Source: DaniReef "SCHEGO Heater: Slimline Titanium PTC 600w: Incredible"

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EN - Schego Titan PTC heater 600 W

During Interzoo 2022 in Nuremberg, we met the sales managers of the German company Schego. On this occasion, they had introduced us to some new products from their catalog, which specializes in heaters, aeration pumps and accessories for aquariums and ponds.

Our attention was immediately drawn to the PTC heaters, which impressed us with their interesting features. We waited eagerly for some time to try them out until they became available on the market in December 2022.

The SCHEGO titanium heaters, equipped with PTC technology, are a combination of technology and functionality, with a focus on robustness and efficiency.

No sooner had it arrived on the suppliers' lists than the friendly people at SCHEGO sent us one to test. And not just any one, but the 600-watt model, the largest heater in the entire range. A great opportunity to test it in one of our pools!

Our video test of the Schego PTC heater

Before we continue with the article, we would like to share with you the link to our YouTube video with all the tests we have carried out to test the PTC technology. There you can see the Schego PTC heater art. no. 506 in action.

https://www.youtube.com/watch?v=AVB8sbymIk0&t=251s

A tradition of excellence

For those who have never heard of Schego: Schego is a German company that was founded back in 1949. The name Schego is nothing more than the union of the surnames of the two founders, namely Fritz SCHEmel and Kurt GOetz.

In more than 65 years of activity, this company has made a name for itself in the world of aquaristics as well as in the biomedical and hospital sectors with products that are characterized by their practicality, functionality and absolute efficiency.

An irreplaceable product

The heater is one of the essential items for the management of any aquarium, be it a freshwater or saltwater aquarium. As an indispensable accessory in the winter season, it allows us to keep the temperature in the tank constant and stabilize it to the optimal parameters for the species to be kept.

When it comes to heaters, it is difficult to find a product that stands out in terms of quality, technology and efficiency. More or less all of them are similar in design. A coil that heats up when current flows through it, as it resists the passage of electrons, and radiates the heat via an external housing and transfers it to the water in which it is immersed.

The infamous heater is certainly one of the main causes of rising energy costs in the winter season.

If we consider that all the electricity we feed it is converted into heat and distributed everywhere, we can understand that it is inherently one of the most inefficient appliances.

So are all heating appliances the same?

Not at all! And this brand new SCHEGO heater proves it!

PTC heaters

As previously mentioned, the PTC series was launched in December 2022, although it took some time to become available in some stores.

These heaters are a significant improvement on the old Schego series with the titanium housing, which many of you may have liked in the past. The main advantage is the use of PTC (Positive Temperature Coefficient) technology, which ensures maximum heat output in any situation.

These heaters are available in four models with variable output and are significantly longer than the previous series.

Below you will find the most important technical data and measured values for the various models:

Item no. 501 - 100 W measures 150 mm and has a diameter of 12 mm

Item no. 502 - 200 W measures 250 mm and has a diameter of 12 mm

Item no. 503 - 300 W measures 350 mm and has a diameter of 12 mm

Item no. 506 - 600 W measures 550 mm and has a diameter of 12 mm

The overall dimensions are therefore quite generous, a factor that should be taken into account when purchasing. In fact, it is evident that the larger models should be placed horizontally so that the heater does not protrude. Indeed, it is difficult to find a collection tray with a height of 55 cm in which a heater such as the PTC 600 W can be placed vertically.

Test report

The model tested is the 600 watt model 506, the most powerful in the entire series and definitely stands out for its considerable size, with a height of no less than 55 cm.

The radiating surface has been reduced from 274 cm2 in the old version to 207 cm2 in the new version. This new format makes it possible to take full advantage of Titan's radiation capacities, also thanks to the new element with a positive temperature coefficient at the heart of the system.

It should be remembered that titanium has a much higher average thermal conductivity than glass, namely 21.9 W/(m*K) compared to 0.5-1 W/(m*K).

Packaging

The packaging of the heater is quite plain and simple. A white cardboard box with clean and essential graphics leaves the whole scene to the heating element, which has been deliberately placed on the outside so that it is clearly visible and accessible to touch.

In short... no frills!

We get straight to the point and make it clear that the focus here is on the content and there is no need to hide it behind other tools. In the box we find the instructions for use in German and English. The set is rounded off by two holders with the corresponding suction cups for easy attachment to the glass.

