ΑΑΕ.GR
ΑΞΙΟΠΟΙΗΣΗ ΑΚΤΩΝ ΕΛΛΑΔΟΣ

τεχνικό εγχειρίδιο
ηλιακές ντουζιέρες

made in Italy

1 GENERAL INFORMATION

1.1 GENERAL REMARKS

This manual of use and maintenance is an integral and essential part of the appliance and it has to be delivered to the final user. It has to be kept handy and read carefully, because it contains basic instructions for a safe installation, a good operation and a correct maintenance of the appliance. For any doubt or for more information, consult the Manufacturer.
A use of the appliance, other than the one that it has been conceived for, is not allowed, because it is improper and dangerous.
The Manufacturer of this appliance will not be liable, either direct or contingent, for any damage caused by a wrong use or a bad installation of the appliance or for any damage in the event these instructions are not followed.

IMPORTANT
The Manufacturer reserves the right to change the product and its technical literature without any prior notice. It will not be liable for mistakes or inaccuracies that might be contained in this manual. This manual describes the appliance, as it was when this booklet was passed to press.

1.2 MANUFACTURER

For technical problems or orders of spare parts contact the manufacturer.
For any communication to the manufacturer concerning the appliance, always provide the following data:

- serial number (printed on the serial label of the appliance)
- production date (printed on the serial label of the appliance)
- purchase date (copy of either the ticket or invoice)
- detailed information about faults verified on the appliance
- model

IMPORTANT
Where components need replacement, we advise that only original spare parts are used. The manufacturer will not be liable in case of bad operation of the appliance caused by the use of non-original spare parts.

1.3 USE OF THE APPLIANCE

Solar energy is a source that cannot be neglected, being an effective solution to the more and more worrying worldwide problems of energy consumption.
Being sensitive to new requirements, it is offered an appliance that can supply domestic hot water exploiting solar energy and that can be used directly where located.
As a matter of fact, the product:

- **is ecological**, because it is pollution free and environmentally safe
- **is simple,** because it can be installed in any place needing no components such as: storage batteries, pumps, control boxes, electrical supply, etc…
- **is patented** as regards hot water output and aesthetical features

The solar shower has a cylindrical shape. Its small dimensions, in comparison with its storage capacity, and the fact that it needs neither electrical nor mechanical devices make the shower easy to be installed.
This appliance has been manufactured with special materials chosen to grant, on the one hand, the highest solar heat absorption, on the other hand, the best weather resistance, thus reducing maintenance costs and increasing the appliance efficiency.

