed on the ETPL.
- c) A product with the same constructional design as other products that are not yet on the ETPL, and where performance test data is being submitted for 'Representative models' with this application.

1.9 What are the 'Representative models':

ETL Product ID number

Product model numbers

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Where applications are being made for hot water boilers that are variants of the same constructional design and rated outputs up to and including 400 kW to be included on the Energy Technology Product List (ETPL), test data may be submitted for a representative selection of models. The representative models must be selected by dividing the range of products into groups of models with similar design characteristics, and testing a model in the lowest quartile of predicted performance in each group. The performance of each model in the group must be predicted using a validated mathematical model. As a minimum, at least one model must be tested in each range of products.

Where applications are being made for products of the same constructional design and rated outputs greater than 400 kW to be included on the ETPL, test data may be submitted for a single representative model provided that the maximum rated output of the products being applied for is not more than twice, or less than half, the maximum rated output of the product tested. Where the range of rated outputs exceeds these limits, products should be grouped into size ranges that comply with these rules, and test data submitted for one representative model for each group.

2. Product type and features		N/A	No	Yes																						
2.1	<p>What type of product are you applying for?</p> <p>1. High temperature, high pressure, high efficiency hot water boilers with rated outputs greater than 400kW.</p> <p>Boilers designed to operate with a water pressure greater than 6 bar and/or outlet water temperature greater than 105°C, and that are not designed to recover latent heat from flue gases by condensing water vapour.</p> <p>2. Low temperature, low pressure, high efficiency hot water boilers with rated outputs greater than 400kW.</p> <p>Boilers designed to operate with a water pressure up to and including 6 bar and/or an outlet water temperature up to and including 105°C that are not designed to recover latent heat from flue gases by condensing water vapour.</p> <p>3. Condensing hot water boilers with rated outputs greater than 70kW.</p> <p>Boilers designed to recover latent heat from flue gas water vapour.</p> <p>4. Condensing hot water boilers with rated outputs up to 70kW.</p> <p>Boilers designed to recover latent heat from flue gas water vapour.</p>																									
2.2	<p>What type of fuel does your product use (please tick one):</p> <p>a) Gas.</p> <p>b) Oil.</p> <p>c) Dual fuelled (i.e. gas and oil fired).</p> <p><i>Please note: gas includes biogas and oil includes liquid biofuels.</i></p>																									
2.3	<p>Is the product a modular boiler?</p> <p>A modular boiler is defined as an assembly of two or more similar (but not necessarily identical) modules, each with their own a heat exchanger, burner, and control and safety devices. The assembly has common water feed and return connections, but the water flow to and from each module is independently controlled.</p>																									
2.4	<p>Does the product automatically respond to changes in hot water demand by modulating its output in a continuous manner across a minimum turndown ratio of 3.33:1 without initiating a purge cycle?</p>																									
2.5	<p>Does the product have a nominal rated output less than or equal to 400kW?</p> <p><i>If so, it must be fitted with integrated burners. If this is the case, proceed to question 3.</i></p>																									
2.6	<p>Does the product use burners that are listed on the ETPL?</p> <p><i>If yes, please provide details of the ETPL burners below and then proceed to question 3.</i></p> <table border="1"> <thead> <tr> <th>ETL Product ID number</th> <th>Product model numbers</th> </tr> </thead> <tbody> <tr><td>.....</td><td>.....</td></tr> <tr><td>.....</td><td>.....</td></tr> <tr><td>.....</td><td>.....</td></tr> <tr><td>.....</td><td>.....</td></tr> <tr><td>.....</td><td>.....</td></tr> <tr><td>.....</td><td>.....</td></tr> <tr><td>.....</td><td>.....</td></tr> <tr><td>.....</td><td>.....</td></tr> <tr><td>.....</td><td>.....</td></tr> <tr><td>.....</td><td>.....</td></tr> </tbody> </table>	ETL Product ID number	Product model numbers			
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2.7	<p>Does the product incorporate a microprocessor based control system that continuously modulates burner output in response to measured boiler temperature or pressure values?</p>																									
2.8	<p>Does the product use a forced draught burner (or burners)?</p> <p><i>If no, proceed to question 2.10.</i></p>																									
2.9	<p>Is the product fitted with automatic (electronic or pneumatic) air fuel ratio controls?</p> <p><i>Proceed to question 2.11.</i></p>																									