IP68 certification

The heater is certified to IP68, a standard that identifies electronic devices that are dustproof and protected against permanent immersion. In addition, the stainless properties of titanium guarantee safe use due to the absence of oxide or rust, even after prolonged contact with seawater. You can therefore immerse it in the pool without worrying. The only plastic part is the small upper connection from which the 1.5 meter long power cable extends.

No control system

There are no electronics to switch the heater on or off when a certain temperature is reached. An external control system is therefore required. An aquarium computer would be ideal, but a thermostat such as the TR2, also from the Schego catalog, is also an option.

The heater then switches on as soon as the plug is inserted into the socket. This is a very important detail and should be taken into account when purchasing.

Durability and quality of workmanship

The radiant heater has a perfect design and is a real gem of technology. The welded seams of the housing have been executed with the utmost care and there are no burr marks in the mold, which is simple and effective. This is not always a given, especially when you consider that titanium requires special welding techniques. Such welding is often done by hand by highly specialized personnel, which makes the whole process quite expensive.

I have to say that I have dealt with many heaters in my life as an aquarist, but never have I had such a feeling of reliability and compactness as with this one. Visually it is really beautiful, with its clean, sleek lines.

Operation with positive temperature coefficient

However, the real break with the previous series is characterized by the PTC technology, i.e. the positive temperature coefficient.

But what does this new technology consist of?

The actual heart of the heater is a radiant element with self-regulating properties. Let us try to explain what this means in a simple way.

In the initial phase, when the temperature difference between the radiator and the water is high, the heat extraction is greatest. This causes the output to increase by pushing the appliance to its maximum. Subsequently, when the thermal delta decreases, the heat output also decreases, the current flow decreases and consequently the power consumption also tends to decrease.

This system offers two main advantages

- Optimization of consumption, as the heater reduces its current load with low heat transfer.

- No overheating problems, as the heating element reduces its heat output as the outside temperature rises while remaining within a safe range.

Our test

It is difficult to find reference values on which to base the evaluation of a heater. We therefore decided to carry out a test in which we measured the power consumption with our usual RCE PM600 measuring device.

To see how the PTC element works, we then tried to find out how the power consumption develops when the external media temperature changes. In the first operating phase, we would expect very high power consumption. In this phase, the thermal delta to be bridged is the largest (if we consider the delta to be the temperature difference between the heater and the water to be heated). This consumption should then gradually decrease as the water temperature rises, i.e. when the thermal delta tends to decrease.

At the time of the measurement, the ambient temperature in our test room was 19.9° C.

We set up a container of water (in our case salted, as it was ready for a water change). With the water at an initial temperature of 18.6° C, we switched on our heater and connected the power supply. We looked at a period of 1 hour and took measurements every 5 minutes with the RCE PM600 consumption meter.

The results of the measurements

The measured values can be found in the table below:

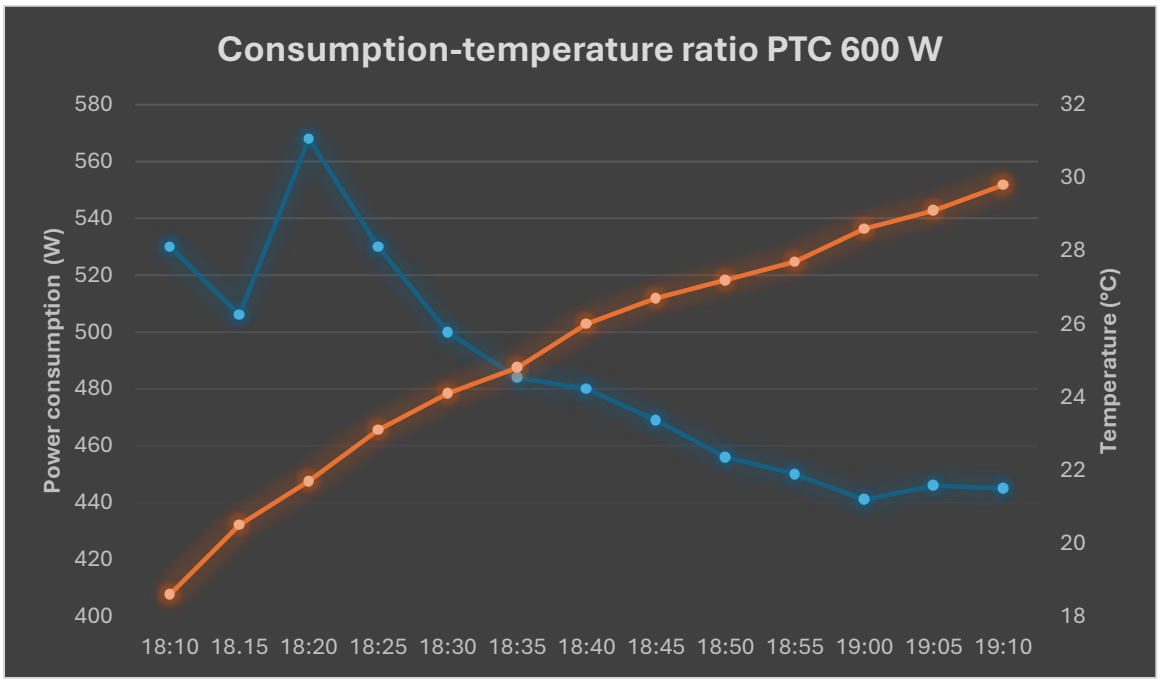
Time	Power consumption	Temperature (°C)
18:10	530	18,6
18.15	506	20,5
18:20	568	21,7
18:25	530	23,1
18:30	500	24,1
18:35	484	24,8
18:40	480	26
18:45	469	26,7
18:50	456	27,2
18:55	450	27,7
19:00	441	28,6
19:05	446	29,1
19:10	445	29,8

For the sake of simplicity, we have summarized the results in a diagram in which we find the following:

x-axis: time (5 minute sections)

y-axis blue: current consumption (watts)

y-axis orange: temperature of the water (°C)



Of course, we tested it more or less in its normal range of use, it wasn't worth going any further.

We hardly ever need to bring our water to temperatures above 26-27° C. Maybe it can happen with some water changes, but the conditions in our aquariums do not require such high temperatures. We can assume that the consumption values cannot drop much further. After all, a resistor is still a resistor and therefore one of the least efficient loads there is.

The real test bench

We tested the heater for a long time before publishing this report. After the measurements, we left it running throughout the winter in a tank of around 800 liters as the main heater and provided for a possible second heater to be used on colder days.

The test tank measured 180x80x50, with a net draught of about 600 liters + 180 liter sump, for a total of about 780 liters.

As can be seen above, the heater is not equipped with intervention control electronics. For this reason, switching on and off was shifted to an external control system (in our case 3lements Aquago).

The temperature sensor switched the appliance on at 23° C during the descent phase. When the temperature rose, the switch-off was set to 23.5° C. Our aim was to maintain a temperature range between 23 and 23.5° C of 0.5° C. A second temperature sensor, located near the main tank, displayed the ambient air temperature and confirmed our thermostat, which was set to 20°C during the day and 17°C at night. Throughout the observation period, the heater worked extremely well and ensured that the temperature was maintained even on the coldest days without the need for an additional heating system.

As expected, there were no problems with the construction or operation. After more than five months of use in salt water, the titanium body was as good as new, as were the plastics and cabling. With increasing ambient temperatures, the range of use gradually decreased. In spring, we therefore put the device in the drawer and waited for its future use.

Personally, I don't like to keep something I'm not using in the pool, but I'm sure that the stainless properties of titanium mean that leaving it under water all the time wouldn't be a problem.

Summary

To summarize, the purchase price for this type of heater is slightly higher than for classic heaters. It starts at €52.50 for the 100 watt model, the smallest in the range.

The 200/300 watt models are available for €65 and €80 respectively, while ours costs €106.30.

A relatively high amount, but justified by the build quality of the product and the fact that it can definitely be considered a "final" purchase. The performance features are very high and the quality of the materials is obvious.

We are dealing here with a product that you will appreciate and use for many years after purchase. So let's consider it a small investment to have an undeniably functional and efficient object. The added value is then, in addition to the modern operating technology, a minimalist, clean and attractive aesthetic for an object that, although it tends to be used out of the spotlight, we can confidently call beautiful!!!

And what do you think? Have you already planned a heater for your tank? All information on our website!