

HOW DOES THE SMART WATER HEATER WORK?



I plan to purchase new boiler and I have heard about „SMART“ boilers, can I have some questions?

Sure, if you care about your costs for warm water heating, this product is for you.

What does SMART mean?

SMART in English means clever (even though the boilers fulfil other meanings of the word - they are elegant, luxurious, witty, and stylish), but this meaning relates in particular to the electronic thermostat intelligence. The control unit is equipped with self learning algorithm which learns during the first week of operation the time and amount of water the household requires, and heats it up in the following weeks before the planned consumption which reduces the losses.

How can it learn? I wash whenever I want to!

It is just your impression, most people acts according to the weekly rhythm - gets up at specified time, leaves to work and returns from work, goes to sleep at certain time, Tuesday squash, Thursday aerobic, and all this affects warm water consumption. Have you noticed the traffic jams when you leave for work in the morning, but one hour later the roads are clear? It is due to identical rhythm of most people. To make it simple, most people consume only few litres of water overnight to wash their hands a nothing during working hours. And this is makes 2/3 of the day or in other words 16 hours, when nobody is at home but common boiler is heated to full temepature.

Is it similar to something?

The heating programmer - when you are not at home the heating is at the lowest temperature because the lower the temperature difference inside and outside (boiler and house), the lower the losses and greater savings. Set the programmer for times your are at home and want to keep warm, and when it is unnecessary to use full heating.

Does it affect me?

Yes but only your wallet, it will be fuller. Warm water reserve in the boiler will remain such that the deviation from daily rhythm does not record shower with cold water. But with repeated deviations, the thermostat will learn it to save costs.

How does it save?

Imagine you are used to having a bath in the morning and in the evening. Common thermostats work in such way your bath is permanently filled with warm water, when it cools down it reheats it - nonsense, is it not? It is sufficient to run a bath just before taking a bath which is performed by SMART thermostat. It knows that there is no reason to have a full boiler of hot water for the whole day but preheats it before you get up and when you return from work. It is a simplified version, in reality it registers even small water consumptions and tunes the consumption profile.

I have a cheap tariff for water heating and it works for several hours a day!

Thermostat SMART is prepared for this, it only requires setting the right mode - SMART HDO. It works in such way that at the end of the day it measures the amount of hot water, and when it is excessive, it reduces the temperature the next week minimizing the losses. If it finds out, water amount is low, it increases the temperature in order to provide sufficient amount.

How can I picture this?

He is at home during the week and only mum and dad use TUV, two more children come home from schools for the weekends. During the week it is sufficient to heat the boiler to 48°C (except for Tuesdays when mum goes to power yoga and enjoys hot bath afterwards, it requires 56°C) and when children arrive it is necessary to heat the boiler to 65°C. It is basically the same as adding or reducing temperature on the thermostat wheel. Smart thermostat makes it for you, never forgets, and makes it accurately.

How did it work so far?

Classic capillary thermostats switch off the power supply into the unit at preset temperature and reconnect it after the temperature in the boiler drops under 4°C. The boiler keeps the same water temperature with fluctuation +/- 2°C. When warm water us out and the final part of showering is more refreshing for the last member than planned, natural reaction is to add value on the thermostat. However such high consumption is only once a week or once in a period, so temperature is set inadequately high for all other days and losses are great.

And what happens during blackout, it sometimes happens in our household, does the thermostat then forget everything?

It would not be SMART but FORGETTER boiler. It does not forget anything and it includes a reserve battery. It supplies internal clock which knows even when to reset for winter and summer time in order to keep warm water prepared for the required period.

In old boiler I always knew the number of persons to have a bath from a full boiler, if I understand this correctly, the amount of warm water changes?

Yes, warm water goes up, cold water remains at the vessel bottom part, and the amounts can vary depending on the daytime and learned heating profile. But because the thermostat is really clever, it knows and can display the amount of available water. To make it simpler for imagination, it displays it in recalculation to 40°C, which is a temperature most people use for washing hands and taking a bath. So when your hundred litre boiler shows it contains 200 litres of warm water, it is not an error or a computer virus, it means boiler is filled with water 60°C, mixing with cold water 20°C, and it makes 200 litres. In order to prevent the pressing of keys and search for the data in the menu, the display under the numerical display includes a bar graph which in ten steps displays the amount of water available. The menu then enables to find out the accuracy to 10 litres.

How do I know I have saved?

SMART thermostat includes a kind of electric meter and can display the consumed power. So if you deduce it after the first week of operation, when thermostat just learns and acts as a common boiler, and compare it with another week, you can compare the difference. The amount of consumed power can be regularly monitored, find out the costs on specific day, and make your own statistics.

How much can I save?

It is naturally individual - it depends on the regularity in your household, the dimensions of the boiler for the specific family, the location (in a cool cellar, the saving is greater than in heated bathroom), and on water consumption. However, depending on the size is approximately 1500 - 2000 CZK annually, so the selection of SMART boiler will pay its costs in three or four years, and it will last at least ten years! And I do not include the annual price growth for energy!

I have small children, who like buttons, can they somehow tune out the boiler?

Mr Murphy would probably disagree, but they cannot. Thermostat is fitted with child safety device - no password, which is included in the manual, it is possible to switch only the temperature display, consumed power, available warm water, time and date, but nothing can be changed.

How big boiler should I purchase?

The experienced designer, plumber or web pages DZ Dražice will help you with the boiler dimensioning. But SMART provide slightly greater freedom. Standard boilers, in case of purchased excessively high model with bigger vessel and therefore bigger surface, it costs you greater losses. Self learning SMART algorithm enables the boiler to adapt to your consumption and the losses do not grow in comparison to the smaller boiler. You will be ready for visitors, new family members, and other expected or unexpected events affecting warm water consumption.

Can I install such boiler in the cottage?

Sure! The second week starts the energy saving, immediately after learning your rhythm. It is not necessary to worry about it in sharp freezing temperatures, it contains function „Antifrost“, which ensures the temperature in the boiler does not drop below +5°C.

What can I see on the display?

Next to the numerical display part, you can see the symbols explaining what the big number means - it is °C, consumed energy in kilowatt-hours, available amount of 40 degree water. You can also see the symbols of individual thermostat modes - NORMAL (it functions as a classic thermostat), SMART, HDO SMART and ECO (only abbreviation for mode NORMAL to 55°C, people are used to E symbol on the boilers). The bar graph is under the display numerical part indicating warm water amount in the boiler - full light strip complies with the boiler full of hot water 65°C. And several icons are next to it indicating the boiler state. Snow flake reports that the mode ANTIFROST was active - temperature of switched off boiler dropped to +5°C. The fuse symbol reports the heat fuse was activated and requires starting - it must be left for the technician! The heating unit symbol indicates if the unit heats or not, and symbol Err signals an error, but it must be left for the technician - his/her work will be simplified due to auto-diagnostics fitted on the boiler, and due to error messages indicating the defect.