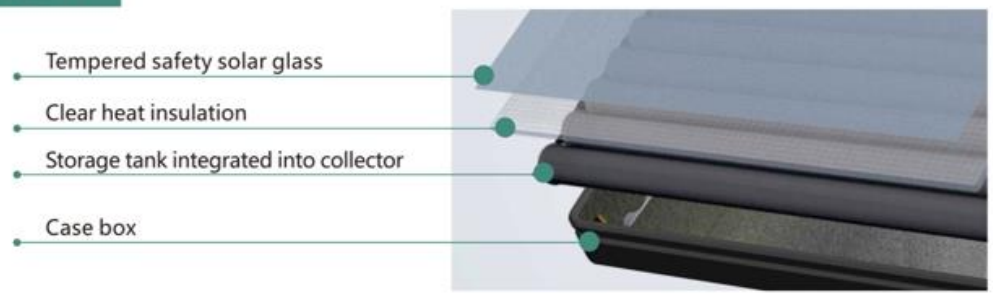
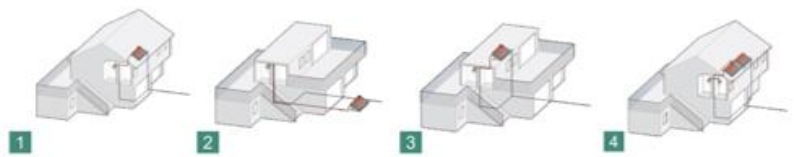
Design of SPM



Feature

- **All-in-one tankless compact solar water heater**
- **Hige pressure, Max.operating pressure 5 Bar**
- **Fast and easy to install**
- **Light weight, easy handling**
- **Short payback period**
- **High performance**



1.Pitched roof installation
2.Installation in front of the building
3.Flat roof installation
4.Connected in parallel

SPM Tankless compact solar water heating system

MODEL	SPM150L	SPM300L
Total collector area	1.75㎡(SPM150)	1.75㎡ *2(SPM150*2)
Dimensions (LxWxH)	2140X890X226mm	2140X890X226mm*2
Weight	42kg	42kg*2
Capacity	150L	300L
Insulation	ESPP	ESPP
Max. operating temperature	95℃	95℃
Max. operating pressure	5bar	5bar
Heating rod (optional)	Optional(1KW/2KW)	Optional(1KW/2KW)
Connections	2X3/4" male thread	2X3/4" male thread
Installation	Flat roof/Slope roof	Flat roof/Slope roof
Users		

Solar Keymark

DIN CERTCO

CERTIFICATE

Certificate holder	**Zhejiang Shentai Solar Energy Co., ltd** **Haining Yuanhua** **314416 ZHEJIANG** **CHINA**
Production facility	Haining City, Zhejiang
Product	Thermal solar systems
Type, Model	SPM150L
Testing basis	DIN EN 12976-1:2017-04 DIN EN 12976-2:2019-11 SOLAR KEYMARK Scheme Rules (2020-06)
Mark of conformity	
Registration No.	011-7S3008 A
Valid until	2026-03-31
Right of use	This certificate entitles the holder to use the mark of conformity shown above in conjunction with the specified registration number. Further information see annex.