2. Product type and features (continued)		N/A	No	Yes
2.10	Does the product use a fully pre-mixed burner (or burners)?			
2.11	Does the product use mechanical dampers to modulate the air flow to the burners? <i>If no, proceed to question 2.13.</i>			
2.12	Are all mechanical air dampers operated by a precision servomotor that is controlled by a positional or flow based feedback mechanism that automatically adjusts its operation to correct for mechanical wear, valve stiction and hysteresis?			
2.13	Does the product use control valves to modulate the fuel flow to the burners? <i>If no, proceed to question 2.15.</i>			
2.14	Are all fuel control valves operated by a precision servomotor that is controlled by a positional or flow based feedback mechanism that automatically adjusts its operation to correct for mechanical wear, valve stiction and hysteresis? <i>This requirement is not applicable to pneumatically operated modulating gas valves.</i>			
2.15	Is the product gas fired or dual fuelled? <i>If no, proceed to question 3.</i>			
2.16	Does the product use a variable speed motor controller (or variable speed drive) to operate each fan incorporated into the product that controls air flow rate to the burner and, where relevant, the fuel-air pre-mixer?			

3. Product performance		No	Yes
3.1	Has the product's net thermal efficiency been tested in accordance with the procedures set out in Table 1? <i>(Please indicate standard used).</i>		
<i>Table 1 ETL recognised test standards</i>			
Test standard	Tick		
BS EN 625:1996 'Gas-fired central heating boilers. Specific requirements for the domestic hot water operation of combination boilers of nominal heat input not exceeding 70 kW'			
BS EN 483:1999+A4:2007 'Gas-fired central heating boilers. Type C boilers of nominal heat input not exceeding 70 kW'			
BS EN 677:1998 'Gas-fired central heating boilers. Specific requirements for condensing boilers with a nominal heat input not exceeding 70 kW'			
BS EN 13836:2006 'Gas fired central heating boilers. Type B boilers of nominal heat input exceeding 300 kW, but not exceeding 1,000 kW'			
BS EN 15417:2006 'Gas-fired central heating boilers. Specific requirements for condensing boilers with a nominal heat input greater than 70 kW but not exceeding 1,000 kW'			
prEN 15420:2005 'EN 15420. Gas-fired central heating boilers. Type C boilers of nominal heat input exceeding 70 kW, but not exceeding 1,000 kW' (CEN document code 06/30144913 DC)			
BS 845-1:1987 'Methods for Assessing thermal performance of boilers for steam, hot water and high temperature heat transfer fluids – Part 1: Concise procedure'			
BS 7190:1989 'Method for assessing thermal performance of low temperature hot water boilers using a test rig'			
BS EN 303-3:1999 'Heating boilers – Part 3: Gas-fired central heating boilers – Assembly comprising a boiler body and a forced draught burner'			
BS EN 303-7:2006 'Heating boilers – Part 7: Gas-fired central heating boilers equipped with a forced draught burner of nominal heat output not exceeding 1,000 kW'			
BS EN 304:1992 'Heating boilers – Test code for heating boiler for atomising oil burners' (as amended).			
BS EN 12953-11:2003 "Shell boilers – Part 11: Acceptance tests"			
BS EN 12952-15:2003 "Water-tube boilers and auxiliary installations: Acceptance tests"			
BS EN 14394:2005+A1:2008 "Heating boilers. Heating boilers with forced draught Burners. Nominal heat output not exceeding 10 MW and maximum operating temperature of 110°C"			
BS EN 15502-1:2012+A1:2015 "Gas-fired heating boilers. Part 1: General requirements and tests"			
BS EN 15502-2-1:2012 "Gas-fired central heating boilers. Specific standard for type C appliances and type B2, B3 and B5 appliances of a nominal heat input not exceeding 1000kW.			

Please refer to the Criteria List for details of test standards accepted under each product category, and the test conditions that must be used for BS 845-1:1997.

3. Product performance (continued)

No

Yes

3.2 Which method has been used to demonstrate product performance: (select one).

- a) Method A: Separate testing of boilers and burners.
- b) Method B: Integrated testing at full and part load.
- c) Method C: Validated design calculations
(only applicable where rated output is above 400kW for category 1 and 2 boilers, or above 900kW for category 3 boilers, where it is not possible to measure product performance in a laboratory due to product size.)

