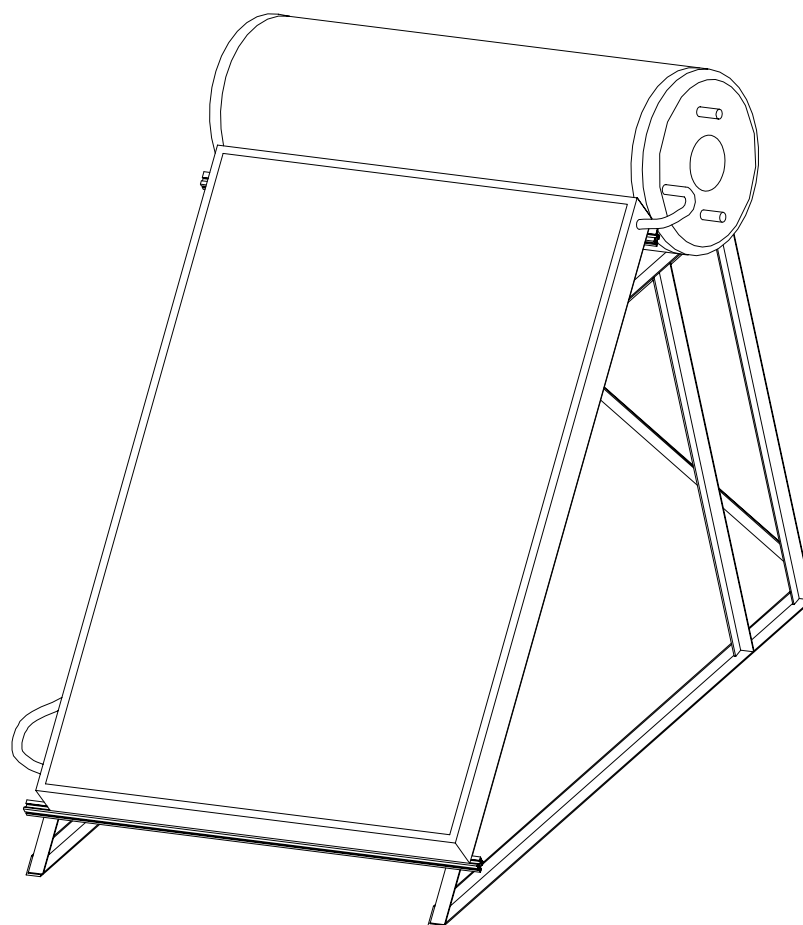


# INSTALLATION AND OPERATING INSTRUCTIONS

↳ DS-COMPACT INOX



Thank you for choosing a **DOMUSA** product. From the range of **DOMUSA** products you have chosen the **DS-Compact Inox** model, the compact thermosiphon unit for producing domestic hot water (DHW) with a double chamber.

This manual refers to the installation, operation and maintenance of the compact thermosiphon unit **DS-Compact Inox**. It forms an essential part of the product and it must be given to the user. Read the warnings and recommendations in the manual carefully, as they contain important information on the safety of the installation and its use and maintenance.

These systems are to be installed by skilled personnel only, in accordance with the legislation in force and following the manufacturer's instructions.

The start-up of these boilers and any maintenance operations must only be carried out by **DOMUSA's** Authorised Technical Assistance Services.

Incorrect installation of these systems could result in damage to people, animals or property, and the manufacturer will hold no liability in such cases.

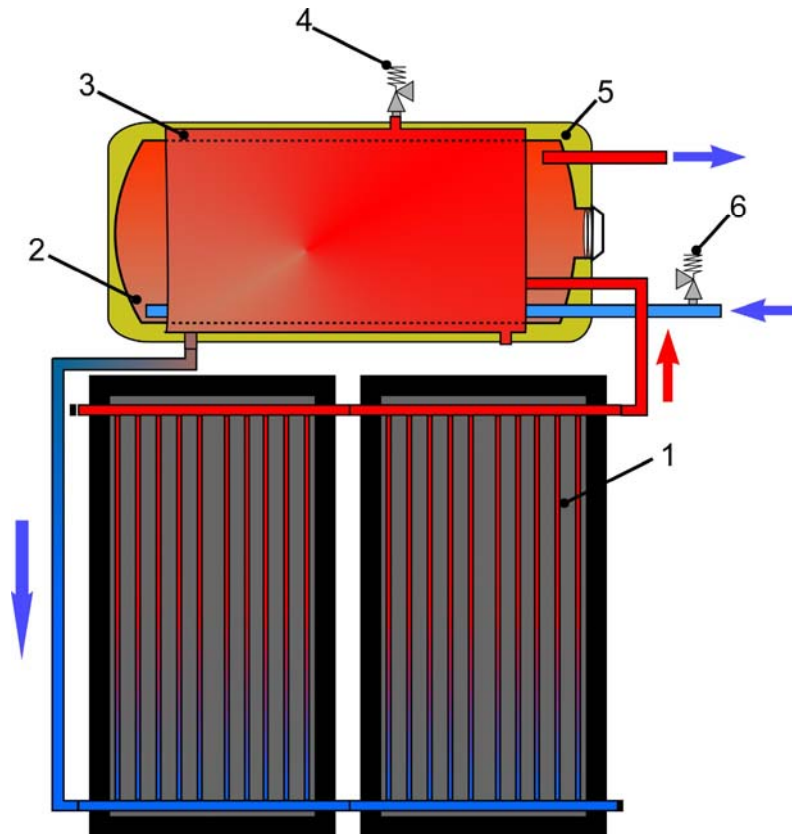
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# DS-compact Inox

## 1 FUNCTIONING

The DS-compact Inox compact thermosiphon unit is designed with a closed (solar) circuit between the collector and the double chamber, and a secondary circuit for domestic water storage and heating.

The domestic water stored in the stainless steel tank is heated up by the heat-carrying fluid that flows through the solar circuit. This fluid is a solution of water with an anti-corrosive and antifreeze liquid protecting the system from corrosion and frost.



1. Solar collector.
2. Stainless steel accumulator (secondary circuit)
3. Double chamber heat exchanger (solar circuit).
4. Solar circuit safety valve.
5. Expanded polyurethane insulation.
6. DHW safety valve.

## 1.1 Thermosiphon circulation

The solar circuit functions on the basis of the thermosiphon circulation principle. The heat-carrying fluid is heated up by solar power absorbed by the solar collectors (1). The hot heat-carrying fluid, which is lighter, rises through the solar collectors and causes the liquid to circulate through the accumulator's double chamber (4), heating up the domestic water in the accumulator. At the same time, the heat-carrying fluid cools down and becomes heavier, returning to the solar collectors where it is heated up again.

As the heat-carrying fluid circulates naturally through the system, no pump or solar power station are required, and it therefore functions totally independently.

To ensure correct functioning, all the connecting pipes between the solar collectors and the accumulator must be tilted, to prevent a siphon from forming. The solar circuit must also be drained to remove all the air.

For optimum circulation, the following points must be observed:

1. The accumulator must be fitted horizontally above the collectors, as otherwise there is a risk of the liquid circulating through the solar circuit during the night, passing through the solar collector and cooling the accumulator, which would mean a considerable part of the thermal power accumulated during the day would be wasted.
2. The solar circuit pipes must be tilted towards the highest point of the accumulator.
3. The air must be totally drained off from the solar circuit.

# DS-compact Inox

## 2 LOCATION

It is very important to choose a correct location for the solar collectors, as an unsuitable location can reduce the system's efficiency: wrong orientation, shadows cast on the solar collector, etc.

DOMUSA recommends taking the following indications into account when choosing a location:

1. Before choosing the location, the accessibility of the site must be taken into account, with a view to both the installation itself and for maintenance work on the solar collectors.
2. The solar collectors **must face South**. A difference of up to 10°-15° is not significant, but a greater difference could considerably effect their efficiency.
3. Ideally, the solar collectors should be installed at an angle of 45° from the horizon line (in countries at a latitude of 40°). In general, the inclination should be 5° greater than the latitude of the location. Any difference from this angle will reduce their efficiency.
4. For sloping roof models, the roof slope must be between 15° and 45°.
5. The solar collectors must be installed with a slight tilt, so that the collector outlet pipe is at the highest point.
6. The weight of the full hot water tank must be taken into account when choosing a location.
7. The accumulator must be installed as close as possible to the DHW consumption points to reduce heat loss from the pipes.

When installing the solar collectors, ensure that no objects cast shadow on them, particularly in winter, when the sun is lower in the sky. The minimum distance from an obstacle the solar collectors can be installed at depends on the height of the obstacle and the latitude of the place of installation, as shown in the table below.

	Latitude 40°	Latitude 45°	Latitude 50°
Calculation of de X	$Y \times 2$	$Y \times 2,25$	$Y \times 2,5$

Y: Height of shadow-casting object.

### 3 SAFETY COMPONENTS

The DS-compact Inox is equipped with a safety valve for the solar circuit, calibrated to 2.5 bar. Also, the solar circuit has an expansion tank integrated within the accumulator, to delay activation of the solar circuit safety valve for as long as possible.

The valve is only activated when the pressure it is calibrated for is exceeded. Bearing in mind that extremely high temperatures can be reached in thermosiphon systems, **it is recommended that the solar circuit safety valve leads to a suitable recipient.**

### 4 STARTING UP THE INSTALLATION

DS-compact Inox systems must be started up by staff authorised by DOMUSA.

The start-up procedure is as follows:

1. Fill the hot water tank.
2. Fill the solar circuit.
3. Check the seal.
4. Checking list.

The circuit should ideally be filled on a cloudy day or in the early morning or late afternoon. If the installation has to be made during hours of sunlight, the solar collectors should be covered, and any parts that may be at a high temperature should not be touched.

#### IMPORTANT !

THE WORK TO BE CARRIED OUT ON THE COLLECTORS SHOULD BE DONE ON CLOUDY DAYS OR IN THE EARLY MORNING OR LATE AFTERNOON, OR WITH THE COLLECTORS COVERED.

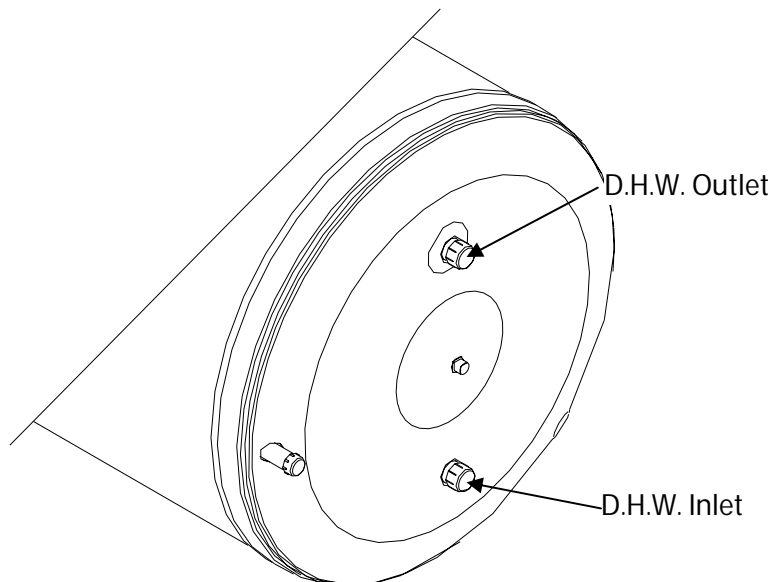
#### IMPORTANT !