1.4 DESCRIPTION OF COMPONENTS

Mod. M

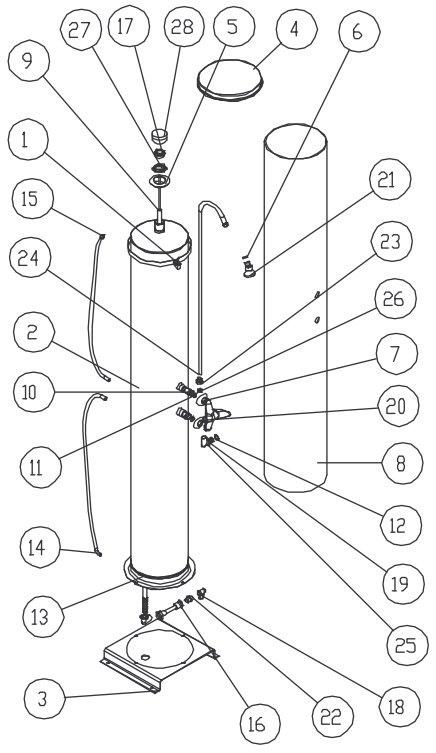

Fig. 1.4-1

Mod. S

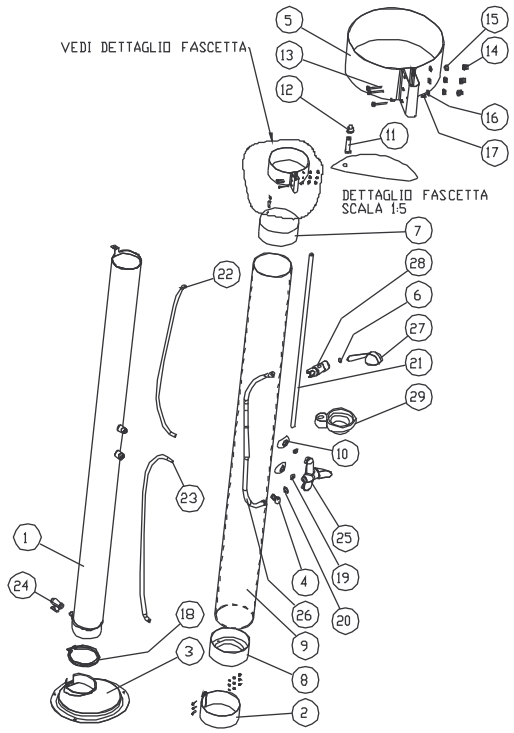

Fig. 1.4-2

Mod. E

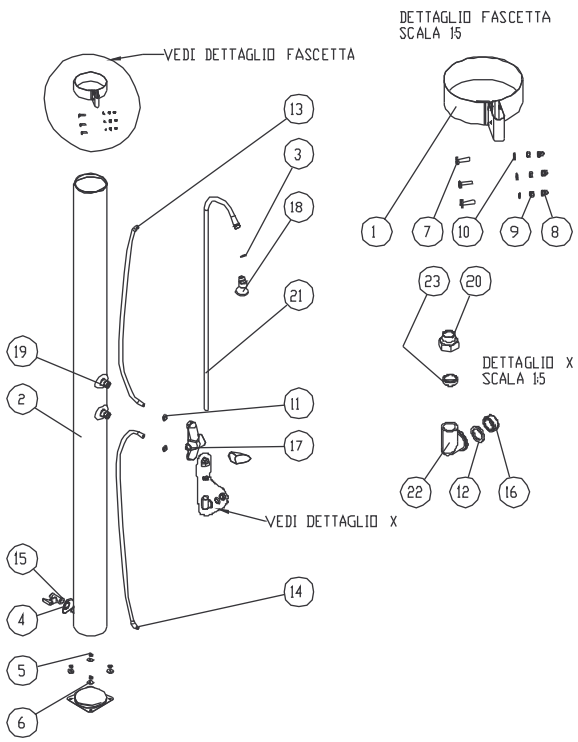

Fig. 1.4-4

Mod. N

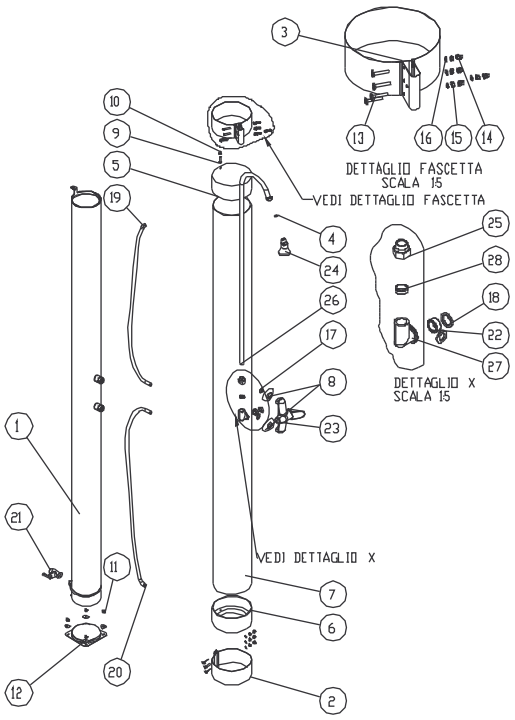

Fig. 1.4-3

Mod. P(P3)

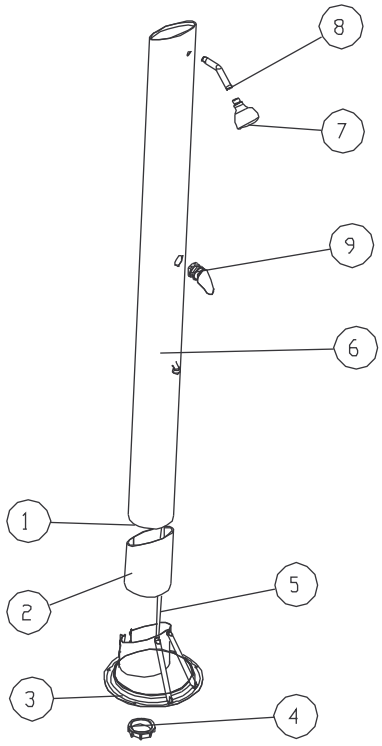

Fig. 1.4-5

Mod. PE(P2)

