

## Purchase cost of condensing boilers in the UK

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The cost and capacity of around 100 condensing boilers were collected from two online retailers selling to the UK market.[1, 2] All types of natural gas boilers were considered: standard, combi and system. The average cost of a 24kW boiler was found to be in the range of £653 to £821, and price was scaled with capacity by £6-18 per kW. A simple linear equation is proposed to estimate the cost of a condensing boiler with a capacity of 10 to 35kW.

When the costs were plotted against capacity (*Figure 1*), a large spread was observed between manufacturers, presumably due to the differences in efficiency and ancillary features between their product ranges. Boilers that were above 35kW in capacity were selectively discarded from the study as there appeared to be a premium price associated with the highest capacity models, presumably because these less popular models are not produced on such a large scale.

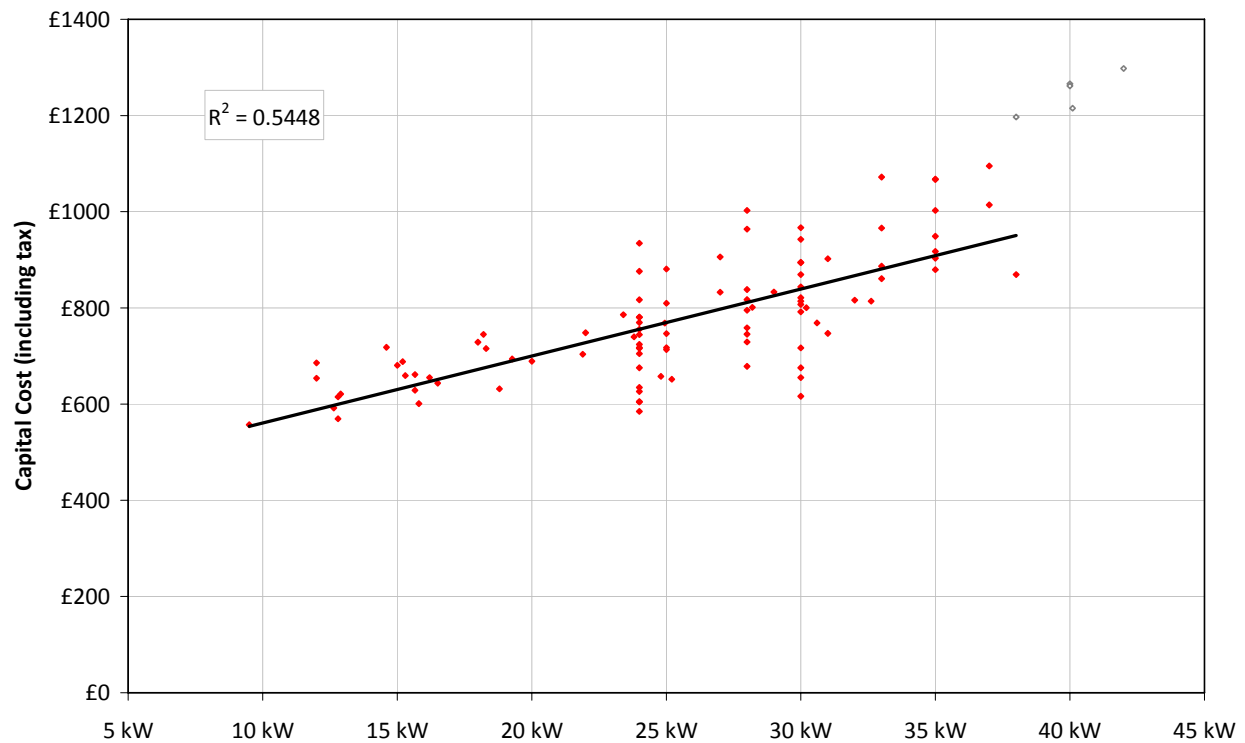


Figure 1: Sale price of condensing boilers with thermal output capacity.  
The unweighted least-squares fit gave  $£421 + £13.93 / \text{kW}$ .

The average cost of a 24kW boiler from the product listings was found to be £725±95, including UK tax of 17.5%. This spread in costs was partly accounted for by considering each product range separately. The cost of each boiler model was measured relative to the ‘centrally sized’ model of the range – that which was closest to 24kW in capacity. Table 1 demonstrates how the relative costs of different boilers are more closely aligned between product ranges than their absolute costs.

CH + DHW Capacity	Absolute Cost		Cost relative to 24kW model	
	Baxi Duo-Tec	Baxi Platinum	Baxi Duo-Tec	Baxi Platinum
24kW	£705	£876	100%	100%
28kW	£795	£964	113%	110%
33kW	£887	£1072	126%	122%

Table 1: Sale price of Baxi boilers from two product ranges.[2]

The costs of boilers from every product range were normalised in this manner (Figure 2), improving the correlation with capacity somewhat. In product ranges which had no 24kW model, the boiler with the closest capacity was chosen as the centrally sized model, and its cost was scaled accordingly. For example, the 23.4kW Ideal Icos boiler, costing £785.83 was chosen as the central model in that product range. The cost of a 24kW Ideal Icos was estimated using the gradient of £12.53/kW to be:  $(785.83 + ((24 - 23.4) \cdot 12.53)) = £793.33$ . The prices of other models in the Icos range were then scaled relative to this value.