3.3 Does the product have a gross thermal efficiency at 30% and 100% of its Maximum Continuous Rating (MCR) that is greater than or equal to the values for the product category and fuel type set out in Table 2?**Table 2** Performance requirements and test points for hot water boilers

	Product category	Fuel type	Turndown ratio	Test point (% of Maximum Nominal Output)	Gross thermal efficiency %	Seasonal Space Heating Energy Efficiency
1	High temperature, high pressure, high efficiency hot water boilers	Gas, oil or dual fuelled	≥ 3.33:1	30	≥ 83.8%	
				100	≥ 83.0%	
2	Low temperature, low pressure, high efficiency hot water boilers	Gas, oil or dual fuelled	≥ 3.33:1	30	≥ 83.8%	
				100	≥ 83.0%	
3	Condensing hot water boilers >70kW	Gas fired or dual fuelled	≥ 3.33:1	30	≥ 97.3%	
				100	≥ 87.4%	
		Oil fired	≥ 3.33:1	30	≥ 94.6%	
				100	≥ 89.0%	
4	Condensing hot water boilers ≤70kW	Gas, oil, or dual fuelled	≥ 3.33:1			≥ 93%

4. Summary of documents to be included

No	Yes
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Please send ONE copy of each of the following documents:

If the relevant information in support of the questions above is contained within a larger document, please indicate the location of the relevant information. Note that all documentation submitted must directly refer to the model numbers for which you are making this application. Documentation should be added to your online application at https://etl.beis.gov.uk/engetl/fox/live/ETL_LOGIN/login.

- a) A technical sales brochure or leaflet for the product clearly summarising:
- i) The key features of the product (ideally including photographs of the product's exterior).
 - ii) The product's operation (i.e. in-built functionality) and intended applications (i.e. usage).
 - iii) Any product selection options (including optional extras, alternative configurations etc.).

This documentation should contain sufficient detail to enable the assessor to confirm that the proposed entry on the ETPL is correct, and uniquely represents a single product of fixed design (as defined by the rules of the ETL). If the model names contain any "wildcards" in respect of cosmetic variations please check with ETL Questions that this is permitted before submitting your application.

- b) A technical specification for the product, including:
- i) Details of the model numbers covered (including individual features of each model).
 - ii) The product's design ratings (electrical, mechanical, thermal, flow rates, energy use etc.).
 - iii) A description of how to install the product including connection/wiring diagrams. Where the product must be assembled, configured and/or commissioned on site before use, please include instructions.

This documentation should contain sufficient detail to enable the assessor to confirm that each product entry on the ETPL has the design features specified in the eligibility criteria for that category of product. Please indicate on the checklist where information on specific design features is located in the documentation.

- c) Evidence that the product meets the performance criteria, including:
- i) Test reports showing product performance at the standard rating/test conditions.
 - ii) Details of the test procedures/standards used to determine product performance.
 - iii) A declaration certifying the accuracy of the test reports and confirming that:
 - The test facilities complied with the minimum specifications outlined in the test standard, and the required test conditions where applied during testing.
 - All measurement equipment used in testing was calibrated by an accredited laboratory, or its calibration is otherwise traceable back to national standards.
 - Appropriate quality assurance procedures have been used to verify or cross-check the accuracy and repeatability of the test procedures and test results.
 - iv) Where type testing procedures were used to select representative models for testing, please provide a written explanation of the reasons why these models were chosen, and evidence that the products covered by the representative model(s) are variants of the same constructional design.

Please note that summary test reports will only be accepted where the accuracy of the test reports has been certified by a recognised independent body or where two detailed test reports (or in the case of representative testing one detailed test report) have been submitted per product range.

Detailed test reports must always be submitted for acceptance tests or field trials.

Please refer to ETL Guidance Note 5 "ETL Testing Programme: Energy Technology List (ETL) Product Testing Framework" for further guidance on the submission of test results and minimum information requirements.

- d) A Declaration of Conformity with UK/EU Directives on product safety, including one of the following:
- i) An appropriate Conformity Assessment mark.
 - ii) The Pressure Equipment (Safety) Regulations 2016.
- e) For products with a thermal input greater than or equal to 1MW, and less than 50MW, a statement that the product complies with the minimum requirements as stated in Annex II of the Medium Combustion Plant Directive (EU) 2015/2193
- f) Evidence that a quality assurance system/procedures is/are in place to control the specification, design, manufacturing and testing of the products.
- g) Signed application checklist

Please note that all product documentation provided must be written in, or translated into, English.

5. Declaration

I confirm that the information given above is correct to the best of my knowledge and that I have read and agree to the terms and conditions governing the management of the Energy Technology List.
A copy of the terms and conditions can be found at www.gov.uk/guidance/energy-technology-list.

Signature: Date:

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