

**NOVITEK®**



**Consumption Test  
for Outdoor Hot Tubs**

# What? How? Where?



## What?

We sent two different Hot Tub sizes for consumption measurements. A Novitek Luosto outdoor Hot Tub (190 x 190 cm), and a Malla outdoor Hot Tub (230 x 230 cm).

Consumption measurements have been carried out in laboratory conditions, which means that external factors have been established for the entirety of the test.

## How?

- Two different tests were performed on both Hot Tubs:
  - » Test 1: 72h test in "Ready" mode, with the Spa cover closed.
  - » Test 2: 1h bathing simulation test, where the Spa cover was off, the Hot Tubs massages were on for 2 x 15 min and off for 2 x 15 min.
- The measurements were started when the Hot Tubs had reached the optimal temperature of 37°C.
- The Hot Tubs were filled to match the normal filling height, 135mm measured from the top of the Hot Tub.
- The settings of the Hot Tubs were at the factory settings.

## Where?

Tampere University, HV laboratory  
Tekniikankatu 8 33720 Tampere



# The Hot Tub models Tested

## Luosto 2.0















### Isolation

- Walls 30mm FF-PIR
- Bottom 50mm FinnFoam XPS + 30mm FF-PIR = 80mm total isolation

### What FF-PIR?

- Domestic polyurethane insulation with very effective thermal insulation capacity, thermal conductivity ( $\lambda$ ) Declared is 0.022 W/mK, which enables thinner insulation thicknesses.
- Completely Moisture resistant and mold-proof. The thermal insulation does not deteriorate due to convection (temperature variation) or humidity.
- The chemical resistance is very good as well
- Resistant to solvents, plasticizers, and mineral oils.

### Technical information

-  **SIZE:**  
190 x 190 cm
-  **HEIGHT:**  
93 cm
-  **NUMBER OF PEOPLE:**  
5
-  **UPRIGHT SEATS:**  
3
-  **LOUNGE SEATS:**  
2
-  **MASSAGE JETS:**  
29 pcs
-  **MASSAGE PUMPS:**  
1 x 1,3 kW
-  **FILTER PUMP:**  
0,2 kW
-  **HEATER:**  
3 kW
-  **WATER CAPACITY:**  
1000 l
-  **EMPTY WEIGHT:**  
255 kg
-  **ELECTRICAL CONNECTION:**  
2 x 16A (230V)



## Malla















### Isolation

- Walls 30mm FF-PIR
- Bottom 50mm FinnFoam XPS + 30mm FF-PIR = 80mm total isolation

### What FF-PIR?

- Domestic polyurethane insulation with very effective thermal insulation capacity, thermal conductivity ( $\lambda$ ) Declared is 0.022 W/mK, which enables thinner insulation thicknesses.
- Completely Moisture resistant and mold-proof. The thermal insulation does not deteriorate due to convection (temperature variation) or humidity.
- The chemical resistance is very good as well
- Resistant to solvents, plasticizers, and mineral oils.

### Technical information

-  **SIZE:**  
230 x 230 cm
-  **HEIGHT:**  
102 cm
-  **NUMBER OF PEOPLE:**  
6
-  **UPRIGHT SEATS:**  
5
-  **LOUNGE SEATS:**  
1
-  **MASSAGE JETS:**  
64 pcs
-  **MASSAGE PUMPS:**  
3 x 1,5 kW
-  **FILTER PUMP:**  
0,3 kW
-  **HEATER:**  
3 kW
-  **WATER CAPACITY:**  
1700 l
-  **EMPTY WEIGHT:**  
380 kg
-  **ELECTRICAL CONNECTION:**  
3 x 16A (400V)





# LUOSTO

## test results: kWh

- Ambient temperature 6,5°C  
(Average temperature, Helsinki 2021)
- Hot Tub water temperature 37°C

### Test. 1 Base consumption

Hot Tub in "Ready" mode, with the Spa cover closed.

6,55 kWh / 24h

### Test. 2 Bathing simulation

1h bathing simulation test, where the Spa cover was off, the Hot Tubs massages were on for 2 x 15 min and off for 2 x 15 min.

3,15 kWh / 1h

## Examples of Consumption

### Basic Consumption

Yearly consumption with the cover being closed.

Consumption 2390 kWh / year

### So to say "Week use"

A family uses the Hot Tub 1 x 1h weekly. The Jets are on for 30min during this time.

Consumption 2554 kWh / year

### Active use

A family uses the Hot Tub 3 x 2h weekly. The Jets are on for 60min during every session.

Consumption 3373 kWh / year



# MALLA

## test results

### kWh

- Ambient temperature 6,5°C  
(Average temperature, Helsinki 2021)
- Hot Tub water temperature 37°C

#### Test. 1 Base consumption

Hot Tub in "Ready" mode, with the Spa cover closed.

8,23 kWh / 24h

#### Test. 2 Bathing simulation

1h bathing simulation test, where the Spa cover was off, the Hot Tubs massages were on for 2 x 15 min and off for 2 x 15 min.

3,43 kWh / 1h

### Examples of Consumption

#### Basic Consumption

Yearly consumption with the cover being closed.