THE ENTIRE INSTALLATION MUST HAVE BEEN MADE BEFORE START-UP (SEE POINT 7 OF THE INSTALLATION INSTRUCTIONS), EXCEPT FOR FITTING THE SOLAR CIRCUIT SAFETY VALVE.

# DS-compact Inox

## 4.1 Filling the hot water tank

1. Connect the DHW inlet pipe to the water mains, open the DHW inlet valve on the accumulator and turn on a hot water tap.
2. When it is full, turn off the hot water tap and ensure the installation is correctly sealed.
3. Check the domestic hot water circuit safety devices are functioning correctly.



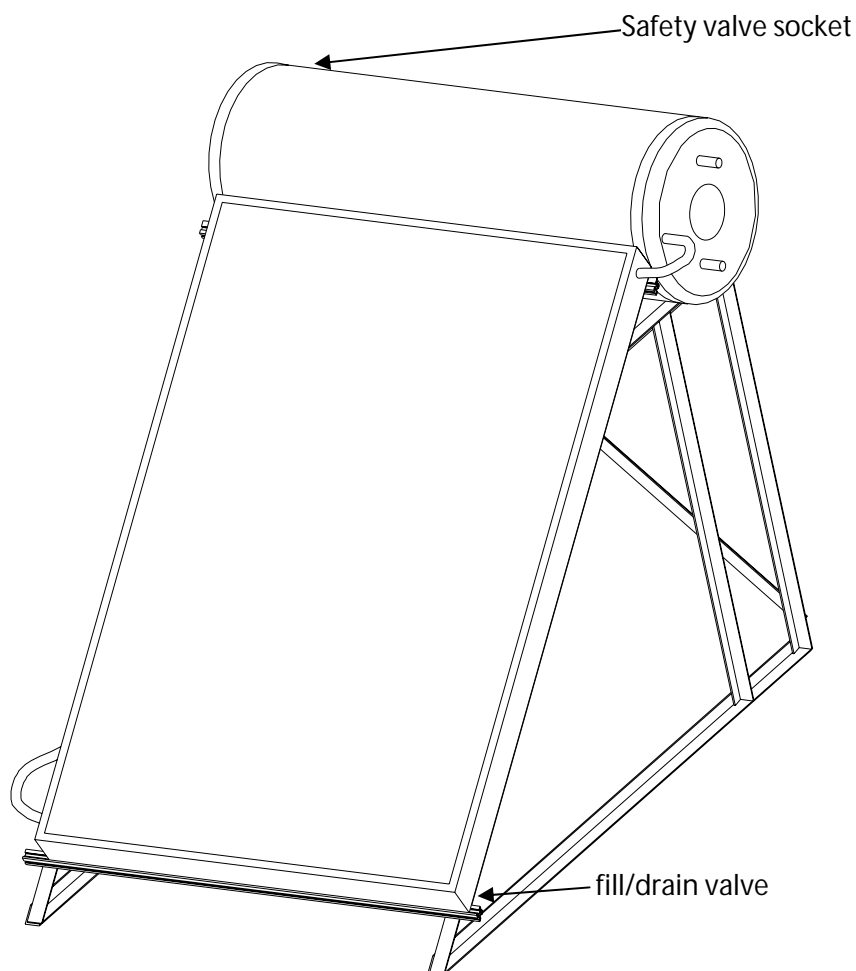


## 4.2 Filling the solar circuit

### IMPORTANT !

THE ENTIRE INSTALLATION MUST HAVE BEEN MADE BEFORE START-UP (SEE POINT 7 OF THE INSTALLATION INSTRUCTIONS), EXCEPT FOR FITTING THE SOLAR CIRCUIT SAFETY VALVE.

1. Connect the fill/drain valve to the hot water supply outlet with a hose.
2. Add the antifreeze using the outlet for the solar circuit safety valve.
3. Open the fill/drain valve.
5. When liquid begins to come out of the solar circuit safety valve outlet, cut off the water entry from the filling inlet.
6. Remove the hose from the fill/drain valve.
7. Fit the solar circuit safety valve.
8. Check the solar circuit safety devices are functioning correctly.



### IMPORTANT !

THE ANTIFREEZE MUST BE DILUTED WITH WATER BEFORE USE, AS OTHERWISE IT COULD DAMAGE THE SYSTEM.

### IMPORTANT !

DOMUSA WILL ONLY BE LIABLE FOR THE CORRECT FUNCTIONING OF THE SYSTEM IF IT HAS BEEN FILLED WITH DOMUSA ANTIFREEZE.

# DS-compact Inox

## 4.3 Seal control

Check there are no leaks in the solar circuit as a sealing defect could cause serious operating problems.

Also ensure no siphons have formed in the solar circuit, to avoid operating problems.

**IMPORTANT !**  
**ENSURE THE SOLAR HEATING CIRCUIT IS CORRECTLY SEALED.**

**IMPORTANT !**  
**ENSURE THERE IS NO SIPHON IN THE SOLAR HEATING CIRCUIT.**

## 4.4 Checking list

The following chart may be used as a guideline for installation and start-up.

	DONE	REMARKS
<b>ASSEMBLY</b>		
The supports have been placed according to the instructions		
After fixing the supports in place, the roof covering has been correctly replaced		
The roof has not been damaged		
The solar circuit has been earthed		
There is no siphon in the solar heating circuit		
Collectors levelled		
<b>START-UP</b>		
The solar circuit has been filled		
Antifreeze has been used in the solar circuit		
The seal of the whole installation has been checked		
<b>USER INSTRUCTIONS</b>		
The use of the element has been explained to the user (if the system has an element)		
The procedure for draining and filling the solar circuit has been explained		
The documentation has been given to the user		
The maintenance frequencies have been explained to the user		

## 5 FROST PROTECTION AND OVERHEATING

DOMUSA antifreeze (not supplied) is a glycol propylene heat-carrying fluid (see its characteristics in point 6.3 of the installation instructions), and it works as an anti-freezing and anti-corrosive agent when diluted in water.

It must always be used diluted in water, as otherwise it could cause corrosion. The antifreeze concentration depends on the geographical area in which the unit is installed. In places with extremely low minimum temperatures, the volume of antifreeze can be increased.

		Temperature (°C)					
		-10	-15	-20	-25	-30	-35
Antifreeze volume	DS-compact Inox 1.150	4,5	6	7	8	8,5	9,5
	DS-compact Inox 1.200	6	8	9,5	10,5	11,5	12,5
	DS-compact Inox 2.200	6,5	8,5	10	11	12	13
	DS-compact Inox 2.300	9,5	12,5	14,5	16,5	18	19,5

In case of prolonged absence or low hot water consumption, it is recommended to drain the solar circuit to prevent risk of overheating. The liquid in the solar circuit should be drained into a suitable container, never down a drain..

### IMPORTANT !

THE ANTIFREEZE MUST BE DILUTED WITH WATER BEFORE USE, AS OTHERWISE IT COULD DAMAGE THE SYSTEM.

### IMPORTANT !

DOMUSA WILL ONLY BE LIABLE FOR THE CORRECT FUNCTIONING OF THE SYSTEM IF IT HAS BEEN FILLED WITH DOMUSA ANTIFREEZE.

### IMPORTANT !

TAKE CARE ON OPENING THE FILL/DRAIN VALVE, AS THE SOLAR CIRCUIT IS LOADED WITH ANTIFREEZE.

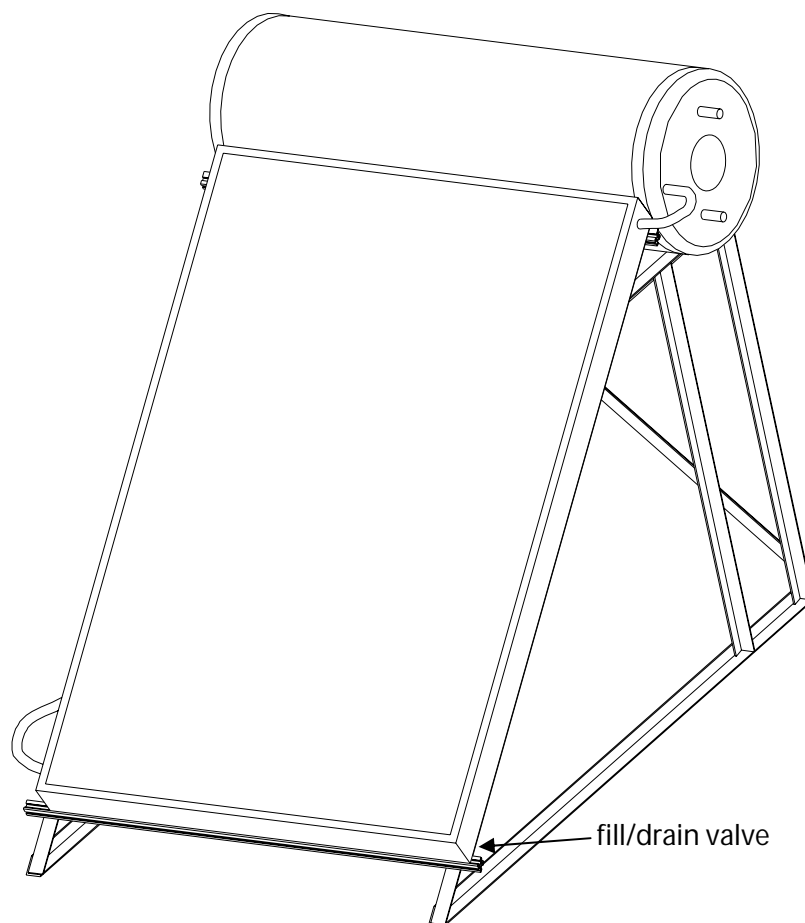
# DS-compact Inox

## 6 STOPPING AND DRAINING THE SOLAR CIRCUIT

If you wish to stop the functioning of the DS-compact Inox, the solar circuit must be drained, as it works by the thermosiphon principle which means there is heat transfer between the collector and the accumulator whenever the collector is hotter than the accumulator.

If the solar circuit needs to be drained, the process is as follows:

1. Ensure the solar circuit fluid is at the correct temperature.
2. Fit a hose to the fill/drain valve.
3. Run the hose to a suitable container.
4. Open the fill/drain valve.
5. Completely drain the solar circuit.
6. Close the fill/drain valve and disconnect the hoses used.



**IMPORTANT !**  
THE LIQUID IN THE SOLAR CIRCUIT MAY BE EXTREMELY HOT.

**IMPORTANT !**  
DRAIN THE SOLAR LIQUID INTO A SUITABLE CONTAINER.

**IMPORTANT !**  
THE WORK TO BE CARRIED OUT ON THE COLLECTORS SHOULD BE DONE ON CLOUDY DAYS OR IN THE EARLY MORNING OR LATE AFTERNOON, OR WITH THE COLLECTORS COVERED.

## 7 MAINTENANCE

Maintenance must be carried out by qualified staff. All system servicing must be done by staff authorised by **DOMUSA**, as any alterations made to its configuration could cause functioning errors and damage to the system and its environment.

To keep the unit in perfect working order, an annual overhaul should be carried out by staff authorised by **DOMUSA**. If the installation has been out of use for a long time, ensure there have been no frost or overheating problems. To do this, remove the solar circuit safety valve and check the solar circuit is correctly filled.

