



JSC "SSF" QUALITY MANAGEMENT SYSTEM

ASSEMBLY DESCRIPTION OF INTEGRAL "WELLNESS" HOT TUB HEATER



1. PURPOSE OF THE DOCUMENT

The purpose of this document is to provide all the necessary information, needed for the appropriate assembly and proper use of integral "Wellness" hot tub heater. Information given below is primarily dedicated to the vendors of a hot tub heaters in order to provide the basic knowledge about the product. However this information or at least some parts of it could be used as a guide for the user manual.

2. APPLICATION LIMITS OF THE DOCUMENT

This assembly description represents JSC "SSF" products and covers these types of hot tub heaters:

Integrated "Wellness" heater stainless steel set AISI 430 Integrated "Wellness" heater stainless steel set AISI 304 Integrated "Wellness" heater stainless steel set AISI 316

Size dimensions and main spacifications of the heaters listed above are given in the Annex A. Manufacturer's contacts and futher information about JSC "SSF" are presented in §12.

3. DECLARATION OF COMPLIANCE

By placing the CE mark on this product, we are confirming compliance to all relevant European safety, health and environmental requirements which are applicable in legislations for this product (see § 4). When integral heater is unpacked, every client must make sure that non-compliance was found. If any doubts occurs, any heater should not be used at all and contact a manufacturer or vendor for futher guidance is recommended.

4. REFERENCES

EU COMMISSION NOTICE The '*Blue Guide*' on the implementation of EU products rules 2016; EU DIRECTIVE 2001/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 3 December 2001 on general product safety;

EU DECISION No 768/2008/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 9 July 2008 on a common framework for the marketing of products, and repealing Council Decision 93/465/EEC;

EU COUNCIL DIRECTIVE of 25 July 1985 on the approximation of the laws, regulations and administrative provisions of the Member States concerning liability for defective products;

EU REGULATION (EC) No 765/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products and repealing Regulation (EEC) No 339/93.

5. EXPLANATIONS AND ABBREVIATIONS

Manufacturer	- joint stock company "SSF";
Vendor	- a person or organization who trades manufacturers final products;
Client	- a person or organization who intending or periodically purchasing manufacturers final products;
End users	- the person who actually buys or uses a particular final product;
Raw material	- a metal industry product of a certain type, thickness and size, which is used for the production of a manufacturers final products:
Raw material type	- a designation indicating the composition and field of application of a metal industry products;
Raw material thickness	- distance between two wide surfaces of a single metal industry product (measured in milimeters);
Component	- a separate part of the semi-finished or finished product;
Semi-finished product	- an incomplete product which can be used to produce different final products;



Unfinished product	- incomplete product which has not undergone all technological operations and is only suitable for one type of final product to produce:
Final product	- a fully assembled product that will no longer be subject to any technological operations and may be ready for sale at any time;
Product assembly	- the entirety of coherent steps which are required to fulfill in order to obtain the final product ready to use;
Non-compliance	- failure to comply with the requirements for parts, semi-finished or final products;
EU	- European Union;
430	- raw material type corresponding to stainless steel AISI 430;
304	- raw material type corresponding to stainless steel AISI 304;
316	- raw material type corresponding to stainless steel AISI 316.

6. DESCRIPTION OF THE ASSEMBLY PROCESS

6.1. Assembly parts of integral "Wellness" hot tub heater. All the parts listed below comes with a standart integral heater set (see Fig. 1) and are:

- "Wellness" integral heater (1 pcs.)
- Ash drawer (1 pcs.)
- Heater doors with glass (1 pcs.)
- Ash grates (1 pcs.)
- Chimney elbow (1 pcs.)

The manufacturer also provides an extra parts (see Fig. 2), which can be delivered at the client's request. All these parts are optional, and can be purchased for additional fee. Chimney tubes are different parts, and each of them has its own assembling order, therefore chimney should be assembled carefully and following the assembly scheme provided by the manufacturer (see § 6.3).



Figure 1. The standart "Wellness" heater set: *a)* "Wellness" integral heater; *b)* ash drawer; *c)* ash grates; *d)* heater doors with glass; *e)* chimney elbow.





Figure 2. The optional equipment* for integral "Wellness" heater:
a) heater front protection; b₁) initial heater holder; b₂) subsequent heater holder; c) water hose clamps (4 pcs.);
d) hot tub connectors (2 pcs.); e) hot tub connection hose (2 pcs.); f₁) initial chimney tube; f₂) subsequent chimney tube; g) chimney cap; h) chimney guard; i) chimney elbow guard.