2021-04-07
Robert Zorn M.Sc.
Managing Director

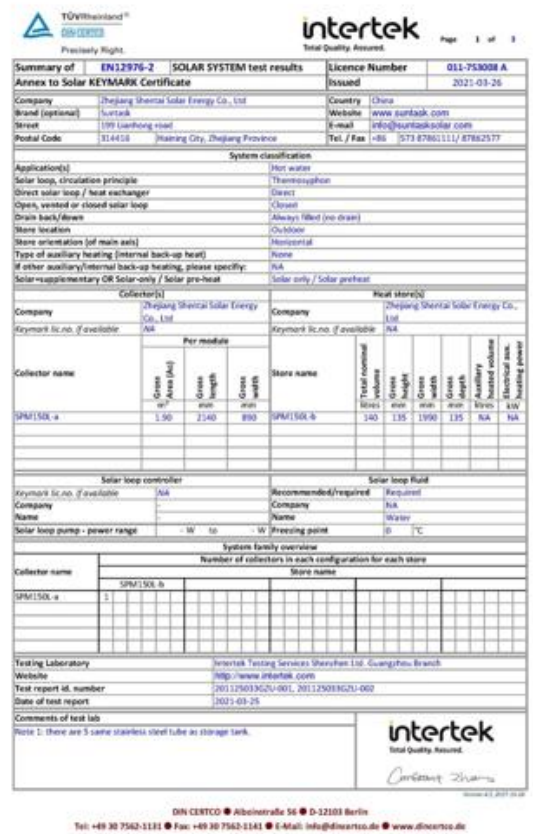
DAkkS

DIN CERTCO

ANNEX

Page 1 of 1

Certificate	011-7S3008 A dated 2021-04-07
Technical Data	see data sheet, part of the test report of 2021-03-25 1. System variant(s): Designation Tank Collector (Registration No.: none) SPM150L 140 l 1 SPM150L- 2. Note(s): - The optional impact resistance test for the solar collector according to DIN EN ISO 9806 clause 16 was not carried out. - The proof of lightning protection according to DIN EN 12976-2, clause 5.5 was not subject to the test and shall be furnished separately.
Testing laboratory/ Inspection body	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch Room 4103 & 4203 No. 63 Punan Road, Huangpu District Guangzhou 510760 GUANGDONG CHINA
Test report(s)	201125033GZU-001, 201125033GZU-002 dated 2021-03-25



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Page 1 of 3

Summary of	EN12976-2	SOLAR SYSTEM test results	Licence Number	011-7S3008 A
Annex to Solar KEYMARK Certificate			Issued	2021-03-26

Company	Zhejiang Shentai Solar Energy Co., Ltd	Country	China
Brand (optional)	Suntask	Website	www.suntask.com
Street	199 Luanhong road	E-mail	info@suntasksolar.com
Postal Code	314416	Haining City, Zhejiang Province	Tel. / Fax	+86 573 87861111/ 87862577

System classification

Application(s)	Hot water
Solar loop, circulation principle	Thermosyphon
Direct solar loop / heat exchanger	Direct
Open, vented or closed solar loop	Closed
Drain back/down	Always filled (no drain)
Store location	Outdoor
Store orientation (of main axis)	Horizontal
Type of auxiliary heating (internal back-up heat)	None
If other auxiliary/internal back-up heating, please specify:	NA
Solar=supplementary OR Solar-only / Solar pre-heat	Solar only / Solar preheat

Collector(s)				Heat store(s)							
Company	Zhejiang Shentai Solar Energy Co., Ltd			Company	Zhejiang Shentai Solar Energy Co., Ltd						
Keymark lic.no. (if available)	NA			Keymark lic.no. (if available)	NA						
Collector name	Per module: Gross Area (Aa) m²	Gross length mm	Gross width mm	Store name	Total nominal volume litres	Gross height mm	Gross width mm	Gross depth mm	Auxiliary heated volume litres	Electrical aux. heating power kW
SPM150L-a	1.90	2140	890	SPM150L-b	140	135	1990	135	NA	NA

Solar loop controller		Solar loop fluid	
Keymark lic.no. (if available)	NA	Recommended/required	Required
Company	-	Company	NA
Name	-	Name	Water
Solar loop pump - power range	- W to - W	Freezing point	0 °C

System family overview

Collector name	Number of collectors in each configuration for each store: Store name SPM150L-b
SPM150L-a	1

Testing Laboratory	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
Website	http://www.intertek.com
Test report id. number	201125033GZU-001, 201125033GZU-002
Date of test report	2021-03-25

Comments of test lab

Note 1: there are 5 same stainless steel tube as storage tank.