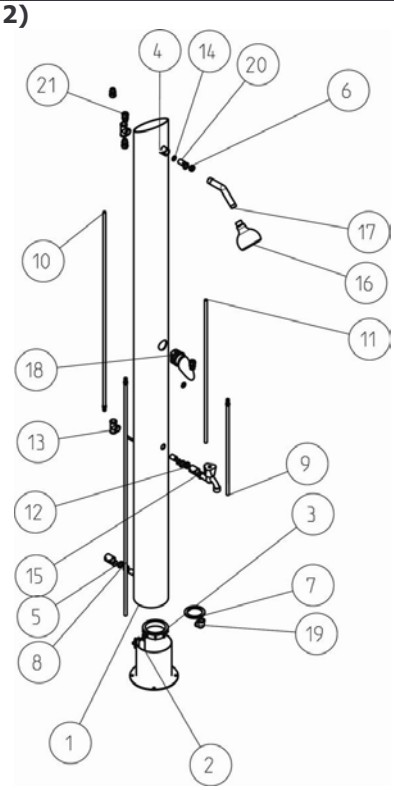

Fig. 1.4-6

Mod. C

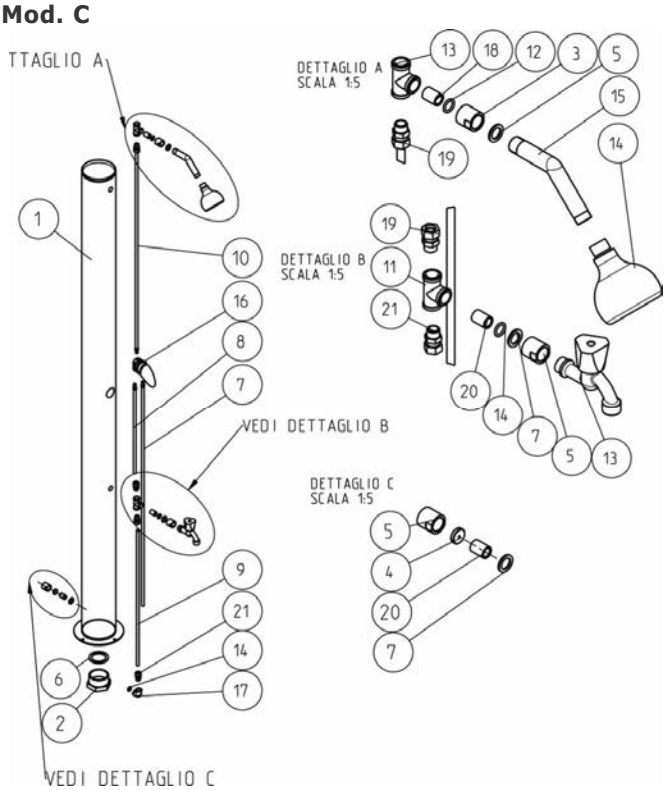

Fig. 1.4-7

The models M-S-N are made up of:

- **transparent methacrylate tube** (having a transparency coefficient higher than crystal, methacrylate increases the greenhouse effect)
- **storage tank** has a cylindrical shape and it is externally coated with black selective paint; it is in enamelled steel for model **M** and in AISI 316L stainless steel for models **S** and **N**; its peculiar shape and structure make the tank highly resistant to pressure
- **base**, in galvanized steel for model **M** and in AISI 304 stainless steel for models **S** and **N**, that makes the fastening (by means of 4 screws) to a wooden basement (optional) or to the floor very easy
- all taps and fittings in chromium-plated brass

The model E is made up of:

- **storage tank** has a cylindrical shape and it is made of a single AISI 316L stainless steel pipe that has been satinized in order to avoid the sunrays reflection; its peculiar shape and structure make the tank highly resistant to pressure
- **base**, in AISI 304 stainless steel, that makes the fastening (by means of 4 screws) to a wooden basement (optional) or to the floor very easy
- all taps and fittings in chromium-plated brass

The model P(P3)-PE(P2) is made up of:

- **storage tank** has a cylindrical shape and it is made of UV-stable and non-toxic polypropylene suitable for food uses
- **base**, in AISI 304 stainless steel, that makes the fastening (by means of 4 screws) to a wooden basement (optional) or to the floor very easy
- all taps and fittings in copper and brass
- **the pressure relief and non-return valve is not necessary because the tank is not under pressure**

The model C is made up of:

- **storage tank** has a cylindrical shape and it is made of a single AISI 316L stainless steel pipe that has been satinized in order to avoid the sunrays reflection; its peculiar shape and structure make the tank highly resistant to pressure
- **base**, in AISI 304 stainless steel, that makes the fastening (by means of 4 screws) to a wooden basement (optional) or to the floor very easy
- all taps and fittings in chromium-plated brass
- **the pressure relief and non-return valve is not necessary because the tank is not under pressure**

Its easy way of operating and the fact that it needs no maintenance interventions are the main peculiarities of solar shower. The cylindrical shape of the tank and the direct heat exchange (without heating fluids) improve the efficiency of the appliance and increase the domestic hot water output; the particular shape of the water heater and its small size avoid the sail effect (caused by wind).

The shower needs no pumps, control boxes or other devices.

1.5 SAFETY DEVICES

Pressure relief and non-return valve
The pressure relief and non-return valve **(1)**, supplied with the shower, protects the tank against possible excessive pressure caused by the volume increase of water while heating. Furthmore it prevents hot water from flowing back into the cold water circuit.

