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# INSTRUCTION FOR NXNANO ENERGY EFFICIENCY QUESTIONNAIRE

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[Dokumentets underrubrik]

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NXNANO AB

[www.nxanano.se](http://www.nxanano.se)

## Instruction for NxNANO's questionnaire on energy efficiency.

The purpose of this short questionnaire is to assess the profitability of a potential application of HTF Compact® nano liquid - nanotechnology for improving heat exchange - at your plant (e.g. heating, ventilation, air conditioning, cooling, heating) and to estimate the potential energy the savings.

All facilities have their challenges and depending on what kind of business your heating or cooling system should support, we need to know what type of business you conduct where you intend to install HTF Compact® and where.

We use this form to quickly get an idea of whether it will be a good investment installing HTF Compact to achieve at least a 15% energy saving or a payback of at most 3 years on the investment. The questionnaire does not provide exact facts, but it does give us a good idea of whether it is profitable to move on or not.

When it comes to input data from Geographical location, we can read temperature data from different sources to calculate outdoor temperatures and trends which is well documented around Europe.

### **BUSINESS SEGMENTS FOR YOUR BUSINESS / UNIT:**

Here you can choose one or more alternatives, and if the alternatives does not fit into your business, you have free text where you can describe your business, e.g. We operate greenhouses with hydroponic irrigation in northern Sweden with high heating costs.

### **Development of your facility**

Here we are interested in finding out what your plans are for your business or property. It can be important information that enables a future investment to receive a grant or favourable green loan if the effect is greater than 35% energy savings and reduced CO2 emissions. Then we may be able to supplement an installation of HTF Comapact with another insert to get a better efficiency and better payoff on the investment.

### **System description**

Here it is important that we can get a good picture and understanding of how your infrastructure works and desired "Setpoints" see how you measure and control your systems. All systems are interconnected and affect each other both positively and negatively. Our team has extensive experience of integrating systems in heating and cooling and can quickly get an understanding of the system and what opportunities you have to optimize your systems with the help of HTF Compact® and optimization tools.

HTF Compact® can extend the life of some systems by the fact that certain functions does not have to run continuously and with fewer hours in operation gives a longer life.

If possible, attach the following information:

Most heating or cooling equipment has well-documented information that can be found in manuals or often **on the equipment, then age, number of operating hours, maintenance, etc. play a whole in terms of efficiency.** With this information, we can calculate what power reduction HTF Compact® can give your system and what you may need to supplement or control to achieve the most efficient operation.

If we get such detailed information from you, we can provide better data.

When it comes to whether your equipment is seasonal, we can distinguish between property systems where we have a winter and summer season, here we want you to define for how long you have your system in operation and with what capacity.

When it comes to refrigeration equipment for production, we need to know the number of operating hours / year and whether there are seasonal variations.

### **6 Use volume and type of heat transfer fluid**

Here we want to know the volume of your systems, regardless of whether it is a heating system or a cooling system.

As these are usually closed systems from incoming district heating, the volume of the internal system we are looking for is from the heat exchanger.

HTF Compact works well in both propylene or Ethylene glycol and in water only with some form of corrosion protection in heating systems. HTF Compact® works well in so-called. Black water (dead water) which is common in old radiator systems and requires no cleaning before installation. However, we need to know the PH value of the water to be able to compensate and balance the PH value before installing HTF Compact®. It is included in the price for HTF Compact®.

### **6. Temperature of the heat transfer fluid**

Here it is important that we get to know the right temperatures, as this is where you see the difference directly during installation and it gives an indication of how big the savings will be and how it will affect other parts of your system.

## **ENERGY CONSUMPTION AND MONITORING**

Electricity consumption can usually be obtained from previous electricity bills and it is good if you can see the energy consumption of the last five years and what previous measures have been implemented that affect the energy consumption in the property / system. Electricity consumption is what affects the payoff and CO2 reduction of the investment in addition to other non-measurable effects such as reduced operation of the equipment and other effects that can be difficult to measure if you do not have equipment to measure the effects of your systems.

When it comes to electricity prices, we see that they fluctuate over time depending on what agreements you have and geographical location. In order to be able to produce a good calculation, we also need your data on the tariffs you have for high and low consumption in the systems.

When it comes to your estimate of the efficiency of your systems and how they meet the requirements for energy efficiency, this is a general estimate.

This also applies to questions about CO2 emissions and whether you have a strategy for reducing emissions, e.g. Through a simple installation of HTF Compact® which provides a fast and measurable reduction over time.

CO2 savings 950 g / kWh / year and which you can easily report in your sustainability report or annual report.

Regarding other comments, we are grateful for information that may affect the installation of HTF Compact® in your systems. HTF Compact® is estimated to have a lifespan of 15-20 years without losing its efficiency if it has a 5% mixture in your heating and cooling system.

Efficiency does not decrease over time as HTF Compact® does not suffer from reduced product power over time. Nevertheless, it is usually the case that some systems are cleaned over time or have a leak with subsequent refilling of coolant. In such cases, it must be ensured that HTF Compact® always remains at 5% volume / volume concentration. This can be measured with ongoing applications where performance is still at the same level after 24 months of product introduction.

### **Some additional effects of installing HTF Compact®**

How do I make sure HTF Compact® has the right concentration in my system to maximize performance?

Our team of experts can quickly evaluate the performance of your system. You can send an example of your current coolant solution and NxNANO and our team at TCT Nanotech provide support on whether an adjustment is needed. We suggest that you perform this check once a year. We offer you a service agreement and take responsibility for ensuring that your system is always up to date.

### **Is HTF Compact® compatible with all systems and coolants?**

HTF Compact® is designed to be applied in all systems that work with water, ethylene glycol and propylene glycol (or any mixture thereof) as base coolant. Our product is specially designed to increase corrosion protection and sedimentation. The use of HTF Compact® is recommended for each pipe construction as there is no compatibility problem.

### **If HTF Compact® is applied in an installed system, does that mean I could achieve improved cooling or heating temperature results using extra efficiency?**

Yes, depending on the goals and plant operation strategy, the extra efficiency that HTF Compact® brings can lead to achieving better cooling or heating temperatures while not increasing electricity consumption. This allows some plants to avoid modernization of units and their related Capex investments, while being able to handle the increased heat load.

**For more information, please read our HTF COMPACT® FAQ, Frequently Asked Questions.**