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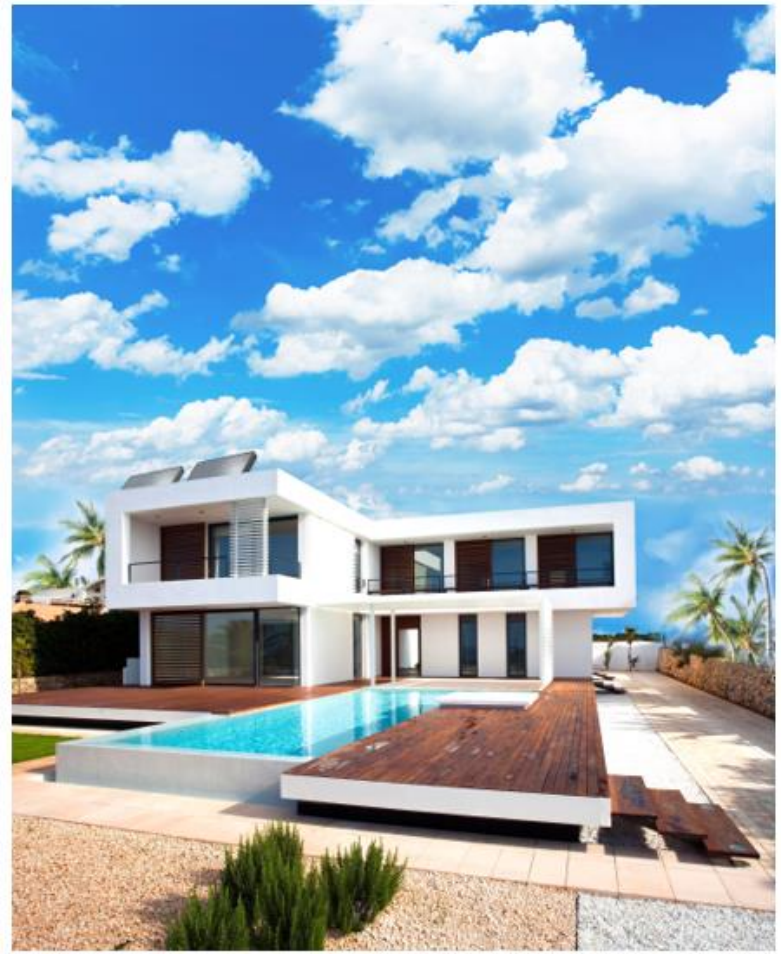
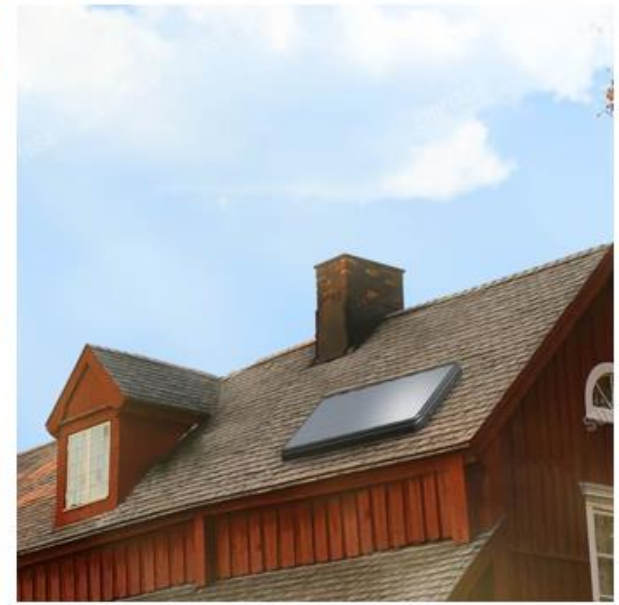
DIN CERTCO ● Alboinstraße 56 ● D-12103 Berlin
Tel: +49 30 7562-1131 ● Fax: +49 30 7562-1141 ● E-Mail: info@dincertco.de ● www.dincertco.de





