HEATBASE Ltd Factsheet 44
Down rating of Appliance output

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When choosing the required output for a boiler/heating system, standard procedure for many years was a simple rule of thumb that a particular sized property required a particular boiler output; which in most cases was fine. Over the years many things have changed; loft and cavity wall insulation levels have improved and so has the quality and efficiency of glazing and window frames. Improving insulation levels on a property means there is less heat loss and therefore the output of a boiler will not need to be as high. Fully pumped heating systems enable Hot water cylinders to heat and recover more quickly than before and more energy efficient controls within heating systems such as Thermostatic Radiator Valves, programmable room thermostats and the ability to incorporate split heating zones within the system also improves efficiency and lowers the required output of the boiler. Additional heat sources such as wood burning stoves, solar thermal panels and air source heat pumps also contribute to the efficiency of the heating system again lowering the required output of the boiler. Although most people think that having an oversized boiler is fine and efficient, quite simply they are wrong!

The efficiency of an Oil boiler can be compared with the fuel performance of a car. We all know that if we drive from point A to point B but continually start and stop we will use more fuel than we would have done by driving at a continual and steady pace. Currently domestic Oil boilers are termed as “on off” boilers meaning they produce heat at one rate (maximum output) and must start and stop to keep themselves regulated. When an Oil boiler with an oversized output is fitted within a heating system it will produce more heat than the system or pipework can expel and therefore it will have to turn off to stop producing excess heat, the system then loses some heat and the boiler re-fires, only to quickly build up its heat again and so it turns back off. This is known as “short cycling” as is extremely inefficient.

When selecting a new boiler for Installation, the Installer should calculate the heat loss of the property and take into consideration any increased Insulation levels and energy efficient controls as well as any additional heat sources in the property. This will then allow them to select the appropriate output for the boiler and specify at what output they require it to be set to. Unfortunately they often select a like for like output which then reduces the efficiency of the boiler and system and leads to increased fuel consumption.

Savings can be made with older boilers to, as most existing boilers have variable outputs that can be achieved by altering the nozzle and oil pressures to lower the output the boiler produces, this make things more efficient and can reduce fuel consumption.

If anyone wants to calculate the heat loss of their property and inform us of what output they would like the boiler set to they can use a free online calculator supplied by the Institute of Domestic Heating & Environmental Engineers at www.idhee.org.uk/calculator.html