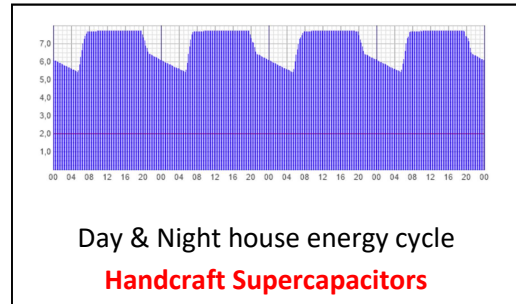


HANDCRAFT SUPERCAPACITORS

What is a supercapacitor.



A supercapacitor, also commonly called an ultracapacitor, is an accumulator of energy in the form of a static electric field. It has so far been used little, as an accumulator, as it is bulky and not very large, but in recent times things have been changing and we will see why.

A supercapacitor is not like a battery that exploits principles of reaction chemistry. The supercapacitor uses only physical and non-chemical principles.

This difference is substantial as a battery wears out internally over time, a supercapacitor does not.

Furthermore, the battery, at the end of its life, cannot be recycled and its heavy metals now consumed, as well as being very rare and polluting, will be collected and disposed of in special landfills, with very serious ecological damage.

Therefore, if a supercapacitor is built with simple criteria and materials, the product will be absolutely ecological and of course its life will be long.

It must be said that there are many companies that produce ultracapacitors today, but still use polluting materials (for example: very complex ionic solutions). Therefore, after the end of life, even commercial supercapacitors are still not recyclable.

Our company, on the other hand, has focused on this aspect: wanting to create a simple supercapacitor with non-complex materials. Making a device that lasts over time and costs little. At the end of its life it will have to be quickly disassembled and recycled completely without polluting.

Little by little we made the first prototypes and we called it: Handcraft, that is, handmade.

Our supercapacitor is so simple to build that you can even do it yourself at home.

So our essential condition is that the supercapacitor does not pollute, is never dangerous in any situation and that it is very easy to build.

After 4 years of study, which started in 2017, we were able to realize the right module in June 2021 and therefore we have realized this dream.

The results obtained and the tests of a few years, today prove us absolutely right and give us the courage to improve even more.

From today we can say that there is the possibility of accumulating energy without using batteries, without polluting, with an almost infinite duration and estimated by us in at least 40 Years.

MAIN APPLICATION:

What we have thought of, as a company, is to focus on homes or, more generally, on buildings. So our primary goal is to bring Handcraft Supercapacitors into homes to give energy and sustainable autonomy.

With one cubic meter of our supercapacitors it is possible to accumulate about 5 KWh of energy. This energy quantity is more than enough for an ecological house, less enough for a non-ecological house.

But, in this last case, nothing prevents you from putting 2 cubic meters of supercapacitors, doubling the accumulated energy.

Using only photovoltaic panels and supercapacitors, our system therefore allows us to solve the energy autonomy of buildings, be they houses, buildings or warehouses. This innovation overturns the concept of sharing the energy produced on the grid, leading instead to energy autonomy, also known as an energy island. It points towards an energy "... made and stored at home ..."!

From today, everyone at home has the opportunity to make and store their own energy, without maintenance for at least 40 years, using a photovoltaic production system and storage with Handcraft Supercapacitors.

At the end of its life, our capacitor can be removed. We will find it completely unaltered, like the first day of life. Here is the beauty of the supercapacitor: it does not wear out over time. Some materials can be recycled, others are even edible.

PROBLEMS :

The problem with our autonomy system for homes lies in the days when the photovoltaic panels are unable to supply energy. These are days of fog, of low clouds, of snow.

For this reason we have kept our system in the Marche Region in Italy for 3 years in operation. We noticed, with web monitoring in real time, that about 10-20 days a year the panels are unable to load the supercapacitor.

So we have to use a generator that charges the supercapacitor in these days. We know that it is not entirely ecological, being the unit powered by fuel. However, we have calculated that, with 50 liters of fuel (petrol) per year, we can guarantee total autonomy for an average home. All things considered, that's a full tank of petrol for an average car a year!

We must also remember that the generator set is not used continuously, but only the time to charge the Handcraft.

Therefore, consumption is much lower, as the group would only stay on for a couple of hours a day.

OTHER APPLICATIONS:

We have also applied small Handcraft on electric fences, with very positive results.

Similarly we can apply them in street lighting and this will save a lot of batteries.

In general, wherever energy is needed in static form, the supercapacitor can perform its function.

Always naturally combined with a photovoltaic source or a wind power plant.

LARGE STATIC SYSTEMS & SUPERCAPACITORS :

We have calculated that a thousand cubic meters of Handcraft accumulate about 5 Megawatt hours. Impressive energy. Therefore, with warehouses filled with supercapacitors and large photovoltaic or wind power plants, it could be possible to supply energy to entire countries, or to large industrial complexes.

GREAT POINTS OF ENERGY:

We remind you that a supercapacitor has no problem providing very high impulse starting powers. Indeed we can say that capacitors were born in history for this very purpose. So ultracapacitors can deliver high power surges without deteriorating. While the batteries were not born for this purpose and are ruined if they are charged or discharged very quickly.

MOBILE SYSTEMS:

The ultracapacitors, given their size (about 10 times those of a battery) are not suitable for cars - trucks and where we want to make long journeys independently.

However, ultracapacitors are starting to be used in city bus. In fact, they do very well in a mobility in which you often stop and start again after a minute. Mobility with ultracapacitors can only be this.

In these situations, however, in our opinion, it should always be ultracapacitors stocked in sheds to load the ultracapacitors onto the bus. This would be truly ecological and that is what we absolutely must do in the future.

THE FUTURE WE WOULD LIKE IN THE SHORT PERIOD:

With Handcraft, we expect it to radically change the way energy is used in homes and buildings in the short term. Each of us can produce his own energy and can accumulate it.

For the moment this is enough for us.

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