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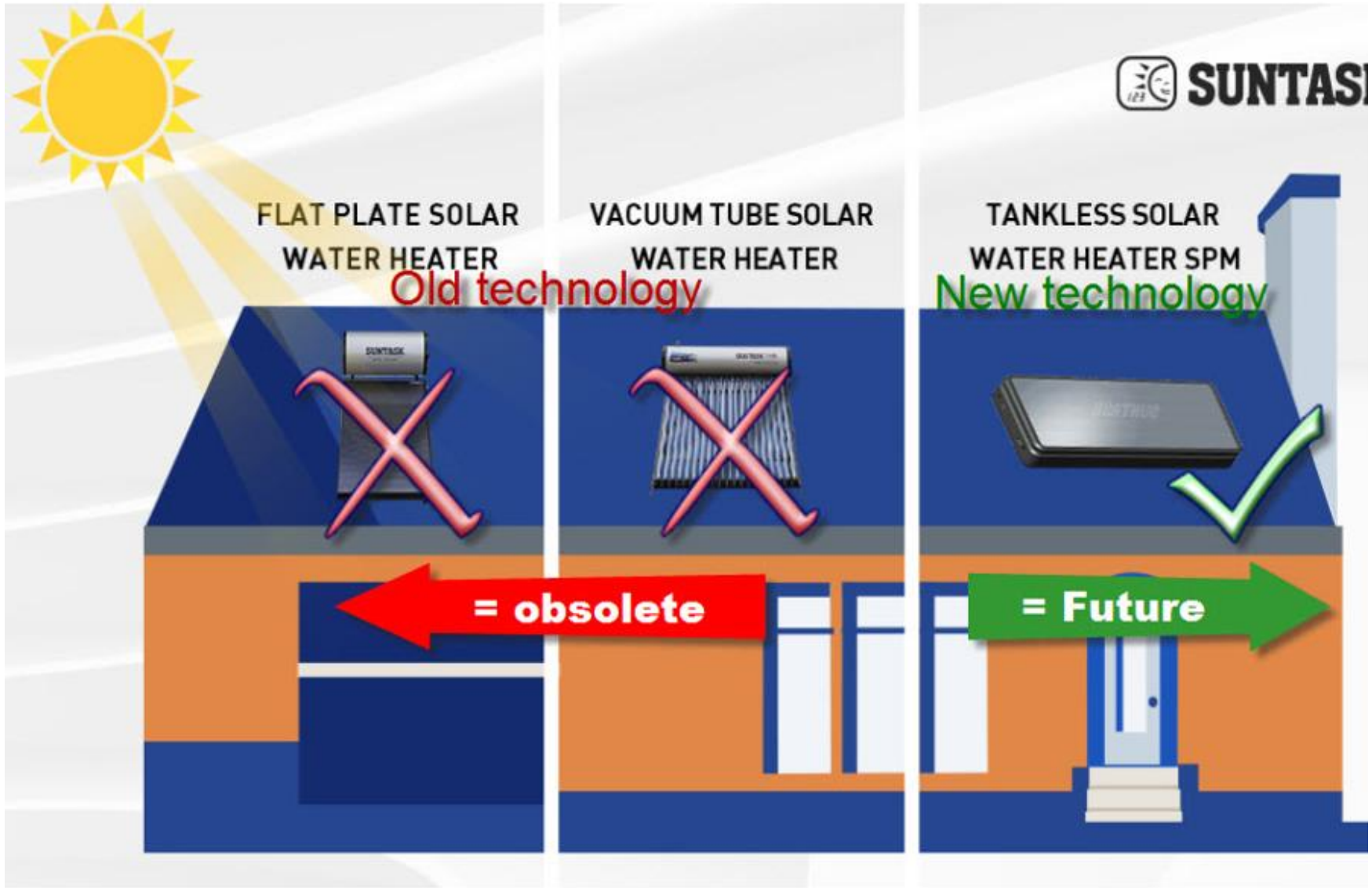
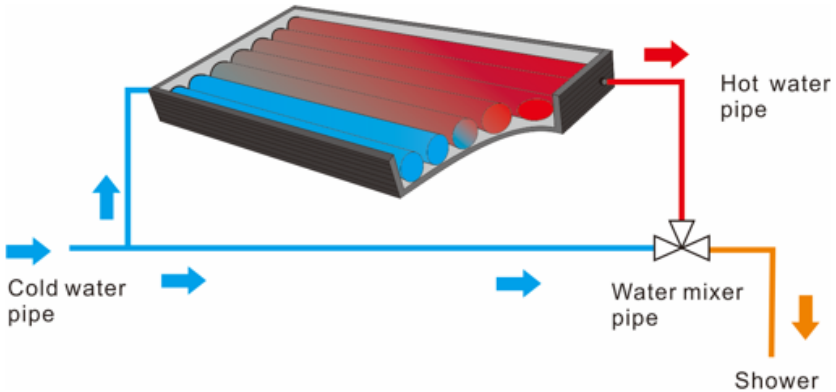
https://youtu.be/i37_oMPBYeM