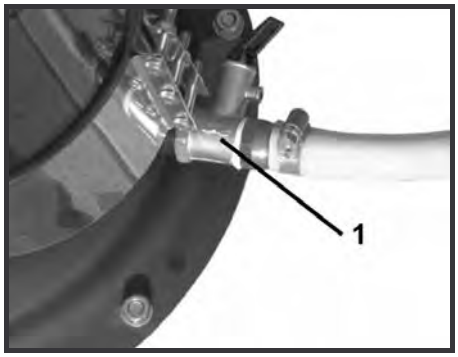

Fig. 1.5-1

IMPORTANT
The safety valve is not a total restraint valve but it serves only to avoid mixing between hot and cold water. If the type of hydraulic requires it, it is necessary to install a retain total valve.
If the safety valve is not installed, the warranty on the tank will be invalidated.

IMPORTANT
This safety valve is not present on model P(P3)-PE(P2)-C because not necessary.

Water flow reducer
The **models P(P3)-PE(P2)-C** are equipped with a water flow reducer, screwed to the hose fitting.

Fig. 1.5-2

IMPORTANT
In order to avoid permanent damages to the shower, never remove the water flow reducer.
In case you need to remove it (i.e. for clearing, etc.), remember to connect it again to its original position before connecting the shower to the water line.

1.6 TECHNICAL DATA

	Mod. M	Mod. S	Mod. P(P3)	Mod. PE(P2)	Mod. N	Mod. E	Mod. C
Storage capacity (litres)	120	28	38	23	28	28	28
Dry weight (Kg)	55	13	8	5,5	10	5	5
Filled weight (Kg)	175	41	46	28,5	38	33	33
Gross weight (Kg)	65	15	10	7	12	7	7
Cold water connection	3/4"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Net absorption area (m^2)	1,83	0,88	0,88	0,88	0,88	0,88	0,88
Calibration of pressure relief and non return valve (bar)	6	6	-	-	6	6	-
Transmittance of methacrylate (%)	92.2	92.2	-	-	92.2	-	-
Thermo conductivity of methacrylate (Kcal/mh°C)	0.16	0.16	-	-	0.16	-	-