### 7.1 Checking the safety valve

Check the safety valve is working correctly. If there is any water leaking from it or if it does not close hermetically, replace the safety valve.

### 7.2 Collectors

Check periodically that the collector supports are in correct working order.

### 7.3 Maintenance work

The table below shows a list of recommended maintenance work.

	Maintenance frequency
<b>Hot water tank</b>	
Check the connections are correctly sealed	Yearly
<b>Collectors</b>	
Check the state of the solar collector: dirt, dents, connections, supports and levelling of the solar collectors	Yearly
<b>Solar circuit</b>	
Check the filling level of the solar liquid	Yearly
Renew the solar liquid with a concentration of at least 30% of antifreeze	At least once every 3 years.
<b>Pipes</b>	
Check the state of the insulation <sup>9</sup>	Yearly
Check the installation is correctly sealed	Yearly

# DS-compact Inox

## 8 TECHNICAL DATA

	DS-compact Inox			
	1.150	1.200	2.200	2.300
<b>Hot water tank</b>				
Volume	150 litres	200 litres		300 litres
Insulation	Expanded polyurethane			
External diameter	581 mm			
Height	1179 mm	1479 mm		2079 mm
DHW connections	3/4"			
Solar circuit connections	1/2" H			
Weight of empty hot water tank	75 kg	90 kg		120 kg
Weight of full hot water tank	225 kg	290 kg		420 kg
Weight full system	275 kg	350 kg	387 kg	475 kg
Max. working pressure of DHW	7 bar			
Max. solar circuit temperature	203°C			
Max. solar circuit pressure	2,5 bar			
Exchanger area	1,06 m <sup>2</sup>	1,46 m <sup>2</sup>		2,27 m <sup>2</sup>
Solar circuit volume	18 litres	24,5 litres	25,5 litres	38 litres

SOLAR COLLECTOR - DS CLASS 2.1 TS	
Absorption surface	1,9 m <sup>2</sup>
Volume of solar liquid	1,07 L
Max. outlet temperature	203°C
Zero-loss collector efficiency	75,1 %
Heat loss coefficient k1	4,999 W/m <sup>2</sup> K
Heat loss coefficient k2	0,0 W/m <sup>2</sup> K <sup>2</sup>
Width	1041 mm
Height	1988 mm
Depth	90 mm
Weight of empty collector	37 Kg
Weight of full collector	38,07 Kg

## 9 GUARANTEE CONDITIONS

DOMUSA's **commercial guarantee** covers the regular functioning of the products manufactured by Domusa Calefacción S.Coop., in accordance with the following conditions and periods:

1. This **commercial guarantee** is valid for the following periods, as from the **start-up** date:

**8 Years** for domestic hot water tanks (Inox. tank)

**8 Years** for solar collectors.

**2 Years** for electrical and hydraulic elements, valves, supports, etc

During the 6 months period following the start-up date, DOMUSA will carry out any repairs of original flaws or defects totally free of charge.

After these 6 months have elapsed, until the end of the guarantee period, labour costs and call-out charges will be payable by the user.

2. Sufficient access space must be provided for maintenance and repair of the solar collectors. Costs arising from defective access are not included under the terms of this guarantee.

3. The **start-up** and **annual overhaul** are to be carried out by personnel authorised by DOMUSA.

4. The **commercial guarantee** will be null and void in the following cases:

- If the system has not been installed in accordance with the applicable laws and regulations for this area.
- If start-up has not been made immediately after installation of the system, by staff authorised by DOMUSA.
- If the antifreeze is not replaced in accordance with the time limits and maintenance conditions indicated in this manual.

The following are excluded from this guarantee: breakage of the glass, failure due to misuse or incorrect installation, unsuitable power supply, failures due to the use of supply water with physical-chemical properties causing scale or corrosion, failures due to excess pressure in the water mains, failures due to frost, incorrect handling of the appliance and, in general, due to any reason outside Domusa's control.

This guarantee does not affect the consumer's rights as stipulated by law.

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## 1 DOCUMENTATION

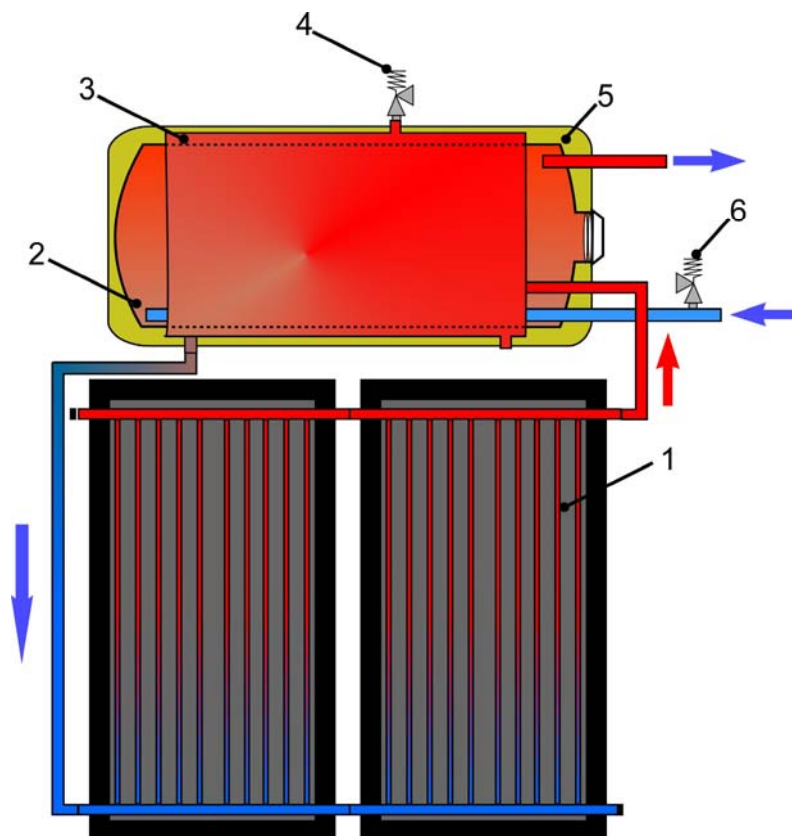
DOMUSA provides a document describing the use and installation of the DS-compact Inox with the documentation for installing the solar collectors supports.

The user must be given all the documentation so that it is available when required.

## 2 FUNCTIONING

The DS-compact Inox compact thermosiphon unit is designed with a closed (solar) circuit between the collector and the double chamber, and a secondary circuit for domestic water storage and heating.

The domestic water stored in the stainless steel tank is heated up by the heat-carrying fluid that flows through the solar circuit. This fluid is a solution of water with an anti-corrosive and antifreeze liquid protecting the system from corrosion and frost.



- |  |                                      |
|--|--------------------------------------|
| 1. Solar collector.                                | 4. Solar circuit safety valve.       |
| 2. Stainless steel accumulator (secondary circuit) | 5. Expanded polyurethane insulation. |
| 3. Double chamber heat exchanger (solar circuit).  | 6. DHW safety valve.                 |

# DS-compact Inox

## 2.1 Thermosiphon circulation

The solar circuit functions on the basis of the thermosiphon circulation principle. The heat-carrying fluid is heated up by solar power absorbed by the solar collectors (1). The hot heat-carrying fluid, which is lighter, rises through the solar collectors and causes the liquid to circulate through the accumulator's double chamber (4), heating up the domestic water in the accumulator. At the same time, the heat-carrying fluid cools down and becomes heavier, returning to the solar collectors where it is heated up again.

As the heat-carrying fluid circulates naturally through the system, no pump or solar power station are required, and it therefore functions totally independently.

To ensure correct functioning, all the connecting pipes between the solar collectors and the accumulator must be tilted, to prevent a siphon from forming. The solar circuit must also be drained to remove all the air.

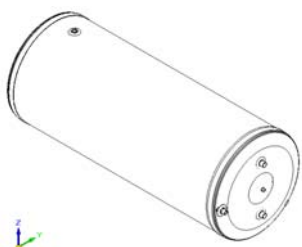
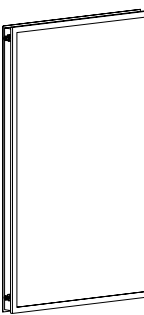
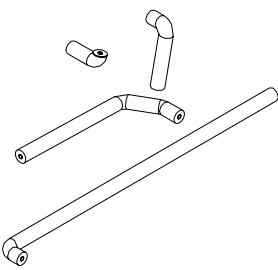
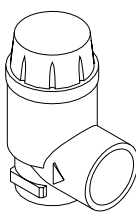
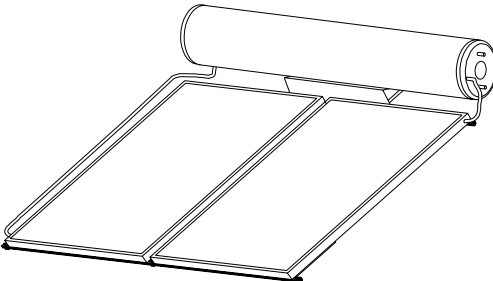
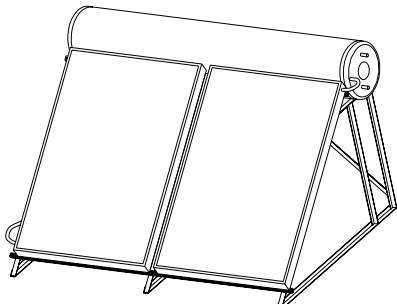
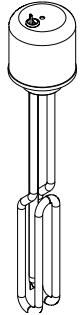
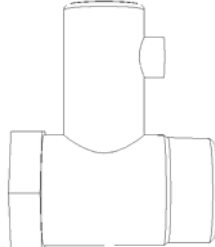
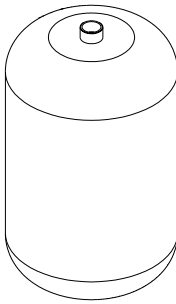
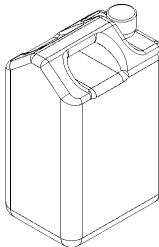
For optimum circulation, the following points must be observed:

1. The accumulator must be fitted horizontally above the collectors, as otherwise there is a risk of the liquid circulating through the solar circuit during the night, passing through the solar collector and cooling the accumulator, which would mean a considerable part of the thermal power accumulated during the day would be wasted.
2. The solar circuit pipes must be tilted towards the highest point of the accumulator.
3. The air must be totally drained off from the solar circuit.

### 3 COMPONENTS AND MAIN CHARACTERISTICS

The DS-compact Inox is supplied with 1 hot water tank, 1 o 2 solar collectors and supports on sloping or flat roof.

The following figure is a diagram of the components making up the DS-compact Inox units, and its different options.