SUNTAS
FLAT PLATE SOLAR
WATER HEATER
VACUUM TUBE SOLAR
WATER HEATER
TANKLESS SOLAR
WATER HEATER SPM
Old technology
New technology
= obsolete
= Future

Working principle

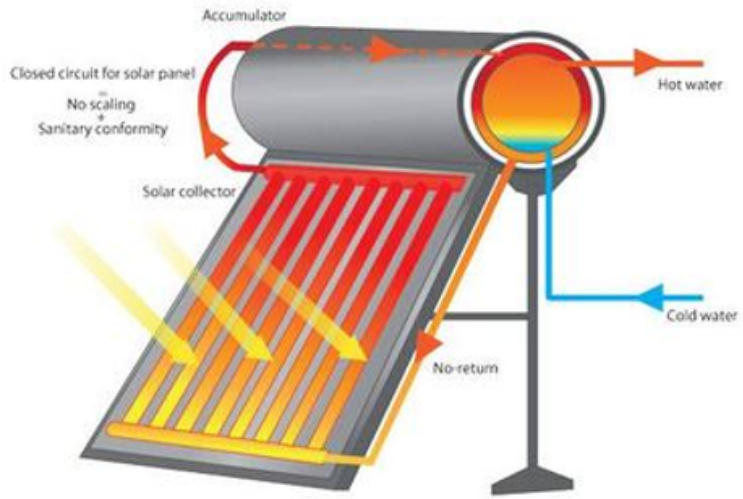
Tankless solar water heater



The working principle is easy but brilliant, the water is heated and stored in the solar collector directly. The hot water is created in a few minutes, the process is quick and the water always remains fresh and clean. And there are no transfer losses between the media and no circulation is required to heat the water. The smallest amount of sunlight can be converted into heat and use effectively.

VS

Natural circulation system



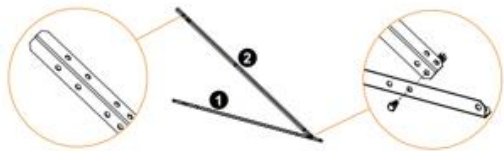
Natural circulation system is simple. The absorber surface absorb solar radiation and converts it into thermo energy, and heat up the riser pipes, and then it flows into water tank. The water temperature goes up gradually through the circulation between water tank and solar collector.

Installation

Natural circulation system

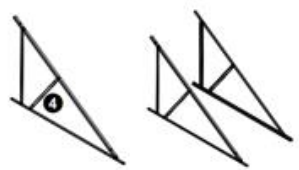
SUPPORT BASE ASSEMBLY ON A FLAT SURFACE

1. Screw parts **1** to part **2**, using the M8 screws and nuts included in the packaging.

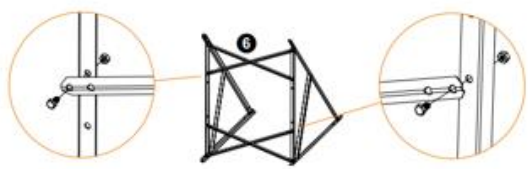


2. Screw vertical part **3** to the above parts.

3. Screw diagonal part **4** to the above parts and tighten all screws. Repeat steps 1, 2 & 3 for the other pairs of parts.