1.7 DIMENSION OF THE APPLIANCE

Mod. M

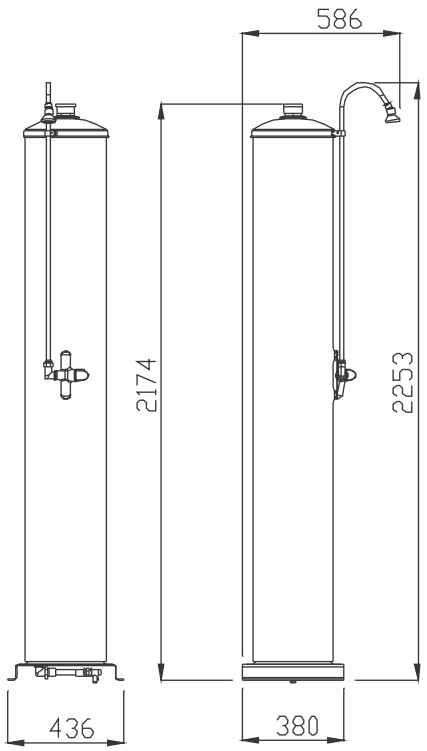

Fig. 1.7-1

Mod. S

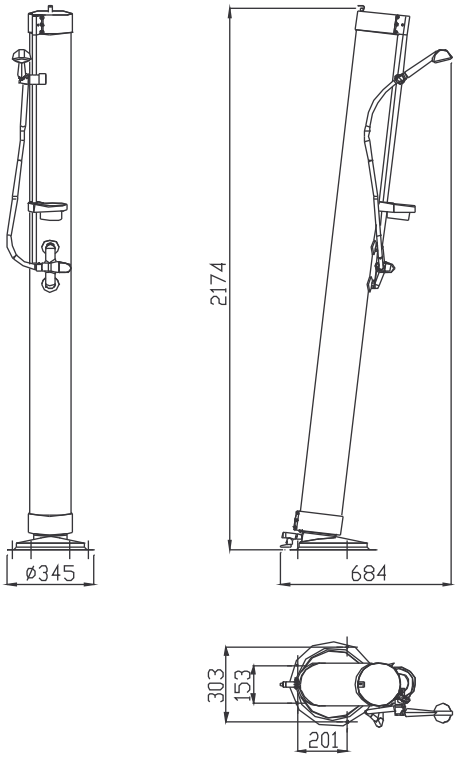

Fig. 1.7-2

Mod. N

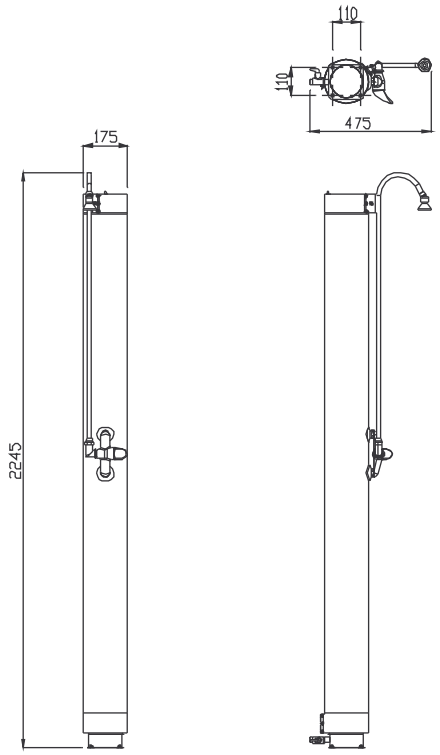

Fig. 1.7-3

Mod. E

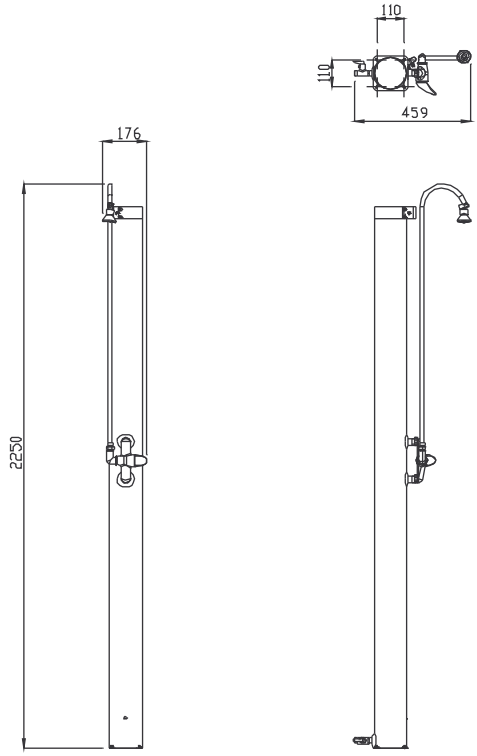

Fig. 1.7-4

Mod. P(P3)

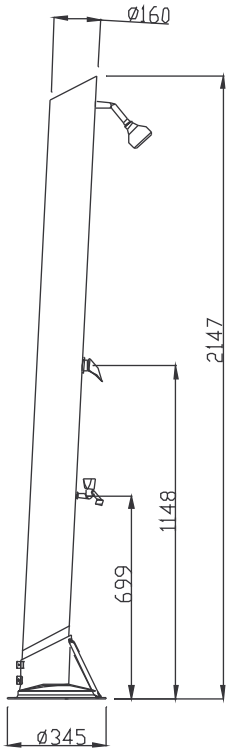

Fig. 1.7-5

Mod. C

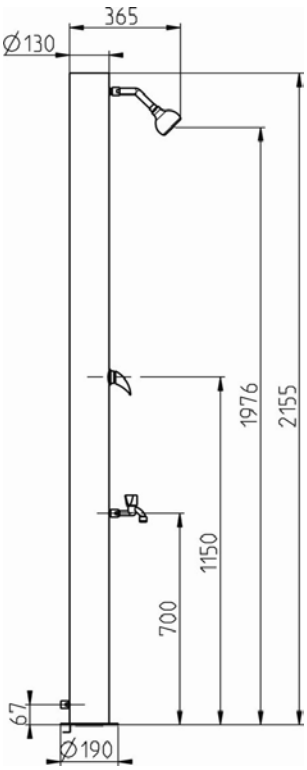

Fig. 1.7-7

Mod. PE(P2)

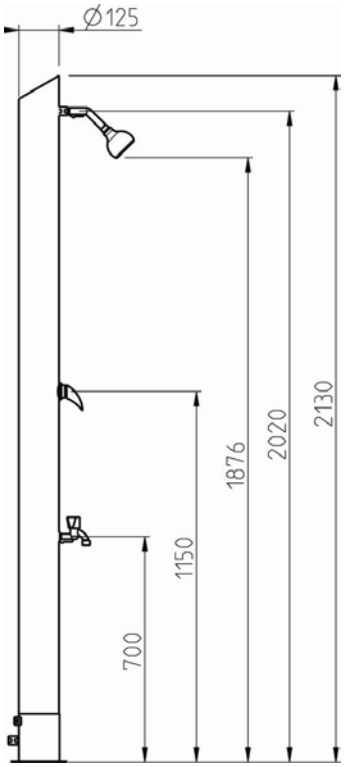

Fig. 1.7-6

2 INSTALLATION INSTRUCTION

2.1 INSTALLATION RECOMMENDATIONS

While installing the appliance or during subsequent maintenance, follow the instructions, this booklet provides you with, carefully.
Any change in any kind of connection or the non-observance of these instructions will cause the warranty to be invalidated.
Use only original spare parts supplied by the manufacturer.