<b>SUPPLIED</b>	 Hot water tank 150L – 200L – 300L	 Solar collector	 Connecting pipes	 Solar safety valve
<b>SUPPLIED ACCORDING TO DE MODEL</b>	 Support on sloping roof		 Support on flat roof	
<b>OPTIONS</b>	 Electrical element 1,5 kW and 2,5kW	 DHW safety valve	 DHW expansion vessel 8L and 18L	
				 Antifreeze

# DS-compact Inox

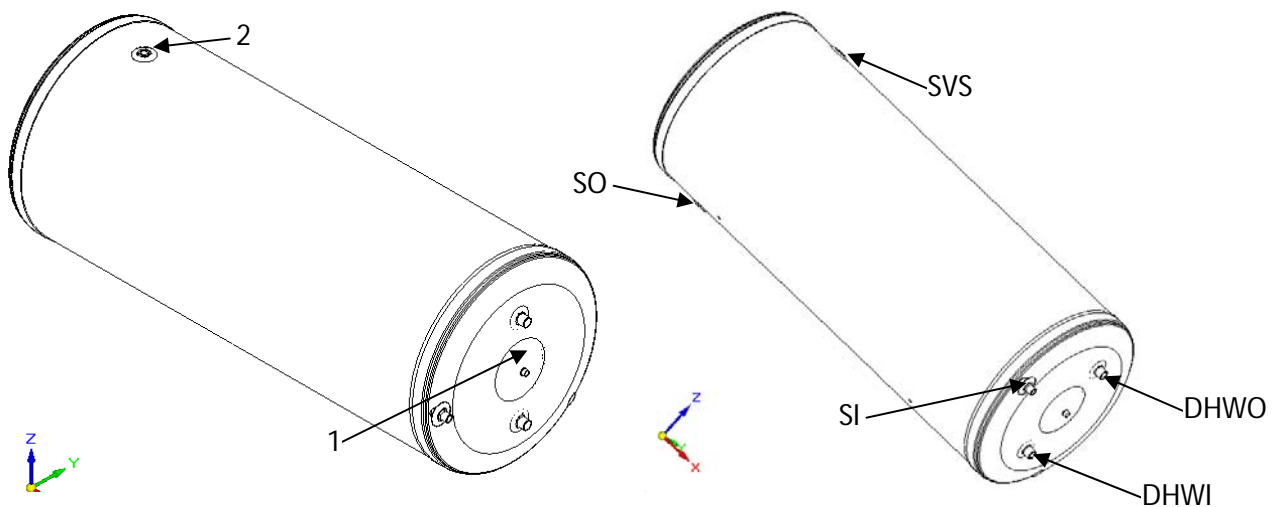
## 3.1 Hot water tank

The DS-compact Inox accumulator is an accumulator specially designed for thermosiphon operation. Its special design facilitates the flow of the solar circuit fluid, thus making optimum use of the solar power.

The heat exchange takes place via an indirect circuit, and so the domestic hot water is not in contact with the solar collectors. The hot water is accumulated in the stainless steel hot water tank, which is coated in the solar liquid. The solar liquid is conveyed through the solar collectors and heated up, transmitting the heat absorbed by the solar plates to the water in the hot water tank.

As regards insulation, the entire surface of the DS-compact Inox system hot water tanks is insulated with expanded polyurethane, reducing to a minimum any heat loss from the hot water tank.

The sockets and components making up each of the accumulators are shown below.



1. Bridge cover.
2. Solar safety valve.

- SVS: Safety valve socket.
- DHWO: DHW outlet
- DHWI: DHW inlet
- SI: Solar inlet
- SO: Solar outlet

### 3.2 Solar collector

The outer casing is made of aluminium, making it very long-lasting. Rock wool insulation is combined with a selective absorber, providing excellent heat insulation and radiation absorption.

The joints are designed with compression connectors, which makes connecting the solar collectors a very simple, flexible process.

### 3.3 Supports

The supports used depend on the type of roof the DS-compact Inox is installed on:

- Installation on a flat roof
- Installation on a sloping roof

For further information on the supports, consult the support installation manual.

### 3.4 Antifreeze

DOMUSA antifreeze (not supplied) is a glycol propylene heat-carrying fluid (see its characteristics in point 6.3 of the installation instructions), and it works as an anti-freezing and anti-corrosive agent when diluted in water.

It must always be used diluted in water, as otherwise it could cause corrosion. The antifreeze concentration depends on the geographical area in which the unit is installed. In places with extremely low minimum temperatures, the volume of antifreeze can be increased (as indicated in point 5 of the instructions for use).

#### **IMPORTANT !**

**THE INHIBITOR LIQUID MUST ALWAYS BE MIXED WITH WATER BEFORE USE, AS OTHERWISE IT COULD DAMAGE THE INSTALLATION.**

#### **IMPORTANT !**

**DOMUSA WILL ONLY BE LIABLE FOR THE CORRECT FUNCTIONING OF THE SYSTEM IF IT HAS BEEN FILLED WITH DOMUSA INHIBITOR LIQUID.**

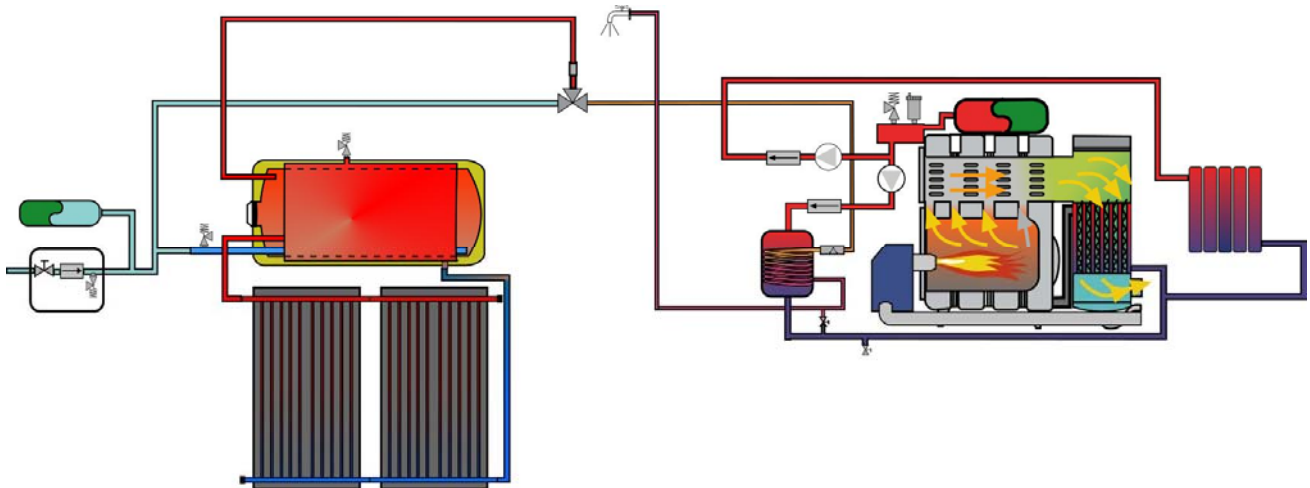
# DS-compact Inox

## 3.5 DS-compact Inox configuration

The DS-compact Inox is the ideal solution for use in combination with domestic hot water-producing boilers or water heaters.

The domestic water is heated up in the solar accumulator and conveyed to the cold water inlet of the boiler. The domestic water has already been pre-heated when it enters the boiler, so that the domestic hot water is at a comfortable temperature even when the burner has not been switched on or is functioning at reduced power.

For boilers with instant domestic hot water production, the water inlet temperature is limited and installation of the optional mixing valve is therefore recommended.



## 4 LOCATION

It is very important to choose a correct location for the solar collectors, as an unsuitable location can reduce the system's efficiency: wrong orientation, shadows cast on the solar collector, etc.

DOMUSA recommends taking the following indications into account when choosing a location:

1. Before choosing the location, the accessibility of the site must be taken into account, with a view to both the installation itself and for maintenance work on the solar collectors.
2. The solar collectors **must face South**. A difference of up to 10°-15° is not significant, but a greater difference could considerably effect their efficiency.
3. Ideally, the solar collectors should be installed at an angle of 45° from the horizon line (in countries at a latitude of 40°). In general, the inclination should be 5° greater than the latitude of the location. Any difference from this angle will reduce their efficiency.
4. For sloping roof models, the roof slope must be between 15° and 45°.
5. The solar collectors must be installed with a slight tilt, so that the collector outlet pipe is at the highest point.
6. The weight of the full hot water tank must be taken into account when choosing a location.
7. The accumulator must be installed as close as possible to the DHW consumption points to reduce heat loss from the pipes.

When installing the solar collectors, ensure that no objects cast shadow on them, particularly in winter, when the sun is lower in the sky. The minimum distance from an obstacle the solar collectors can be installed at depends on the height of the obstacle and the latitude of the place of installation, as shown in the table below.

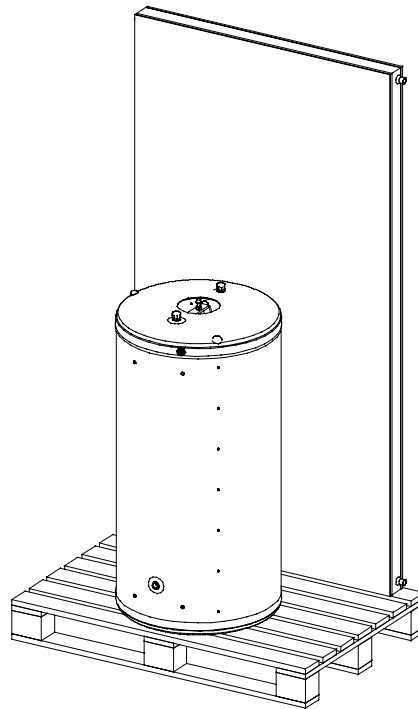
	Latitude 40°	Latitude 45°	Latitude 50°
Calculation of de X	Y x 2	Y x 2,25	Y x 2,5

Y: Height of shadow-casting object.

# DS-compact Inox

## 5 PACKAGING AND TRANSPORT

The DS-compact Inox is supplied on a pallet with all its components.



For pallet handling, the following must be taken into account:

1. Store all the material in a safe place until it is installed.
2. Do not stack the pallets one on top of another.
3. Do not remove the packaging components until necessary.
4. Keep the pallet in vertical position.

## 6 SAFETY GUIDELINES

The system must be installed by qualified staff in compliance with applicable regulations.

Any work on the system must be carried out by the official Technical Assistance Service, as any changes to its configuration could cause functioning errors and could damage the system and its surrounding environment.

To prevent risk of overvoltage, the solar circuit is to be earthed using a 16mm<sup>2</sup> copper cable, as otherwise the DHW system electronics could be damaged, or the home electronics in case of lightning.



## 6.1 Hot water tank

To avoid overpressure caused by domestic hot water heating, it is recommended to install a DHW safety valve and a DHW expansion tank.

In some geographical areas, the domestic cold water inlet pressure can exceed 500 kPa, and it is therefore recommended to install a pressure reducer at the cold water inlet.

Both the solar liquid and the domestic water supply can reach temperatures of over 90°C, and so to prevent risk of burns both the safety valves should lead to a drain.

## 6.2 Solar collector

When working at a height, harnesses and belts should be worn in addition to protection equipment such as gloves, protective goggles, safety footwear, helmets, etc., in accordance with labour safety regulations.

For installations close to electrical cables, it is recommended to cut off the voltage, cover them or maintain a safety distance.

Installation and maintenance work must be done on cloudy days, as otherwise there is a risk of burns. Alternatively, the solar collectors may be covered or the installation can be made early in the morning or at dusk, ensuring the collectors are not hot.

Before handling the collectors or hydraulic connections, check that they are not hot.

# DS-compact Inox

## 6.3 Antifreeze

The data below refer to the inhibitor liquid supplied by DOMUSA. Although the liquid is unalterable if it is stored in hermetically-sealed containers, the liquid used should be changed in accordance with the maintenance plan (see point 9 of Installation guide).

### 6.3.1 Product and company names

Product name: Inhibitor liquid

Supplier data: Domusa calefacción, S.Coop.

B° San Esteban s/n

20737 – Errezil, Spain

Tel: 943 813 899; Fax: 943 815 666

In case of emergency, call the nearest toxicology centre.

### 6.3.2 Composition / component information

Propane-1,2-diol with a concentration of over 90% with corrosion inhibitors.

### 6.3.3 Hazard identification

EFFECTS ON HEALTH: No particular hazard if the general hygiene rules are observed.

PHYSICAL AND CHEMICAL EFFECTS: Combustible liquid not classified as flammable. The product is not classified as a "hazardous compound" according to European Community regulations.

### 6.3.4 First aid

INHALATION: Not specifically concerned.

SKIN CONTACT: Rinse with water. If inflammation occurs (reddening, irritation, etc.) call a doctor.

EYE CONTACT: Wash immediately with water for at least 15 minutes, separating the eyelids. In case of persistent irritation, consult an ophthalmologist.

INGESTION: If a large amount has been swallowed and the patient is totally conscious, give them water to drink. If they are not totally conscious or unconscious, do not give them anything to drink.

Never attempt to induce vomiting.

Consult a doctor.

### 6.3.5 Fire prevention measures

SUITABLE FIRE EXTINGUISHING MEASURES: Carbon dioxide (CO<sub>2</sub>), non-alcohol foam and powder.

UNSUITABLE FIRE EXTINGUISHING MEASURES: Water jet

SPECIFIC RISKS: Combustible.

The vapours are heavier than air and may travel to a source of ignition at a distance and flash back.

It floats and it may reignite on the surface of the water.

Vapour/air mixtures are explosive.

Heat action may cause a pressure increase inside hermetically sealed containers or tanks.

SPECIAL INTERVENTION METHODS: Evacuate the hazardous area.

Do not intervene without using specially adapted protection equipment.

Cool by spraying water on containers exposed to heat.

Do not discharge extinction water into the environment.

PROTECTION FOR INTERVENING STAFF: Individual insulated respiratory protection equipment.

Full body protection.

### **6.3.6 Measures in case of accidental spillage**

PERSONAL PRECAUTIONS: Avoid contact with skin and eyes.

Do not breathe in fumes.

Do not smoke.

Individual equipment: Full protection equipment.

Evacuate the hazardous area.

Cut off the leak.

Suppress the entire source of ignition.

ENVIRONMENTAL PRECAUTIONS: Channel and clean up the spillage.

Limit the use of water for cleaning.

Do not discharge into drains or rivers.

RECOVERY: Clean up the product using an absorbent material.

ELIMINATION: Dispose of the impregnated material in accordance with the applicable regulations.

FURTHER INFORMATION: This product may make the floor very slippery.

### **6.3.7 Handling and storage**

TECHNICAL HANDLING MEANS: Fume collection at the point of emission. Ventilation.

HANDLING PRECAUTIONS: Avoid any direct contact with the product.

Avoid high temperatures.

No smoking.

TECHNICAL STORAGE MEANS: The warehouse floor must be impermeable and arranged to form a retention basin.

STORAGE CONDITIONS: Store in a well-ventilated place, at ambient temperature, away from heat sources and with the container correctly closed and protected from damp.

PACKAGING MATERIALS NOT ADVISED: Galvanised steel.

INCOMPATIBLE MATERIALS: Strong oxidants.

### **6.3.8 Exposure control and personal protection**

TECHNICAL MEASURES: Ensure correct ventilation of the work station.

PERSONAL PROTECTION.

Respiratory system protection: If there is adequate ventilation, the use of respiratory protection is not essential.

Hand protection: Rubber protection gloves.

Eye protection: Safety goggles.

## DS-compact Inox

INDUSTRIAL HYGIENE: Do not eat, drink or smoke in the workplace.  
Wash hands after handling the product.  
Shower systematically after work.

### 6.3.9 Physical and chemical properties

Physical state: Liquid.  
Colour: Transparent  
Smell: None  
pH: 7.3 (7.6 in 50% aqueous solution)  
Freezing temperature: -60°C  
Initial boiling temperature: 155°C  
Spontaneous combustion temperature: 371°C  
Lower explosivity limits: 2.4% (volume)  
Upper explosivity limits: 17.4% (volume)  
Vapour pressure: <0.1 mmHg at 25°C  
Vapour density (air=1): 2.6  
Density: 1.051gr/cm<sup>3</sup> at 20°C  
Solubility in water: Total  
Dynamic viscosity: 46mPa.s, at 25°C  
Hygroscopicity: Hygroscopic product

### 6.3.10 Stability and reactivity

STABILITY: Stable at ambient temperature and under the conditions of use.

CONDITIONS TO BE AVOIDED: High temperatures and naked flames.

MATERIALS TO BE AVOIDED: Strong oxidants

HAZARDOUS DECOMPOSITION PRODUCTS: Incomplete combustion gives off harmful carbon monoxide, carbon dioxide and other toxic gases.

### 6.3.11 Toxicological information

ACUTE TOXICITY: DL 50 pc (Rabbit): 20800 mg/kg  
DL 50 po (Rat): 19400-36000 mg/kg

LOCAL EFFECTS: Not irritant by cutaneous application to rabbits.  
May cause slight temporary irritation of eye mucous.

OTHER: This product or its emissions may worsen pre-existing eye complaints.

### 6.3.12 Ecological information

DEGRADABILITY: Easily biodegradable.

ECOTOXICITY. Effects on aquatic environment:  
CE 50 (Daphnia: Daphnia magna) / 48h: 34400 mg/L  
CL 50 (Fish: Onchorynchus mykiss) / 96h: 51600 mg/L  
CE 50 (Bacteria: Photobacterium phosphoreum) / 0.5h: 26800 mg/L  
CE 50 (Algae: Selenastrum capricornutum) / 96h: 19000 mg/L

DIVERSE HARMFUL EFFECTS. Effects on waste water treatment plants:  
Does not affect the functioning of sewage treatment plants.  
Chemical oxygen demand (COD): 1906000 mg/L O<sub>2</sub>  
Biochemical oxygen demand (BOD) 5 days: 1090000 mg/L O<sub>2</sub>

### **6.3.13 Disposal considerations**

PRODUCT WASTE. Dispose of in accordance with applicable local regulations.

SOILED CONTAINERS: To be destroyed at an authorised installation.

OBSERVATION: Users of this product are reminded of the possible existence of mandatory local stipulations regarding disposal.

### **6.3.14 Information regarding transportation**

RID / ADR / IMDG / IATA: No regulations.

OBSERVATIONS: As the regulations governing transportation of hazardous material may evolve, we recommend you ensure their validity by consulting the commercial agency.

### **6.3.15 Regulatory information**

No R-phrase, no S-phrase.

The regulatory information figuring in this section refers only to the main stipulations specifically applicable to the product subject to the FDS.

The basic Community texts cited are subject to continuous updating and transcribed in international law.

We recommend taking into account all types of measures or stipulations that may apply, international, national and local.

We would draw the user's attention to the possible existence of other stipulations complementing those described above.

### **6.3.16 Further information**

Product for industrial use only. For further information on the use of this product, please consult the technical manual.

Updated: 28.02.2008

# DS-compact Inox

## 6.4 Regulations

When making the installation, all the laws, directives, technical regulations and general regulations and standards must be complied with. Depending on the geographical area, different regulations may need to be complied with, and the laws for each Autonomous Community must therefore be studied..

Some of the regulations solar installations must comply with are listed below:

### General information on solar heating installations:

PrEN ISO 9488

Terminology for solar heating installations and components (ISO/DIS 9488, 1995).

EN 12975-1

Solar heating installations and components. Solar collectors. Part 1: General requirements

EN 12975-2

Solar heating installations and components. Solar collectors. Part 2: Test methods

UNE-EN 12976-1

Solar heating installations and components; prefabricated installations, Part 1: General requirements.

UNE-EN 12976-2

Solar heating installations and components; prefabricated installations, Part 1: Test methods.

ENV 1991-2-3

Eurocode 1 – Basis for calculation and action on structures, Part 2-3: Action on structures, snow loads.

ENV 12977-1

Solar heating installations and components; specific prefabricated installations for clients, Part 1: General requirements.

ENV 12977-2

Solar heating installations and components; specific prefabricated installations for clients, Part 2: Test methods.

ISO 9459-1 : 1993

Solar domestic water heating systems, Part 1: Performance rating procedure using indoor test methods.

ISO/TR 10217

Solar energy / Water heating systems / Guide to material selection with regard to internal corrosion.

### Collectors and collector assembly:

ENV 1991-2-4

Eurocode 1 – Basis of design and actions on structures, part 2-4: actions on structures, wind action.

### Hot water tanks and hot water tank assembly:

PrEN 806-1

Technical standards regarding drinking water installations in buildings supplying water for human consumption, Part 1: General.

PrEN 1717

Prevention of contamination in drinking water installations and general requirements regarding safety devices preventing contamination caused by backflow in drinking water.

PrEN 12897

Water supply specifications for installations with hot water hot water tanks, indirectly heated and unvented (closed).

PrEN 12977-3

Solar heating systems and components; user-specific pre-fabricated installations, Part 3: Analysis of performance of hot water tanks.

EN 60335-2-21

Safety of household and similar electrical appliances, Part 2: Particular requirements for water heaters (storage heaters and heaters); (IEC 335-2- 21 : 1989 and complements 1; 1990 and 2; 1990, updated).

### **Lightning protection:**

ENV 61024-1

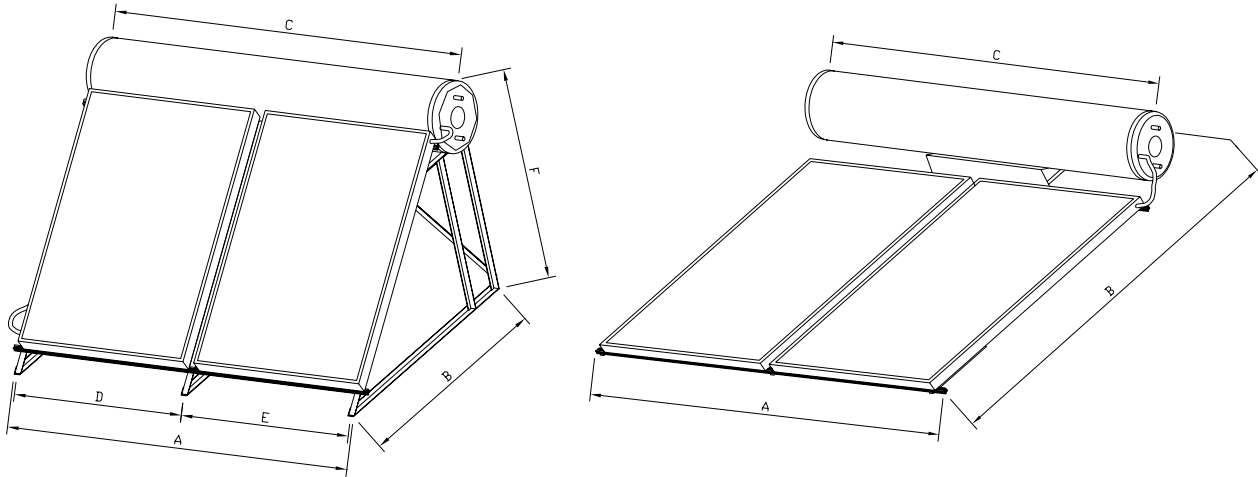
Protection of structures against lightning, Part 1: General principles (IEC 1024-1: 1990; amended).

# DS-compact Inox

## 7 INSTALLATION

Before installing the DS-compact Inox system, ensure none of the components are electrically connected. Carefully read points 4 and 8 of this manual, ensuring all the instructions and all the applicable legislation are complied with.

### 7.1 Dimensions



	DIMENSIONS (mm)					
	A	B	C	D	E	F
DS-compact Inox 1.150 T	1041	2560	1180	---	---	---
DS-compact Inox 1.150 P	890	2120	1180	---	---	1780
DS-compact Inox 1.200 T	1041	2560	1480	---	---	---
DS-compact Inox 1.200 P	825	2120	1480	---	---	1780
DS-compact Inox 2.200 T	2122	2560	1480	---	---	---
DS-compact Inox 2.200 P	1650	2120	1480	825	825	1780
DS-compact Inox 2.300 T	2122	2560	2080	---	---	---
DS-compact Inox 2.300 P	1780	2120	2080	890	890	1780

### 7.2 Hot water tank

Remove the accumulator from the pallet it is supplied on and place it in its future location following the installation instructions on the supports. Ensure sufficient space is left around it for carrying out installation and maintenance work.

### 7.3 Solar collector

Remove the collector from the pallet it is supplied on and place it in its future location following the installation instructions on the supports. Ensure sufficient space is left around it for carrying out installation and maintenance work.



## 7.4 Hydraulic connection

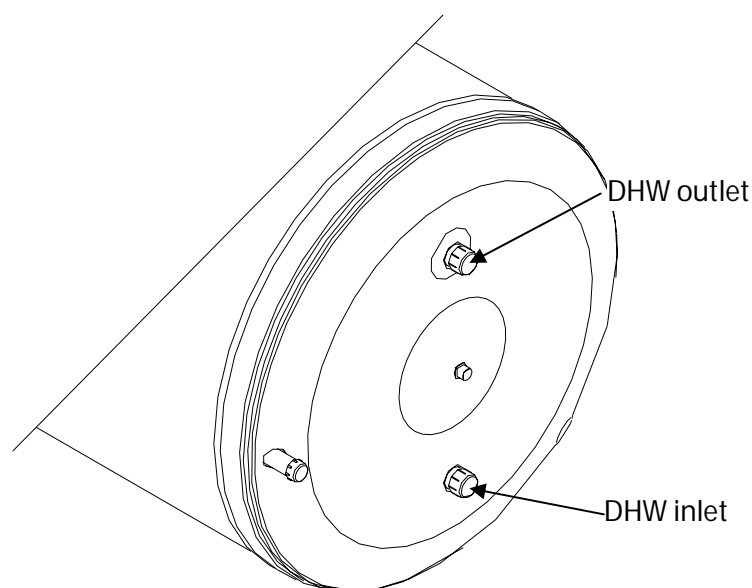
Below is a description of the accumulator's domestic water and solar circuits and how to connect them to the DHW network and the solar collectors.

### 7.4.1 Domestic hot water circuit

Although the maximum temperature of the water in the hot water tank is limited, the temperature of the stored water may vary significantly depending on the solar radiation, water consumption, insulation of the connections, etc. To adapt the hot water tank temperature to the consumption temperature, DOMUSA recommends fitting the optionally supplied mixing valve.

Also, when the stored water is heated up, the pressure in the hot water tank may increase, and DOMUSA therefore recommends fitting a DHW expansion vessel and a safety valve.

The DHW sockets on the hot water tank are shown in the diagram below.

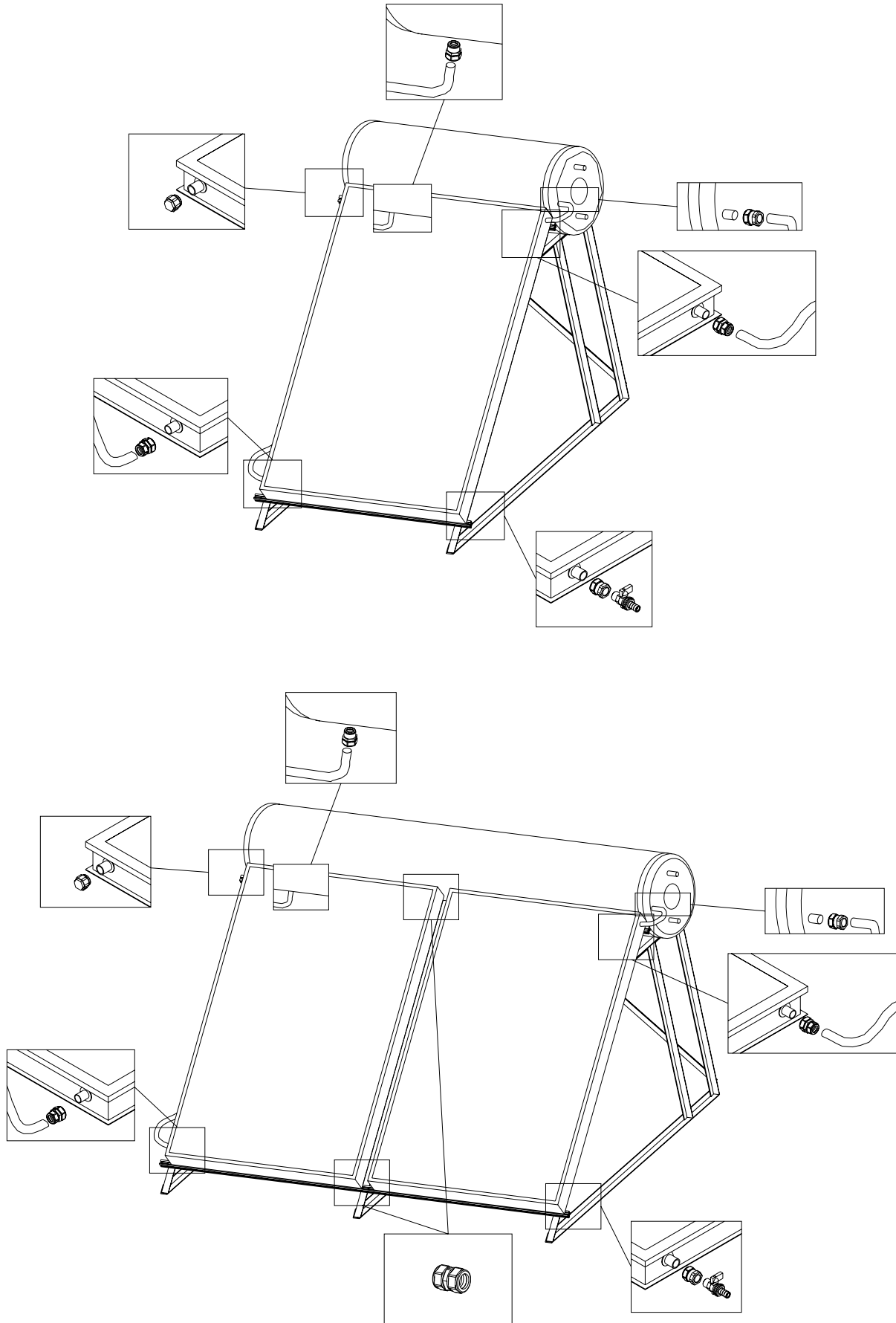


### 7.4.2 Solar heating circuit

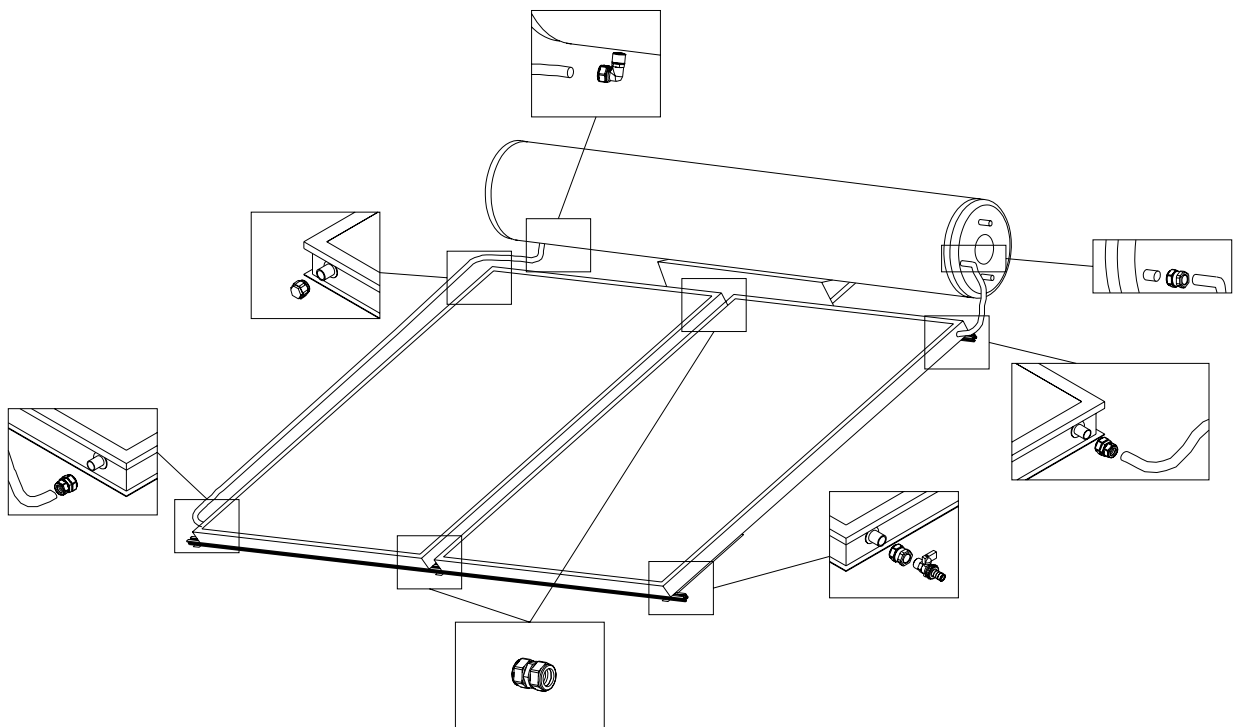
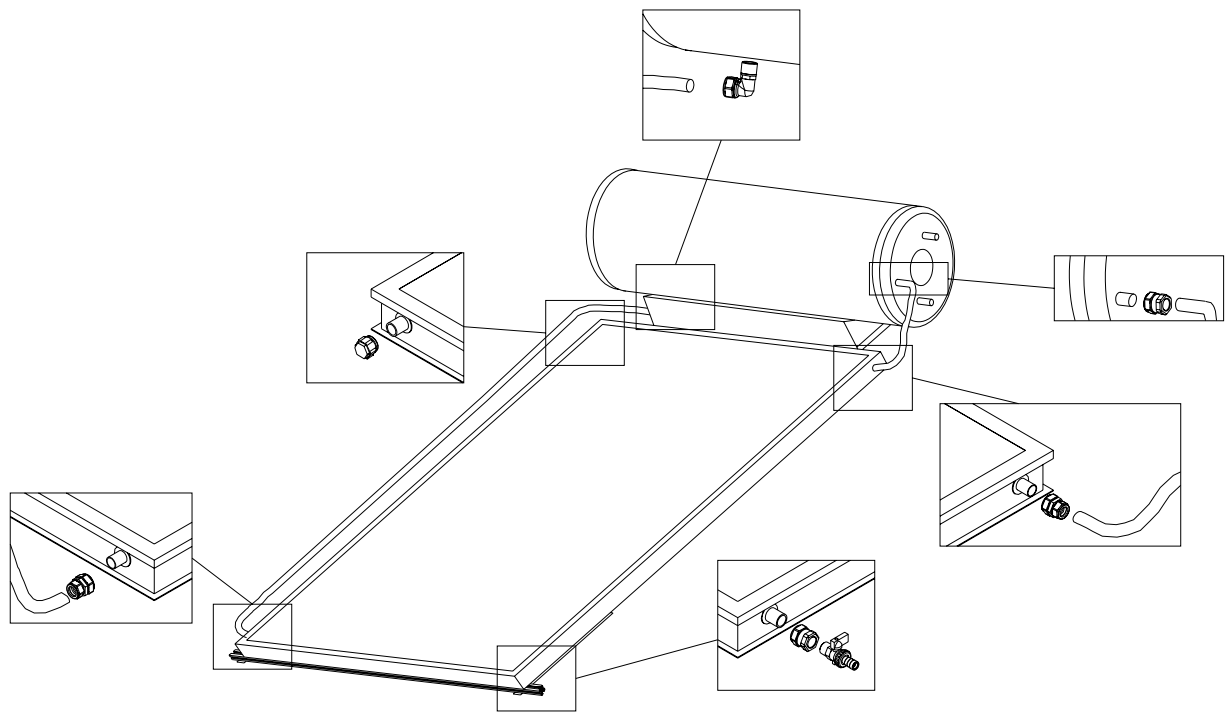
The DS-compact Inox is supplied with all the necessary pipes for connecting the collector to the accumulator. For sloping roof models, the required pipe length varies according to the roof slope, and the pipes supplied will therefore need to be cut to the required length for each particular installation.

# DS-compact Inox

The picture below shows a diagram of how to connect the solar circuit pipes on flat roof installations.



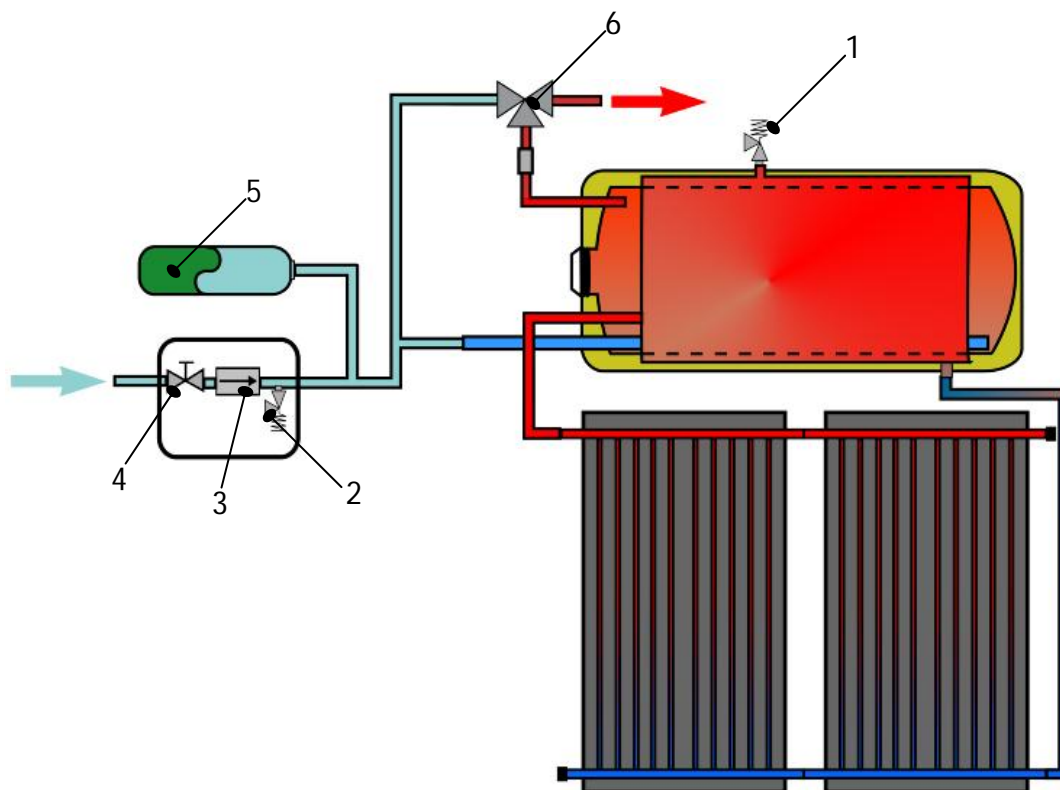
The picture below shows a diagram of how to connect the solar circuit pipes on sloping roof installations.



# DS-compact Inox

## 7.5 Installation example

Hydraulic diagram of a DS-compact.



1. Solar safety valve.
2. DHW safety valve (no supplied).
3. Non-return valve.
4. Shut-off valve.
5. DHW expansion vessel (no supplied).
6. Mixing valve.

## 8 STARTING UP THE INSTALLATION

DS-compact Inox systems must be started up by staff authorised by DOMUSA.

The start-up procedure is as follows:

1. Fill the hot water tank.
2. Fill the solar circuit.
3. Check the seal.
4. Checking list.

The circuit should ideally be filled on a cloudy day or in the early morning or late afternoon. If the installation has to be made during hours of sunlight, the solar collectors should be covered, and any parts that may be at a high temperature should not be touched.

### **IMPORTANT !**

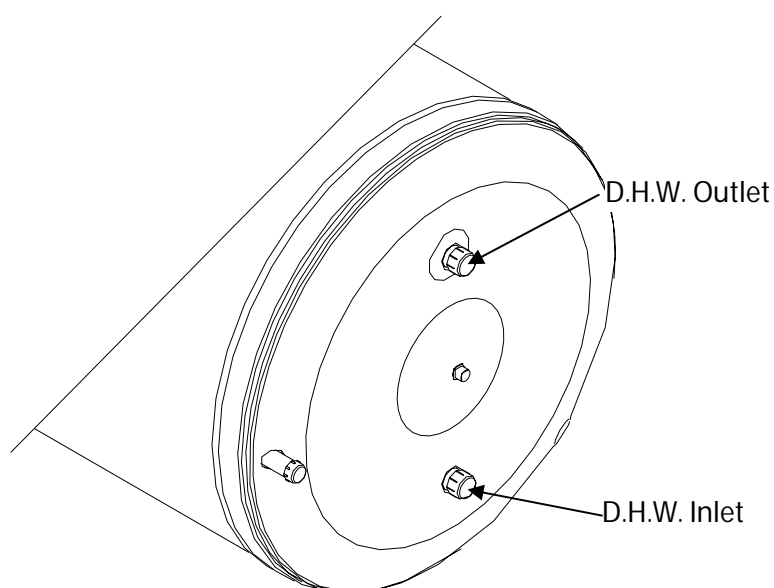
**THE WORK TO BE CARRIED OUT ON THE COLLECTORS SHOULD BE DONE ON CLOUDY DAYS OR IN THE EARLY MORNING OR LATE AFTERNOON, OR WITH THE COLLECTORS COVERED.**

### **IMPORTANT !**

**THE ENTIRE INSTALLATION MUST HAVE BEEN MADE BEFORE START-UP (SEE POINT 7 OF THE INSTALLATION INSTRUCTIONS), EXCEPT FOR FITTING THE SOLAR CIRCUIT SAFETY VALVE.**

### 8.1 Filling the hot water tank

1. Connect the DHW inlet pipe to the water mains, open the DHW inlet valve on the accumulator and turn on a hot water tap.
2. When it is full, turn off the hot water tap and ensure the installation is correctly sealed.
3. Check the domestic hot water circuit safety devices are functioning correctly.



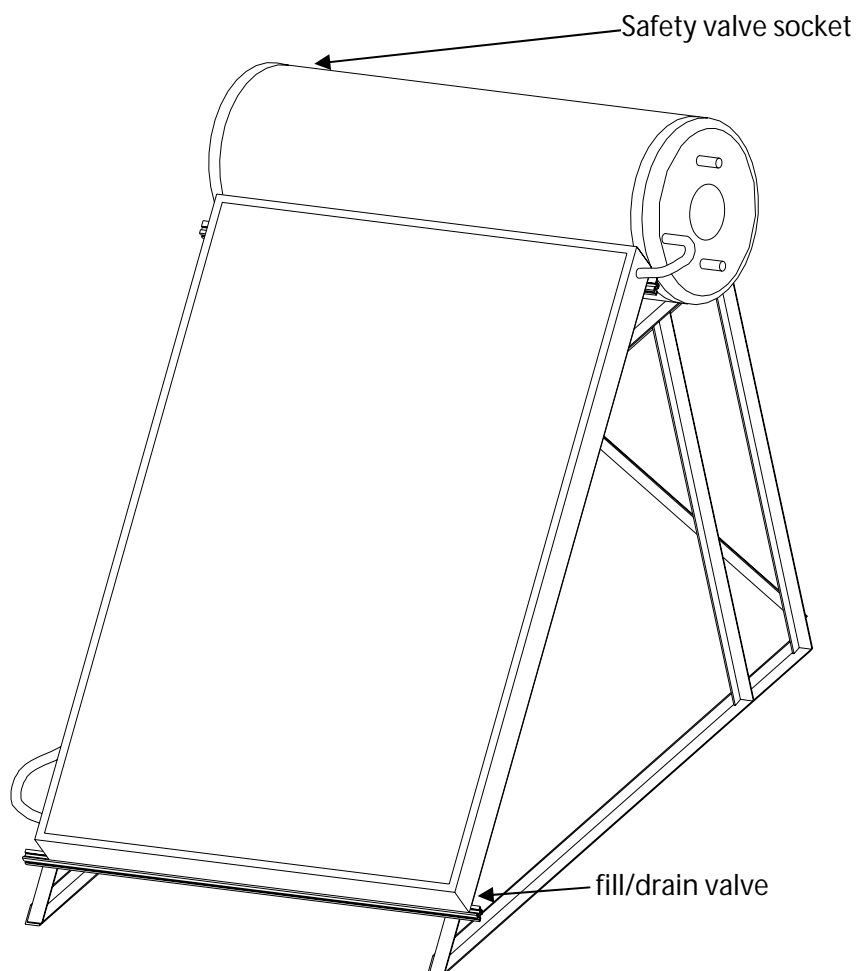
# DS-compact Inox

## 8.2 Filling the solar circuit

### IMPORTANT !

THE ENTIRE INSTALLATION MUST HAVE BEEN MADE BEFORE START-UP (SEE POINT 7 OF THE INSTALLATION INSTRUCTIONS), EXCEPT FOR FITTING THE SOLAR CIRCUIT SAFETY VALVE.

1. Connect the fill/drain valve to the hot water supply outlet with a hose.
2. Add the antifreeze using the outlet for the solar circuit safety valve.
3. Open the fill/drain valve.
5. When liquid begins to come out of the solar circuit safety valve outlet, cut off the water entry from the filling inlet.
6. Remove the hose from the fill/drain valve.
7. Fit the solar circuit safety valve.
8. Check the solar circuit safety devices are functioning correctly.



### IMPORTANT !

THE ANTIFREEZE MUST BE DILUTED WITH WATER BEFORE USE, AS OTHERWISE IT COULD DAMAGE THE SYSTEM.

### IMPORTANT !

DOMUSA WILL ONLY BE LIABLE FOR THE CORRECT FUNCTIONING OF THE SYSTEM IF IT HAS BEEN FILLED WITH DOMUSA ANTIFREEZE.

### 8.3 Seal control

Check there are no leaks in the solar circuit as a sealing defect could cause serious operating problems.

Also ensure no siphons have formed in the solar circuit, to avoid operating problems.

**IMPORTANT !**  
ENSURE THE SOLAR HEATING CIRCUIT IS CORRECTLY SEALED.

**IMPORTANT !**  
ENSURE THERE IS NO SIPHON IN THE SOLAR HEATING CIRCUIT.

### 8.4 Checking list

The following chart may be used as a guideline for installation and start-up.

	DONE	REMARKS
<b>ASSEMBLY</b>		
The supports have been placed according to the instructions		
After fixing the supports in place, the roof covering has been correctly replaced		
The roof has not been damaged		
The solar circuit has been earthed		
There is no siphon in the solar heating circuit		
Collectors levelled		
<b>START-UP</b>		
The solar circuit has been filled		
Antifreeze has been used in the solar circuit		
The seal of the whole installation has been checked		
<b>USER INSTRUCTIONS</b>		
The use of the element has been explained to the user (if the system has an element)		
The procedure for draining and filling the solar circuit has been explained		
The documentation has been given to the user		
The maintenance frequencies have been explained to the user		

# DS-compact Inox

## 9 MAINTENANCE

Maintenance must be carried out by qualified staff. All system servicing must be done by staff authorised by **DOMUSA**, as any alterations made to its configuration could cause functioning errors and damage to the system and its environment.

To keep the unit in perfect working order, an annual overhaul should be carried out by staff authorised by **DOMUSA**. If the installation has been out of use for a long time, ensure there have been no frost or overheating problems. To do this, remove the solar circuit safety valve and check the solar circuit is correctly filled.

### 9.1 Checking the safety valve

Check the safety valve is working correctly. If there is any water leaking from it or if it does not close hermetically, replace the safety valve.

### 9.2 Collectors

Check periodically that the collector supports are in correct working order.

### 9.3 Maintenance work

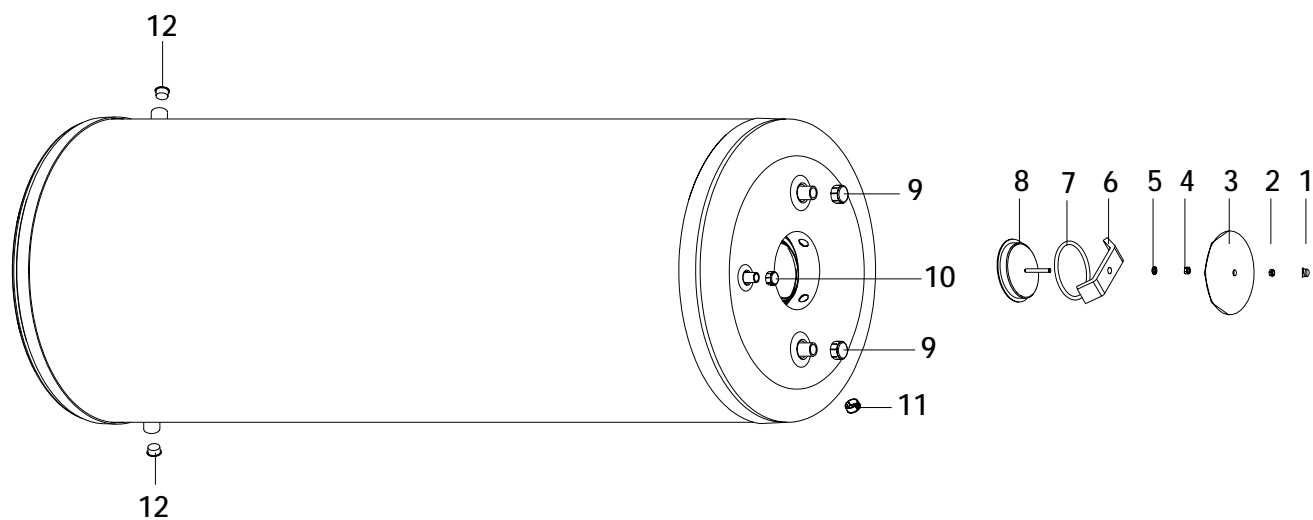
The table below shows a list of recommended maintenance work.

	Maintenance frequency
<b>Hot water tank</b>	
Check the connections are correctly sealed	Yearly
<b>Collectors</b>	
Check the state of the solar collector: dirt, dents, connections, supports and levelling of the solar collectors	Yearly
<b>Solar circuit</b>	
Check the filling level of the solar liquid	Yearly
Renew the solar liquid with a concentration of at least 30% of antifreeze	At least once every 3 years.
<b>Pipes</b>	
Check the state of the insulation <sup>9</sup>	Yearly
Check the installation is correctly sealed	Yearly



## 10 SPARES LIST

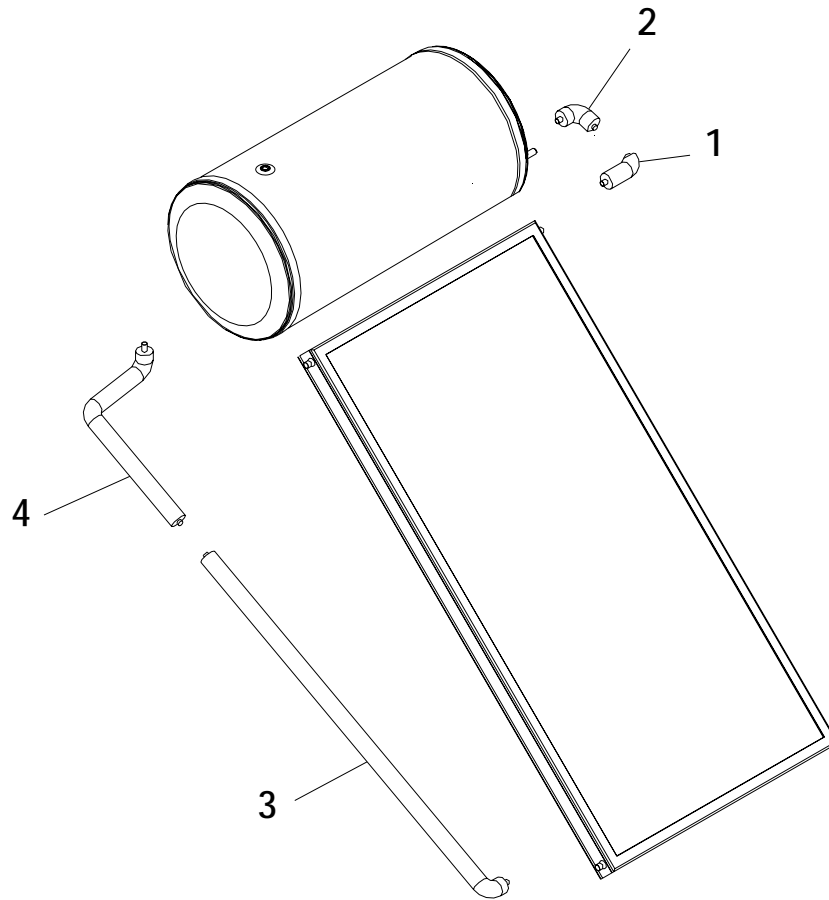
### 10.1 Hot water tank



POS.	CODE	DESIGNATION
1	CFER000090	Black cap
2		M8 nut
3	CACU000038	Bridge cover
4		M8 nut
5		M8 washer
6		Bridge
7	COTR000006	O-ring
8		Elliptical cover
9	CFER000007	Red 3/4" plug
10	CFER000066	Red 1/2" plug
11	CFER000083	Packing box
12	CFER000049	Conical 1/2" plug

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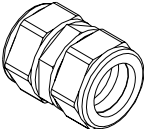
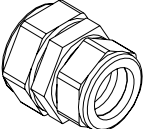
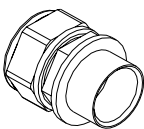
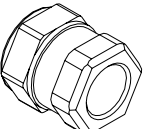
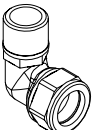
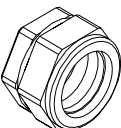
## 10.2 Solar circuit connecting pipes



POS.	DESIGNATION	CODE							
		1.150 T	1.150 P	1.200 T	1.200 P	2.200 T	2.200 P	2.300 T	2.300 P
1	Collector supply pipe 1	12114	12096	12117	12105	12119	12108	12122	12111
2	Collector supply pipe 2	12115	12097	12115	12106	12120	12109	12123	12112
3	Collector return pipe 1	12098	12098	12098	12098	12098	12098	12098	12098
4	Collector return pipe 2	12116	12104	12118	12107	12121	12110	12124	12113

Add SCOB0 reference code (e.g. SCOB012114)

### 10.3 Connectors

	CODE	DESIGNATION
	CFOL000043	Compression connector Ø18-Ø18
	CFOL000083	Compression connector Ø22-Ø18
	CFOL000045	Compression connector Ø18-1/2" M
	CFOL000081	Compression connector Ø 8-1/2" H
	CFOL000078	Elbow compression connector Ø18-1/2" M
	CFOL000080	Plug compression connector Ø22

# DS-compact Inox

## 11 TECHNICAL DATA

	DS-compact Inox			
	1.150	1.200	2.200	2.300
<b>Hot water tank</b>				
Volume	150 litres	200 litres		300 litres
Insulation	Expanded polyurethane			
External diameter	581 mm			
Height	1179 mm	1479 mm		2079 mm
DHW connections	3/4"			
Solar circuit connections	1/2" H			
Weight of empty hot water tank	75 kg	90 kg		120 kg
Weight of full hot water tank	225 kg	290 kg		420 kg
Weight full system	275 kg	350 kg	387 kg	475 kg
Max. working pressure of DHW	7 bar			
Max. solar circuit temperature	203°C			
Max. solar circuit pressure	2,5 bar			
Exchanger area	1,06 m <sup>2</sup>	1,46 m <sup>2</sup>		2,27 m <sup>2</sup>
Solar circuit volume	18 litres	24,5 litres	25,5 litres	38 litres

SOLAR COLLECTOR - DS CLASS 2.1 TS	
Absorption surface	1,9 m <sup>2</sup>
Volume of solar liquid	1,07 L
Max. outlet temperature	203°C
Zero-loss collector efficiency	75,1 %
Heat loss coefficient k1	4,999 W/m <sup>2</sup> K
Heat loss coefficient k2	0,0 W/m <sup>2</sup> K <sup>2</sup>
Width	1041 mm
Height	1988 mm
Depth	90 mm
Weight of empty collector	37 Kg
Weight of full collector	38,07 Kg









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**FACTORY and OFFICES**

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