Test results SELACAL performance test

The SELACAL solar system was tested "in situ" at the Solar Institute TZSB in Saarbrücken, Germany. The complete system was installed on the test site and tested similar to the European standard EN 12976 (actually a specific standard about solar electric DHW-systems does not exist yet).
Based on the energy gain data for various load and weather data recorded over 6 months, the TZSB calculated the performance for different system sizes and locations in Europe. These values were validated using the TRYNSYS component calculation method. There was a high agreement for both calculations.

It turned out that, despite the compact hot water tank volume, the SELACAL solar system achieves very high energy savings; Even in cooler climatic zones such as Germany, where savings of up to 60% have been achieved.

With or without integrated auxiliary-heating?
FFor solar-rich regions, thermal solar systems are usually tested where storage tanks runs without additional heating.That means, for the cold days, a post-heating system is required outside the solar storage tank.

In this case, the energy savings are higher than for solar tanks with integrated additional heating. We have determined the energy savings for the SELACAL solar system for both alternatives (for Rome and Athens) as the system works very well with and without additional heating.

This makes the SELACAL system easy to compare with other solar systems.
The energy saving values were calculated in comparison with conventional hot water heaters with a mean efficiency of 75%. The hot water requirement is 80l, 110l or 140l / day. Calculated according to the local cold water inlet temperature and an outlet temperature of 45° C.