2.2 PACKAGING

The appliance is delivered packaged in a cardboard box with suitable protection.
Inside the box there is an envelope containing this booklet and the warranty certificate.

	PACKAGING DIMENSIONS	GROSS WEIGHT
M	48x49x214 cm	65 Kg
S	35x35x224 cm	15 Kg
N	35x35x224 cm	12 Kg
P(P3)	35x35x224 cm	10 Kg
PE(P2)	25x25x224 cm	7 Kg
E	25x25x224 cm	7 Kg
C	35x35x224 cm	7 Kg

2.3 SIZING

To verify if the plant is well sized take into account the user's needs and the following advice:

- the solar shower has always to be located in a sunny and not shady area
- in a sunny day, **model M** can supply till **240 litres** of hot water at use temperature, **models S-N** more than **120 litres**, **model P(P3)** about **50 litres**, **model PE(P2)** about **35 litres** and **model E-C** about **40 litres**

2.4 LOCATION OF THE APPLIANCE

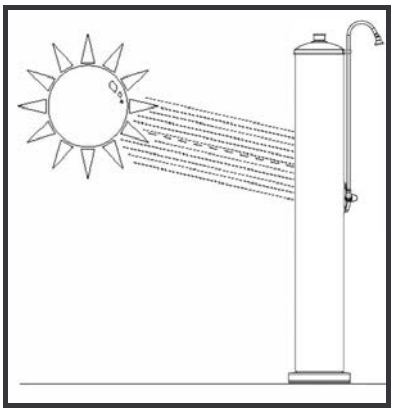

Fig. 2.4-1

The storage solar shower has to be located in such a way to be always exposed to sun. Because of its cylindrical shape it can absorb heat in every position: in any case, **the ideal location of the solar shower is SOUTHWARDS.**

IMPORTANT
The shower is only for vertical standing in order to increase its stability.

As far as the model **S** is concerned, the shower body is slightly angled in order to get the best performance: in this way sun rays are as perpendicular as possible to the body of the shower during the hottest part of the day.
As a matter of fact, its angle of installation makes water stratification easier. The hot water outlet is in the upper part of the tank: therefore it is possible to use nearly all the hot water stored in the tank.

IMPORTANT
Models M-S-N have an external tube in methacrylate so you have to be very careful when handling them.

In particular it is recommended to move the showers by lifting them only from the base or from the top rather than grasping the outer coating methacrylate (see Fig. 2.4-2, Fig. 2.4-3, Fig. 2.4-4, Fig. 2.4-5).
This is because, methecrylate is a very fragile material and it could procure breake or crack affecting the operation of the appliance.

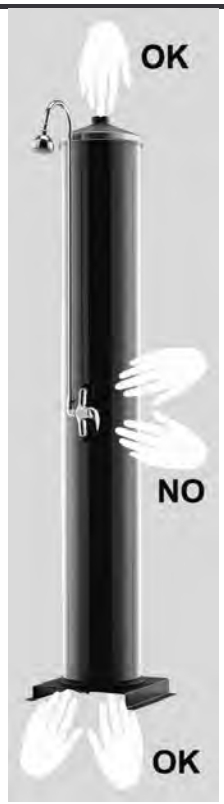

Fig. 2.4-2

Fig. 2.4-3

Fig. 2.4-4

Fig. 2.4-5

2.5 WATER CONNECTIONS

Tubing section

- For models **S-N-P-E-C** the advisable tubing section is 1/2"; however, if the appliance is a long way from the point of cold water withdrawal, a 3/4" section is suggested
- For model **M** the advisable tubing section is 3/4"

With regard to the models P(P3)-PE(P2)-C:

- in order to do an accurate clearing of the inside surface of the tank, it is necessary to do the following operations **before fixing the shower head supplied with the shower:**
  - connect the shower to the water line
  - fill the tank with water
  - let the water come out from the upper fitting for 5 minutes
  - fix the shower head
- all interventions done to connect / disconnect the shower to and from the water line and to replace the shower head or the foot-wash tap require that the fittings fixed to the body of the shower **are necessarily held tight by means of a proper spanner.** This is important to avoid to compromise the tightness between the shower and the fitting

Fig. 2.5-1

Fitting of pressure relief and non return valve (Mod. M-S-N-E)
The pressure relief and non-return valve, supplied only with the solar shower models **M-S-N-E**, must be fitted to the cold water inlet with its arrow pointing towards the appliance **(1) and no interception** between the valve and the shower **(2)**.
The emptying of the tank is helped by a proper black lever placed on the body of the valve **(3)**.