Consumption 3003 kWh / year

#### So to say "Week use"

A family uses the Hot Tub 1 x 1h weekly. The Jets are on for 30min during this time.

Consumption 3182 kWh / year

#### Active use

A family uses the Hot Tub 3 x 2h weekly. The Jets are on for 60min during every session.

Consumption 4074 kWh / year



# LUOSTO

## test results

### in euros €

**Calculations made with electrical stock market value:**  
The July 2022 spot electricity average price of 22.83 cents/kWh, VAT 24% included, electricity transfer price excluded.

#### Test. 1 Basic Consumption

Hot Tub in "Ready" mode, with the Spa cover closed.

1,5 € / 24h

#### Test. 2 Bathing simulation

1h bathing simulation test, where the Spa cover was off, the Hot Tubs massages were on for 2 x 15 min and off for 2 x 15 min.

0,72 € / 1h

### Consumption Examples

#### Basic Consumption

Yearly consumption with the cover closed

Consumption 545 € / year

#### So to say" Week use"

A family uses the Hot Tub 1 x 1h weekly. The Jets are on for 30min during this time.

Consumption 583 € / year

#### Active use

A family uses the Hot Tub 3 x 2h weekly. The Jets are on for 60min during every session.

Consumption 770 € / year



# MALLA

## test results

### in euros €

**Calculations made with electrical stock market value:**  
The July 2022 spot electricity average price of 22.83 cents/kWh, VAT 24% included, electricity transfer price excluded.

#### Test. 1 Basic Consumption

Hot Tub in "Ready" mode, with the Spa cover closed.

1,88 € / 24h

#### Test. 2 Bathing simulation

1h bathing simulation test, where the Spa cover was off, the Hot Tubs massages were on for 2 x 15 min and off for 2 x 15 min.

0,78 € / 1h

### Consumption Examples

#### Basic Consumption

Yearly consumption with the cover closed.

Consumption 685 € / year

#### So to say" Week use"

A family uses the Hot Tub 1 x 1h weekly. The Jets are on for 30min during this time.

Consumption 726 € / year

#### Active use


A family uses the Hot Tub 3 x 2h weekly. The Jets are on for 60min during every session.

Consumption 930 € / year

# LUOSTO – test certificate



p. 1 (1)

Test report	TAU-01522						
Test ordered by	Oy Nordic Spa Ltd.						
Device tested	Outdoor spa of the following model: - Luosto manufactured by Oy Nordic Spa Ltd. The tested spa was manufactured in 2022.						
Test(s) Description/specification	<b>Energy consumption measurements</b> ( $T_{\text{outdoor}}=6.5^{\circ}\text{C}$ , $T_{\text{water}}=37^{\circ}\text{C}$ ) Test 1: 72 h test in 'Ready' -mode with spa cover on, (EN27125) Test 2: 1 h Bath simulation test, (customer specification; spa cover off, water jets 2*15min ON, 2*15min OFF) (both tests detailed in full test report TAU-01222)						
Test location	Tampere University, HV laboratory Tekniikankatu 8, 33720 Tampere, Finland						
<b>Test Result</b>	<table border="1"><thead><tr><th>Spa</th><th>Test 1: Average consumption in 'Ready' -mode</th><th>Test 2: Bath simulation test, 1 h</th></tr></thead><tbody><tr><td><b>Luosto</b></td><td>6.55 kWh/24 h</td><td>3.15 kWh/1 h</td></tr></tbody></table>	Spa	Test 1: Average consumption in 'Ready' -mode	Test 2: Bath simulation test, 1 h	<b>Luosto</b>	6.55 kWh/24 h	3.15 kWh/1 h
Spa	Test 1: Average consumption in 'Ready' -mode	Test 2: Bath simulation test, 1 h					
<b>Luosto</b>	6.55 kWh/24 h	3.15 kWh/1 h					
Tested/verified by	June 20, 2022,  Kari Lahti, D.Sc. (Tech.) Senior Scientist Head of the TAU HV laboratory						
Test laboratory	Tampere University, ITC/Electrical engineering, HV laboratory Korkeakoulunkatu 3, 33720 Tampere, Finland						
Notes	The test details are indicated in the full test report TAU-01122						
This test report relates only on the indicated test samples. Partial copying of this report is not allowed.							

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# MALLA – test certificate



p. 1 (1)

Test report	TAU-01622						
Test ordered by	Oy Nordic Spa Ltd.						
Device tested	Outdoor spa of the following model: - Malla manufactured by Oy Nordic Spa Ltd. The tested spa was manufactured in 2022.						
Test(s) Description/specification	<b>Energy consumption measurements</b> ( $T_{\text{outdoor}}=6.5^{\circ}\text{C}$ , $T_{\text{water}}=37^{\circ}\text{C}$ ) Test 1: 72 h test in 'Ready' -mode with spa cover on, (EN27125) Test 2: 1 h Bath simulation test, (customer specification; spa cover off, water jets 2*15min ON, 2*15min OFF) (both tests detailed in full test report TAU-01222)						
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