



What is the energy consumption of one end-of-line test bench for gas domestic boilers?

As you can imagine, there are no statistical data about the consumption regarding boilers tests, since they largely depend on how long is the testing time, how long the boiler is at full load or at partial load during it, the nominal power of the boiler etc. Moreover, that is an information that maybe the manufacturer himself doesn't know and, even if he knew it, he would not discuss it with us.

What we can try is an estimation by reasoning, like the following.

Let's suppose a testing time of 10 minutes, just to fix a parameter.

The **electric** consumption of a boiler usually is something like 100W, so even if it would stay ON for all the testing time, that would mean 0.016KWh.

If you consider the consumption of the bench, that can be 2KW, the energy consumed in 10 minutes is around 0.33KWh.

The **compressed air** is used to move valves, which means almost zero consumption.

It is also used to empty the boiler at the end of the test. I cannot say how much air is consumed that way, but the compressed air usually remains open for something like 30 seconds with a supply pressure of 2 bar. In any case it is very little, compared to usual compressed air consumptions.

For **gas** consumption the estimation can be very rough, since we need to make many hypothesis. We can suppose that the nominal heat input is 50KW and that the boiler works for 10 minutes at 30% of its nominal load, roughly averaging periods where it is at maximum, at minimum, completely off etc. This means a gas consumption, in case of natural gas, equivalent to 1.5m³/h during 10 minutes, so 250 liters of gas.

For the **water** consumption, the one that fills the CH circuit at the beginning is few liters only.

The one used in sanitary mode depends of course from what tests are performed. Let's suppose, just as example, that the flow rate on that circuit is 12 l/min for 90 seconds, it means 18 lites of water.

The cooling circuit, if we roughly suppose it removes the heat input of 15KW for 10 minutes, with an inlet-outlet temperature difference of 20K (which is prudent), it means a flow rate of 0.650 m³/h and so a total volume of water of 110 liters.

These are just estimations, but they can give you an idea.