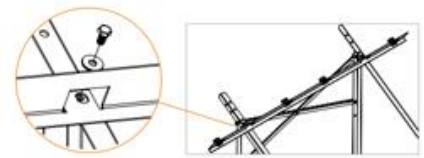


4. Place parts **6** crosswise and tighten the screws.

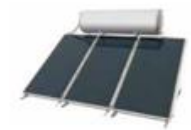


5. In case of two collectors model, place the collector supporting part **5** on bottom part and between the gaps of the parts we place the four collectors' fixing washers **8** without tightening the M8 screws with the nuts. In case of one collector model you don't need to use part **5**. The collector is going to be fixed with the 2 collectors' fixing washers **8** as it is described at the 5a and 5b balloons.

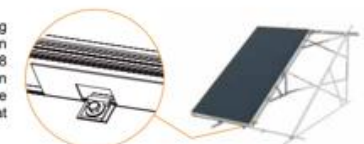
6. Repeat for the upper part



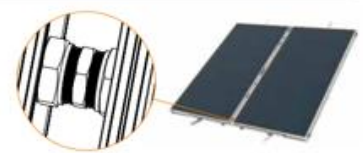
7. In case of installation of a three collectors system, we place the 2 extra support bases of a 1 collector system, installing them in the same way, on the left and the right side of the existing support base. On the three support bases, we place the three collectos according to the following instructions. We use the mechanically tightened union Ø22XØ22 in order to connect the collectors and tighen.



8. In case of two collectors, first place the left one, lifting the collector's upper and lower fixing washers **8**. When the collector is placed under, we slightly tighten the M8 screws and nuts with the collector's fixing washers **8** in order to temporarily restrain it and easily center it with the system. Place the mechanically tightened unions Ø22 at the collector's edges



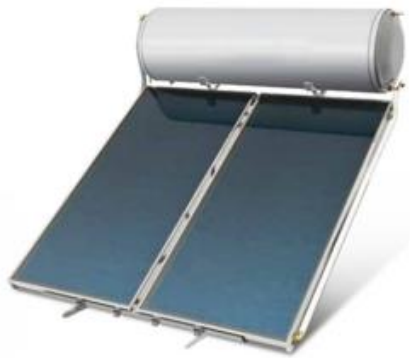
9. Join the second collector and tighten the unions*.



Installation

10. Screw on the two supports of the tank.Tighten all screws on the base. Properly orientate the base with the collector. Firmly attach the base using 4 Upat D10 and bolts (M8x60).

11. In case of 250lt boiler and above screw reinforcing plate (**10**) to collector beam(**2**) and vertical beam(**3**) with bolts M8x16 and nuts. Repeat for another side.