6.2. Preparation for the assembly. Prior to commencement of the assembly process all the parts from integral "Wellness" heater set, should be inspected in order to determine which of them are covered in a protection film. All parts covered in a protection film should be peeled off and the use of protective gloves is recommended to avoid hand cutting into the sharp edges of the parts (see Fig. 1). This step basically is needed to be done by the end users. Therefor this information has to be properly presented and the manufacturer strongly recommends to include it into the user manual, which should be prepared by the vendors before selling integral "Wellness" heaters to the end users.

^{* -} optional equipment does not belong to a standard set of integral heater and should be purchased separately.



6.3. Assembly steps of integral "Wellness" hot tub heater. The integral hot tub heater must be assembled by runing through a key steps recommended by the manufacturer to be absolutely sure the assembly is done correctly:

Step 1. Attach the integral heater to a hot tub (see Fig. 3).

Step 2. Attach the integral heater front protection to a hot tub (see Fig. 4).

Step 3. Attach the chimney elbow to integral heater (see Fig. 5).

Step 4. Attach the chimney to integral heater (see Fig. 6).

Step 5. Put in the ash grates inside the integral heater (see Fig. 7).

- Step 6. Put in the ash drawer inside the integral heater (see Fig. 8).
- Step 7. Mount the doors to integral heater (see Fig. 9).

Step 8. Lock down the doors of integral heater (see Fig. 10).

The attach type of integral heater to a hot tub may vary depending on a vendor, as every vendor uses different techniques for attaching a heaters to the hot tub. The key steps of the assemblance of integral hot tub heater presented in this clause are recommended to be included into the user manual, however vendor may provide summarized or scattered information to the end users, regarding EU and local legislations defining consumer rights and product safety instructions.





Figure 3. Attachement of integral "Wellness" heater to a hot tub (*Assembly step 1*). *a)* front view; *b)* spatial view.





Figure 4. Attachement of integral "Wellness" heater front protection to a hot tub (Assembly step 2).a) side view; b) spatial view; c) alignment distances of front protection (from the inner side of the rim);d) mounting points of front protection (two holes for adjustment).



Figure 5. Attachment of the chimney elbow to integral "Wellness" heater (*Assembly step 3*). *a)* side view; *b)* spatial view.





Figure 6. Attachment of the chimney to integral "Wellness" heater (Assembly step 4).
a) direction of attachment of the chimney guards; b) direction of attachment of the initial chimney tube; c) direction of attachment of initial chimney tube to the celbow; d) initial chimney tube assembled to a heater; e) attachment of the chimney cap to the subsequent chimney tube; f) connection of two chimney tubes (view with open section); g) chimney with chimney and elbow guards assembled to a heater.







Figure 8. Placement of the the ash drawer (Assembly step 6). *a)* fully pulled out drawer (ash removall position); *b)* open position (view with open section); *c)* fully pulled in drawer (view with open section).





Figure 9. Mounting of integral "Wellness" heater doors to a heater (*Assembly step 7*). *a*) spatial view of mounting alignment of integral heater doors; *b*) front view of mounting alignment of integralheater doors.





Figure 10. Locking down of integral "Wellness" heater doors (*Assembly step 8*). *a*) installation of locking pin; *b*) mounted doors (open posion); *c*) mounted doors (closed posion).

7. OPERATION AND MAINTENANCE

7.1. Proper use of integral "Wellness" hot tub heater. All hot tub heaters are specially designed for water heating in a hot tubs and aren't suitable for any other purposes. Therefore it should be used as intended only. The integral "Wellness" heater can not be lit until it is not properly prepared for the use and it is not fully covered with water (see Fig.11). The outlet (upper pipe nozzle^{1*}) of integral "Wellness" heater should be placed atleast 50 mm lower than the hot tub's upper conector. Also the distance between integral heater and a hot tub should not exceed more than 300 mm. The water level must be 100-200 mm below the top of the hot tub edge, and integral heater must be fully covered with water till the outlet. When the hot tub is filled with a right amount of water, only then it is alowed to fire up the heater and start heating a hot tub. Fire intensity can be managed by controlling an air supply by adjusting a heater door deflector. Before lighting up the heater for the first time, it is necessary to make sure the protective film was removed from all the parts which were covered with it (see § 6.2).