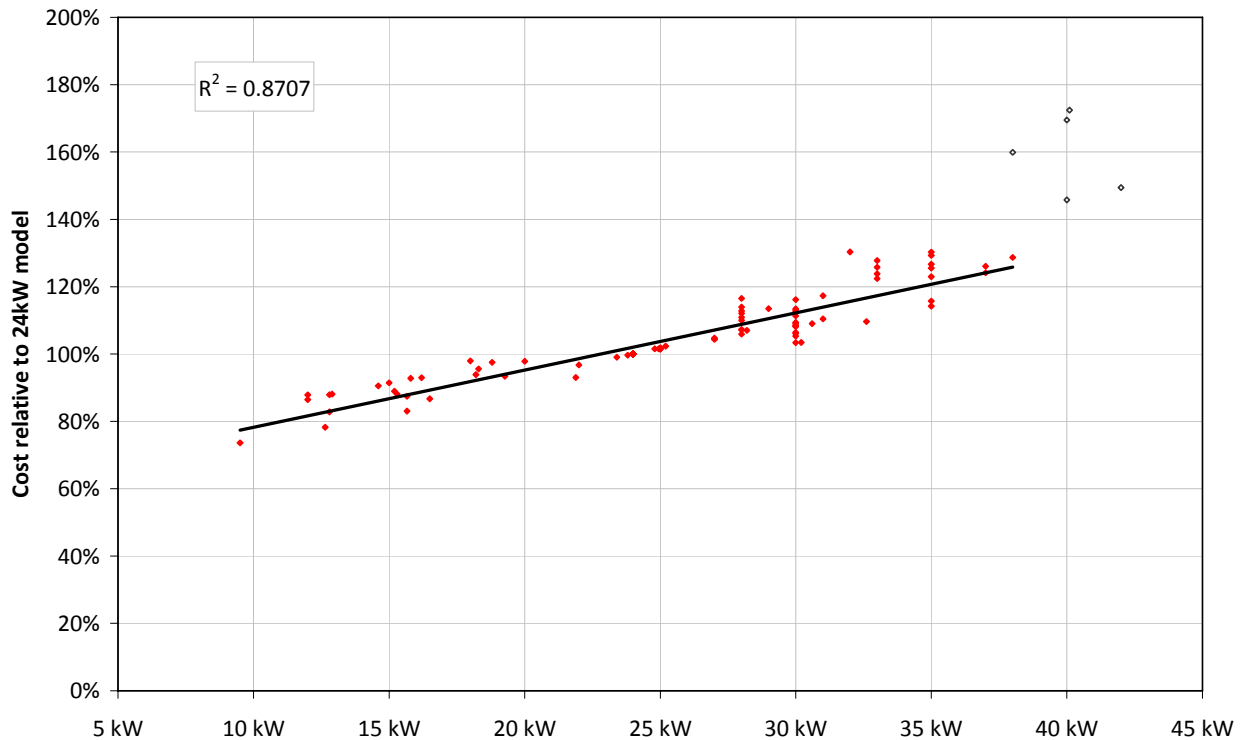


Figure 2: Sale price of condensing boilers given relative to the price of the centrally sized model in each product range. An unweighted linear fit gave  $y = 1.0201 + 0.0170 \cdot (x - 24)$ .

The average cost of the centrally sized models was £737±84 when scaled to 24kW, which was slightly above the average list price of a 24kW boiler by 0.14σ. By setting this value as equal to 100% on the normalised scale, the gradient shown in Figure 2 was found to be £12.53±5.93 per kW. The predicted and actual cost of some commonly found capacities of boiler are given in Table 2 for comparison.

Capacity (kW)	Predicted Cost	Actual Cost	Number of Models
12-13	£593	£623±42	6
15-16.5	£634	£652±28	8
24	£737	£725±95	18
28	£787	£814±107	9
30	£812	£808±107	14
35	£878	£970±77	7

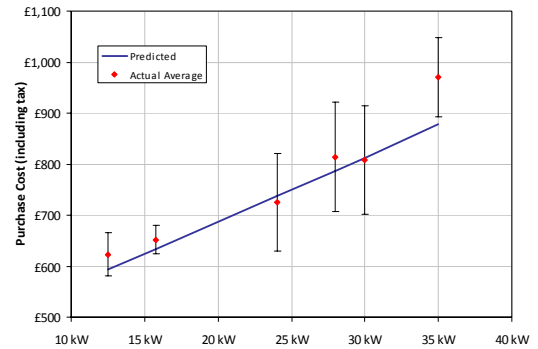


Table 2: Comparison of actual costs for selected sizes of boilers, and predicted costs from the proposed formula.

Please see the 'attachments' tab of Adobe Reader to find the raw data used in this report.

#### References:

1. Heat and Plumb. *Combi Gas Boilers, Systems Gas Boilers & Conventional Gas Boilers*. [cited Jun 2008]; URL: [http://www.heatandplumb.com/acatalog/Domestic\\_Gas\\_Boilers.html](http://www.heatandplumb.com/acatalog/Domestic_Gas_Boilers.html)
2. Discounted Heating. *Gas Boiler Chart*. [cited April 2008]; URL: [http://www.discountedheating.co.uk/gas\\_boiler\\_chart.php](http://www.discountedheating.co.uk/gas_boiler_chart.php)