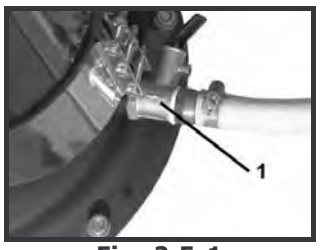

Fig. 2.5-1

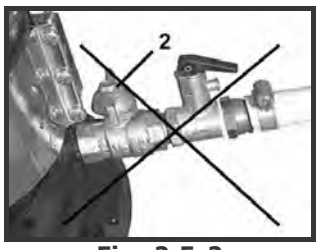

Fig. 2.5-2

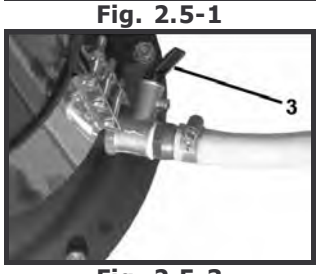

Fig. 2.5-3

Water characteristics
To extend the working life of the appliance, respect the following parameters, as foreseen by the European Directive 98/83/CE (regarding the quality of water intended for human use):
- **overall water hardness:** included between 15 and 50 °F (in particolar where water has undergone a softening or desalisation treatment)
- **chlorides:** 25 mg/l (max value 200 mg/l)
- **pH:** included between 6,5 and 9,5
- **conducibility:** 400 µS/cm (max value 2500 µS/cm)

Where water does not suite the above parameters, the warranty will decay automatically.
In particular, the solar shower model **M** is equipped with magnesium anode for protection against galvanic currents and every 8-12 months is compulsory his replacement.

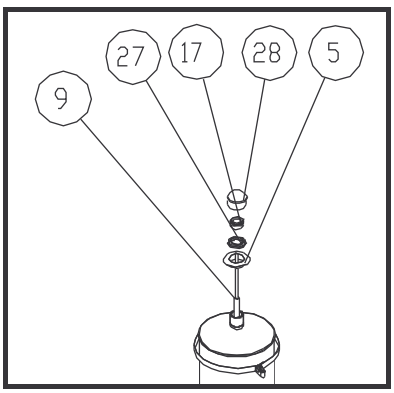

Fig. 2.5-4

To replace it do as follows:
- remove the black cover **(28)** located at the top
- unscrew the cap **(17)**
- remove the nut and **(27)** and the washer **(5)**
- unscrew the old anode **(9)** and replace it with the new one
- reposition the washer **(5)** and the nut **(27)**
- remount the cap **(17)**
- reposition the black cover **(28)**

3 INSTRUCTIONS TO USERS

3.1 RECOMMENDATIONS TO USERS

Read this booklet carefully, because it provides you with useful information concerning safety, installation, use and maintenance.
If the appliance is sold or moved to another owner, make sure that this booklet stays with the appliance: in this way the new owner and/or installer can consult it.
The appliance has been conceived for hot water production: any other use of it has to be considered dangerous and not suitable.
A wrong installation, caused by not observing the instructions given by the manufacturer, can cause injury to people, animals or other equipments for which the manufacturer cannot be considered responsible.
Do not place anything upon the appliance.
Packaging parts (plastic envelopes, polystyrene, clips, etc.) have to be kept away from children, because they can be dangerous. Moreover they have to be disposed of in compliance with local laws in force.
Do not tamper with any device factory calibrated or sealed.

IMPORTANT
- **Mod. S-N-E**
  During the winter period is NECESSARY to empty the appliance, leaving open the safety valve
- **Mod. M**
  During the winter period is NOT NECESSARY to empty the appliance
- **Mod. P(P3)-PE(P2)-C**
  During the winter period is NECESSARY to empty the appliance

IMPORTANT
If you require long periods with temperatures below 0 ° C, it is advisable to temporarily protect the appliance with an appropriate coverage.
To avoid any burn or scald danger, if the shower is left exposed to the sun for a long time without any withdrawal of hot water, pay attention and turn on water with the water mixer LEVER pointing down.
In case the shower is left under the sun WITH NO WATER inside the tank, it is absolutely necessary to protect it with NON TRANSPARENT materials and to open the pressure relief valve by means of its lever (if it is installed).
In case a SHUT-OFF-VALVE is fitted on the COLD WATER INLET, the shut-off-valve has never to be closed. If, for any reason, the shut-off-valve has to be closed, open the WATER MIXER and/or empty the shower completely.