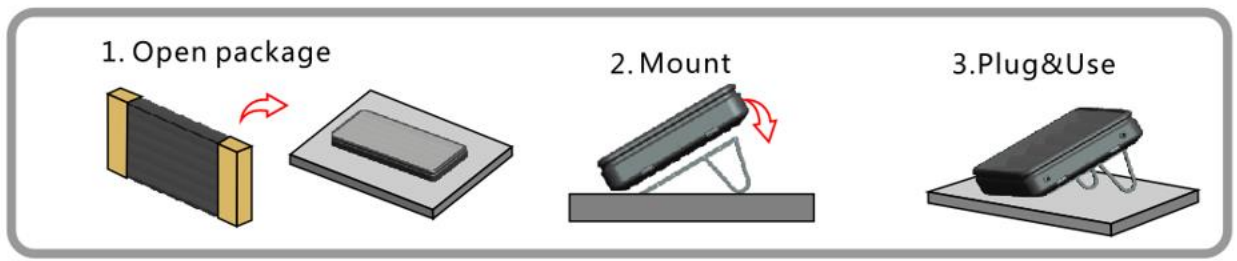


12. Place and tighten the Ø22 mechanically tightened plug on the top right and on the bottom left of the collector/ collectors*. Place the water storage tank on the base with its electrical components to the left, when viewing the water storage tank from the front.
13. Center the water storage tank's position on the collector/s. Rotate the water storage tank (if necessary) in order for the cold and hot domestic water sockets to remain vertical to the horizontal surface. Screw the water storage tank onto the base using the screws provided in the packaging. Ensure the appliance is not tilted and is properly levelled. It is necessary to use a level.
14. Place the small flexible tube on the special connection 3/4"xDN16 INOX* at the water storage tank's side where the heating element is located and to the socket marked "collector intake".
15. Join the other end to the top left socket of the collector using the Ø22xDN16 INOX corner fitting*, having firstly passed the tube through the insulation pipe.
16. Place the T-piece with the filling valve to the socket on the right side of the water storage tank marked "collector return". Place the big flexible tube with the special connection to the T-piece on the right side of the water storage tank.
17. Place the other end at the bottom right socket of the collector using the Ø22xDN16 INOX corner fitting*, having firstly passed the tube through the insulation tube. Tighten all unions in the system as well as all the screws on the base. Do the hydraulic connection, fill the closed loop and do the electrical connection as described in the relevant sections. Check for leaks.
18. After having placed the collectors at a parallel to each other position, fasten them to the support base tightening the fixing washers **8**.
19. Fit the water storage tank supporting base covers **9**.

Installation of Natural circulation system needs 19 steps

Installation

Tankless Solar Water Heater SPM



Installation of tankless solar water heater SPM needs 3 steps

Installation

Natural circulation system

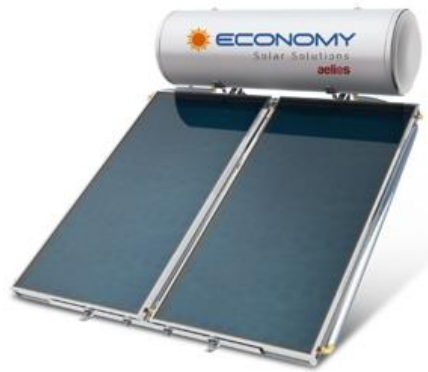
VS

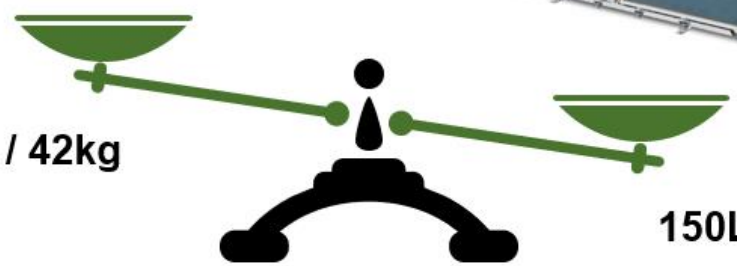
Tankless Solar Water Heater SPM

Weight

Tankless Solar Water Heater SPM

Natural circulation system





150L / 42kg

150L / 135kg

Container Load

Natural circulation system

150L 93sets/40HQ container

VS

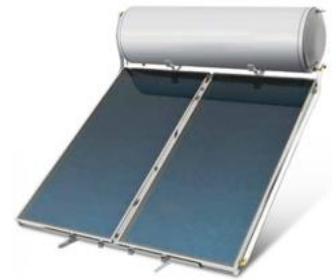
Tankless Solar Water Heater SPM

150L 142sets/40HQ container

Comparison

- Collector and tank integrated design
- Direct heating, high performance
- Light weight – easy handling
- Fast and easy to install
- Plug and play system
- Reduced transport costs
- Short payback period
- Aesthetic roof integration

www.suntask.com



- Collector and tank connected design
- Indirect heating, low performance
- Heavy weight - need crane
- Labour-consuming – increase installation costs
- Hard to operate
- Shipping space wasting - increase transport costs
- Long payback period
- Destruction in architecture

/02

Market Analysis

- Features of SPM
- Competitors
- Benefits

Features of SPM

Affordable high-pressure solar water heater

Short payback period

Simple installation

High performance