It is strictly prohibited to use other fuel then a dry firewood to stoke an integral "Wellness" heater. A coal should not be used in any case, because it can overheat the heater and for this reason, heater could be damaged irreparably. The most suitable firewood for hot tub heaters is a dry low resin wood, but availability and price of every type of firewood may vary by region, season of the year and climatic conditions. It is also recommended to take into account a heat emission of the firewood, which will be used to stoke an integral heater (see Annex B and Annex C). The right choice of firewood will allow more efficient use of the heater, and may provide greater comfortability while using a hot tub (smoke emition / spark generation), as well as preparing firewood for a stoke (chopping / burning difficulty). Therefore, vendors should provide at least a basic information to the end users about the firewood (see Table 1) and the manufacturer recomends to included such information into the user manual.

^{* -} upper pipe nozzle is an outlet (heated water comes out of the heater); lower pipe nozzle is an inlet (cold water comes into the heater).





Figure 11. Water level required for a proper operation of integral heater in a hot tub. *a)* front view with open section; *b)* side view with open section.

It is recommended to stoke the heater using simple start-up technique, by consistently stacking layers of paper and finely chopped firewood. When the flame gets bigger larger firewood can be added. Flammable liquid also could be used to start a fire, but it is recommended only if the large pieces of firewood are used. Either it is not recommended to overload the heater with a firewood, to prevent the embers from falling out of the heater, while additional firewood is being added.

An average water heating rate (for 2000 liters) is 8 C° per hour, and it is recommended to reach 38 C° of water temperature before starting to use a hot tub. Depending on the outdoor temperature water reaches 38 C° in 2-3 hours during the warm season, and 4-6 hours during the cold season. The water heats faster when a hot tub is covered, therfore the hot tub cover is recommended to be used during the water heating-up phase. Water temperature should be measured every 30 min using thermometer, until it reaches 38 C°. If the temperature is higher than 40 C° cold water must be poured in, to regulate the temperature.

In those cases when a hot tub comes with a hydro system manufacturer recommends to evaluate the system before the first use. It is not recommend to connect a heater and a filter into one system. There has to be a bypass, which ensures constant connection with the hot tub, which in turn allows a hot water to keep flowing into a hot tub.

^{* -} upper pipe nozzle is an outlet (heated water comes out of the heater); lower pipe nozzle is an inlet (cold water comes into the heater).



Table 1. Eligibility of the firewood for hot tub heaters.

Finance of trues		Concural remember**				
Firewood type	Relative heat generation	Flammability	nmability Chopping hardness Smokiness Spark outburs		Spark outburst	General remarks
1	2	3	4	5	6	7
Ash	High	High	Low	Low	Low	Excellent
Ash-leaved maple	Low	High	High	Medium	Low	Fine
Beech	High	High	Low	Low	Low	Excellent
Birch	High	High	Low	Low	Low	Excellent
Cedar	Medium	High	Low	Medium	High	<i>Good / Excellent for kindling</i> (but risky due to firesafety, abundant sparks can get out from the chimney)
Cherry	Medium	High	Low	Low	Low	Good
Cypress	Medium	Medium	Low	Medium	Low	Fine
Dogwood	High	High	Low	Low	Low	Excellent
Elm	Medium	Medium	High	Medium	Low	Fine / Bad when undried
Maple	Medium	High	Low	Low	Low	Good
Mulberry	High	High	Low	Low	Low	Excellent
Oak	High	High	Low	Low	Low	Excellent
Osang (hedge)	High	High	High*	Low	High	<i>Excellent</i> (but risky due to firesafety, abundant sparks can get out from the chimney)
Pine	High	High	Low	High	Low	<i>Good</i> (but very smoky)
Poplar	Low	High	Low	Medium	Low	Fine / Good for kindling
Spruce	Medium	High	Medium	High	Low	<i>Good</i> (but very smoky)
Vynewood	High	High	Medium	Low	High	<i>Good</i> (but risky due to firesafety, abundant sparks can get out from the chimney)
Walnut	Medium	High	Low	Low	Low	Good
Willow	Low	High	Low	Medium	Low	Fine / Good for kindling

* - Chopping hardness increases with drying. The more osang is drier, the more dificult to chop it;
** - General remark order: (lowest rank) Bad > Fine > Good > Excellent (highest rank).



7.2. Maintenance of integral "Wellness" hot tub heater. After use of a hot tub, integral "Wellness" heater must be cleaned, but the water from a heater can be released only when it is completely cooled down. Untimely drainage of the water, can cause serious damage to the heater itself due to the sudden rise of the temperature caused by the remaining heat, generated during the stoke phase. Therfore it is recommended to leave the hot tub overnight, to cool after it was used.

For cleaning of integral heater, usage of a shovel and a sparkler is recommended, to have a better access to the inner walls and the bottom of the heater. A shovel and a sparkler can be used as a household possession of the end users, or can be ordered together with integral heater as a heater cleaning tool kit. Cleaning of integral heater includes few simple stages: a) taking out all unburned firewood; b) taking out the ash grates from a heater (see Fig. 7, reversed order); c) scrubbing-off of the scorched ash and soot from the inner walls of integral "Wellness" heater (using sparkler); d) removal of the ash drawer out of integral "Wellness" heater (see Fig. 8, reversed order); e) and pouring out the ashes from the ash drawer. It is not mandatory to wash or wet clean the integral heater, but if it would be done, manufacturer do not recommend to use any products with chlorine, as this could have unfavorable effect to the material of the heater. After the cleaning of integral "Wellness" heater, ash grates should be placed back in (see Fig. 7), and the ash drawer should be set in the closed possition (see Fig. 8c).

It is recommended to drain out the water from the hot tub and integral "Wellness" heater (see Fig. 12) if the outdoor temperature drops below freezing point, as well it is recommended to drain out the water before the cold season sets in, as the temperature fluctuations and formation of ice could cause a physical damage to the heater. If the hot tub comes with a hydro system the water should be drained out from the whole system as well.

8. SAFETY PRECAUTIONS

8.1. Safety of use. While using a hot tub, heater is in a stoke phase, therefore all its surfaces becomes hot, as well as chimney becomes hot due to the hot smoke flowing inside it. It is strictly prohibited to touch these surfaces because it will cause serious burns. In any case do not leave the heater unattended, or allow children to look after the heater, especially stoke it. It is not allowed to jump in to the hot tub from sides or jump out from it (use ladders), there is a chance of slipping and getting an injury or even brake a chimney.

8.2. Fire Safety. Hot tub heaters can only be used at a safe distance of 5 m from nearest houses, cars and other flammable items or materials. While lighting up the heater it is strictly required to deal with fire cautiously, not to cause conditions and avoid actions that might cause a fire. During the stoke phase of a hot tub heater, is strictly prohibited to:

- use other fuel then a dry firewood;
- stoke with firewood which is longer than combustion chamber;
- use extremely flammable liquids (e.g. kerosene), gasoline or gas;
- use ventilation channels to remove a smoke;
- store any flammable materials closer than 2 m from the heater;
- leave the heater unattended, or allow children to look after.

It is necessary to clean out the chimney periodically, by removing from it scorched ash and soot. Manufacturer recommends to do it not less than one time in two months.



Figure 12. Water drainage from integral "Wellness" heater.

a) closed position of the water outlet (heater stoke phase); b) open position of the water outlet (water drainage phase).

9. UNAUTHORIZED USE

The integral "Wellness" hot tub heaters are specially designed products and must be used as intended only – for water heating in a hot tub. They aren't suitable for any other purposes e.g. as a form of room heating. Any other use, is an improper use of the hot tub heater and is therefore dangerous. The manufacturer cannot be held responsible for any damage caused by improper, incorrect or unreasonable use of the heater or its handling errors.

10. STORAGE, SHIPPING, DISMANTLING AND UTILIZATION

10.1. Storage condition. The integral "Wellness" hot tub heater is made of a stainless steel, which withstands a large gap of temperatures, as well as hight moisture content. But in order to ensure the best quality of the end product it is recomended for the vendors of the hot tub heaters to store it in a room conditions (temperature = 20-26 °C; and relative humidity of the air = 60-65 %). It is also recomended by the manufacturer to wrap the heaters and its separate parts (see § 6.1) in to the plastic strech film to prevent it from scratches or dirt occuring during loading and shipping to the end users.

10.2. Shipping conditions. The main requirement for shipping of the hot tub heaters, is that the end product should reach the end users unbroken. Therfore it is recomended for the vendors to pack the heaters on the pallets, and the use of "Europallets" (see Annex D) is desirable. Integral "Wellness" heater's surface planes and chimney parts are especially vulneranle to a heavy blows, therfore pallets shoul be stable and assembled in such a way to ensure safe shipping. The ambient shipping conditions are paralllel to a storage conditions (see § 10.1).



10.3. Packaging information. Packaking materials of the product are manufactured from recycable materials and in accordance with EU legislations. It is not recommended to dispose the packaging materials together with the domestic wastes, but take it to the packaging material collection points designated by the local autorities.

10.4. Dismantling actions. If needed the integral "Wellness" hot tub heater and all parts belonging to a set, may be dismantled following the assembly steps in reversed order (see § 6.3). However specific actions, tools and measures should be described by the vendors of integral hot tub heaters, as different vendors uses different techniques for attaching a heaters to the hot tub. It is recomended by the manufacturer that such information should be provided to the end users and included into the user manual by the vendors.

10.5. Utilization requirements. The integral "Wellness" hot tub heater is designed for a long term use, nevertheless it has its own service life, which could be reached after many years of usage. Regarding to all EU legislations, wasted hot tub heaters must be properly managed at the end of its service life, but considering value of materials and its brake down rate it is recomended by the manufacturer to take unused hot tub heaters to the collection centers for recycling. Disposal together with domestic wastes is strictly prohibited, and should be done regarding to a local regulations. The end users should be guided to consult local authorities to learn about these recycling centers.

11. PRODUCT LABELING

All heaters provided by the manufacturer are labeled by placing a metallized sticker on the hull of the product. Such special labeling can withstand broad environmental conditions (large gap of temperatures, hight moisture content, direct sunlight, light scratches), and provides all the information about the product, specified as mandatory by $\mathbf{C} \mathbf{E}$ marking requirements (serial number of a product, product name, product type, weight of the product, model no. of the product, date of manufacture, country of origin, $\mathbf{C} \mathbf{E}$ mark and manufacturer address) (see Annex E).

12. MANUFACTURER CONTACTS

The joint stock company "SSF" Dubysos st. 39, LT-60246, Gėluva, Raseiniai dist., Lithuania, EU +370 618 60333 <u>eugenijus.simokaitis@gmail.com</u> <u>www.ssf.lt</u>

13. ANNEXES TO THE DOCUMENT

Annex A – Specifications of integral "Wellness" hot tub heater;

Annex B – Heat emission of a dry firewood;

Annex C – Units of measurement of calorific value of a dry firewood;

Annex D – Dimensions of "Europallets";

Annex E – Elucidation of the heater label composition.



Annex A

Specifications of integral "Wellness" hot tub heater



Main dimensions and parameters of integral "Wellness" heater (SI system units):									
SI system	SI system H, mm L, mm W, mm MT, mm				CH, mm	Weight, kg	Power, kW	Max firewood length, mm	
units	445	475	660	1.5	1.5 $2000 (1000 \times 2 \text{ pcs.})$		30	380	
Main dimensions and parameters of integral "Wellness" heater (Imperial units):									
Imperial	H, in	L, in	W, in	MT, in	CH, in	Weight, lb	Power, hp	Max firewood length, in	
units	17.52	18.70	25.98	0.06	78.74 (39.37 × 2 pcs.)	136.69	40.23	14.96	

UNITS: in - inch (Imperial unit); lb - pound (Imperial unit); hp - british horsepower (Imperial unit).



Annex B



Heat emission of a dry firewood

Figure 9. Heat emission of some commonly used dry firewood expressed as calorific value*.

Annex C

Units of measurement of calorific value

Table 2. Conversion factors of megajoule (MJ) to other thermal	energy units.
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Units	kcal	kWh	BTU	ТОЕ	
1	2	3	4	5	
1 MJ	238,9	0.278	947.8	$24 \cdot 10^{6}$	

UNITS: MJ – megajoule (SI system unit); kcal – kilocalorie (CGS sytem unit); kWh - kilowatt hour (SI system unit); BTU - british termal unit (Imperial unit); TOE - ton of oil equivalent (IEA system unit).

^{* -} Information provided by Lithuanian Energy Institute.



Annex D

Dimensions of "Europallets"



_	F	
W	- palette	width.

"Europallet" type	Main dimensions and weights of "Europallets":								
	Н		L		W		Weight		
	mm	in	mm	in	mm	in	kg	lb	
1	2	3	4	5	6	7	8	9	
EURO 1	800	31.50	1200	47.24	144	5.71	25	55.12	
EURO 2	1200	47.24	1000	39.37	144	5.71	32	70.55	
EURO 3	1000	39.37	1200	47.24	144	5.71	29	63.93	
EURO 6	800	31.50	600	23.60	144	5.71	9.5	20.94	

UNITS: mm - millimeter (SI system unit); in - inch (Imperial unit); kg - kilogram (SI system unit); lb - pound (Imperial unit).



Annex E

Elucidation of the heater label composition



^{* -} This number (product code) is unique for each individual product, and serves as product identification mark during the traceability process. It is also mandatory to be submitted by the end user in case of complaint;

^{** -} This number (model no.) indicates the main features of the product, and is used for ordering the products. The order codes (model no.) of the products can be found in a product catalog provided by the manufacturer.