IMPORTANT
Models P(P3)-PE(P2)-C
- **Once the water mixer has been opened, it will take about 15/20 seconds before the water starts to come out of the shower head due to the water supply pressure.**
- **Once the water mixer has been turned off, the water will continue to pour out of the shower head for about 30 seconds. When the thrust previously produced by the water supply pressure is over, the pouring will consequently stop.**

3.2 MAINTENANCE OF THE APPLIANCE

Cleaning the solar shower
Mod. M-S-N
The outer transparent tube of the solar shower has to be kept as clean as possible, because dust and dirtiness prevent sunrays from warming water at best, thus reducing the shower efficiency.
Use only water and neutral soap (for domestic use) with soft clothes to clean the shower, otherwise the outer tube could be scratched or loose its transparency. Use no solvents, acetic substances, anti-limestone or alcohol on the transparent methacrylate tube, because it could be damaged.

Cleaning the solar shower
Mod. E-C
Use only products for stainless steel with soft clothes to clean the shower, otherwise the outer tube could be scratched.

Cleaning the solar shower
Mod. P(P3)-PE(P2)
Use only water and neutral soap (for domestic use) with soft clothes to clean the shower, otherwise the outer tube could be scratched.

IMPORTANT
The manufacturer shall not be liable for damages caused by the use of solvents, anti-limestone or alcohol.

Replacement of the water mixer cartridge

1 - assembled water mixer

2 - loosen the screw of the mixer handle

3 - remove the handle

4 - undo the chromium-plated nut cover

5 - undo the brass nut

6 - remove the cartridge

Inspection and emptying
Mod. P(P3)-PE(P2)-C

Fig. 3.2-1

The inspection of the inside surface of the shower has to be done through a proper inspection plug that is located at the bottom of the shower.

The **emptying of the shower can be done in two different ways:**

- **method A:**
  - disconnect the shower from the water line
  - undo the inspection plug
  - tilt the shower
- **method B:**
  - disconnect the shower from the water line
  - remove the reducer
  - turn the water mixer handle to the "hot water" position
  - open the water mixer

In this second case, we recommend, once the shower tank has been emptied, to connect again the reducer previously removed.

Warnings

In case condensate forms inside the transparent methacrylate tube **(Mod. S-N)**, follow these instructions to get the best operation from the solar shower:

- empty the storage tank completely
- undo and remove the plug on the venting device **(1)** that is placed at the top of the shower
- leave the shower exposed to sun until condensate is absorbed completely
- screw the plug on the venting device
- fill the tank with cold water

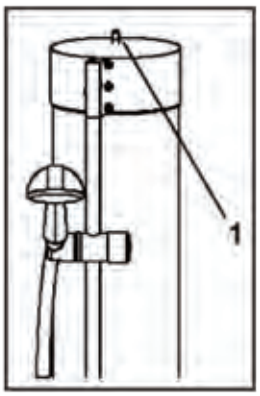

Fig. 3.2-1

IMPORTANTE

- **If the feed water is full of impurities, it is necessary to fit up a suitable filter.**
- **In order to get a correct operation for Mod. M-S-N-E:**
  - **Pmin: 2 bar**
  - **Pmax: 4 bar**
- **In order to get a correct operation for Mod. P(P3)-PE(P2)-C:**
  - **Pmin: 1 bar**
  - **Pmax: 3 bar**

3.3 WARRANTY CERTIFICATE

Solarjet is granted by the manufacturer against manufacturing or material defects, according to the current legislation in force, apart from natural changes caused by a long exposure to the sun.
The purchaser of the appliance shall exercise his warranty rights towards the dealer upon the following terms:

- 24 months from the delivery and/or purchasing date, for those buyers qualified as natural person acting with aims which are not included within the limits of its professional occupation **(directive 99/44/CEE)**
- 12 months from the delivery and/or purchasing date, for those buyers not included in point 1

The purchasing date has to be compulsory supported with a fiscal document (receipt note or invoice).
This warranty leaves unprejudiced all rights deriving from the above mentioned **Directive 99/44/CEE** and it neither exclude nor limits any rights deriving from other laws of the Legal System of the country where the appliance is used.
The warranty include neither deterioration nor changes of both the product and its components caused by:

a) wrong installation (use of the appliance with pressure above the maximum allowed or use of water with parameters not permitted)
b) wrong maintenance or non-maintenance
c) tampering done by non-authorised and/or non-qualified people
d) use of the product for uses different from the ones which it has been conceived for (use of substances other than water)
e) major force or catastrophic events (freeze, fire, flooding, lightning, acts of vandalism, etc...)
f) transport and/or bad conservation
g) any element or event which is not related to the usual use and operation of the appliance (limestone or mud formation, anomalous corrosion, hard or acid water even if caused by water treatment, wrong descaling or cleaning treatments)
h) use of spare parts, components or accessories, which are not the original ones supplied by the manufacturer

The **WARRANTY** applies only to the first buyer and it does not make provision for the replacement of the whole appliance.
If the manufacturer proves and recognises that the product or one of its components has a material defect, the manufacturer can either repair or replace the faulty part. In both cases the original warranty will be extended.

Place reserved to the data badge or the appliance identification: