

# Self-draining whirlpool pumps

# SPA Compact Spa

## OPERATING INSTRUCTIONS

### 1. Operating conditions

#### Standard construction

- For water circulation in spas, hydromassage bathtubs and whirlpools.
  - For clean water with a maximum temperature of 60 °C (140 °F). Limit the water at the inlet to the bathtub to a maximum temperature of 50 °C (122 °F).
  - Maximum water level in the bathtub or spa: 2,000 mm above the pump.
  - Maximum permissible hydrostatic pressure and pump discharge pressure: 2.5 bar (36.2 psi).
  - Maximum ambient temperature: 40 °C (104 °F).
- Sound pressure: < 70 dB (A).

To isolate the motor from pumped water the **Compact Spa** pumps are made with high quality plastic materials. Correct pipe connection and necessary precaution during installation along with use in accordance with the limits specified will ensure trouble-free operation .

**Follow these instructions.**

### 2. Installation

The **Compact Spa** pumps must be installed with the rotor axis horizontal and feet downwards in piping layouts in which **the filling and draining of the pump is obtained through the pipes, with filling and draining of the bathtub or spa.**

**Whirlpool tubs must be constructed so that the water cannot remain in the system after the tub has been drained.**

To allow for self-draining, mount the pump on a base positioned at a level equal to or higher than the bathtub or spa suction port and, to allow for filling, with the delivery port positioned at a level lower than that for normal filling (under the overflow discharge).

Installation beneath the skirt of a bathtub or spa which is closed externally with protection panels must provide at least one slot with a 5-10 mm

aperture (preferably between the panel and the floor) suitable for air recirculation for **ventilation of the motor.**

Mount the pump on a base located at least 40 mm (1<sup>1</sup>/<sub>2</sub> inches) above the intended mounting surface. For outdoor spas or whirlpools, the pump and electric parts must be installed within an enclosure for protection from the weather and flooding and installed on a base located at least 100 mm (4 inches) above the mounting surface.

Make sure installation allows access for servicing and inspection, disassembly or replacement of the pump.

**Follow standards for safety** (some safety standards are indicated in the section 4).

### 3. Pipes

#### Connections of pipes to the pump ports.

Use pipes made of PVC type, plastic material. The pump ports are designed to allow for direct cemented joints (fig. 1). The external thread allows for connection with an optional, removable union coupling (fig. 2).

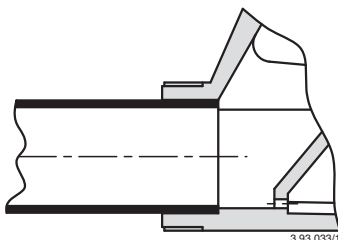


Fig. 1 Cemented joint.

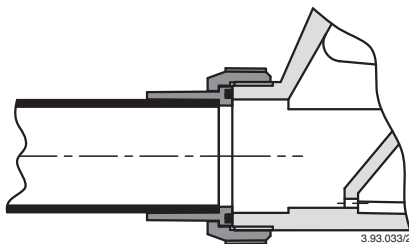


Fig. 2 Threaded union coupling.

To join the pipe to the pump or to the union coupling, use an adhesive or cement suitable for the ABS material. Follow carefully the instructions of the product chosen .

### **Tighten union couplings to the extent sufficient to ensure a tight seal.**

Avoid tightening too much as excessive torque may damage the pump or the union couplings themselves.

Make sure all joints are properly sealed.

The diameter of the pipes must not be smaller than the diameter of the pump ports.

Place a removable filter inside the bathtub or whirlpool suction port.

The suction pipe must have a minimum length of 500 mm and must lead upwards from the bathtub or whirlpool suction port to the pump suction port. The delivery pipe must also be positioned to allow for complete draining when the bathtub is drained.

## **4. Electrical connection**



Electrical connection must be carried out only by a qualified electrician in accordance with local regulations.

Follow **safety standards** EN 60335-2-41, EN 60335-2-60 or UL 1795 and UL 1081 and adopt all safety measures indicated in installation standards.

Make **electric bonding connections**.

Connect only to a circuit protected by a **ground-fault circuit-interrupter** with a rated residual operating current I<sub>ΔN</sub> not exceeding 30 mA.

**The unit must be properly earthed.**

Connect the earthing (grounding) conductor to the terminal with the ⚡ marking.

Compare the mains voltage with the name-plate data and connect the supply conductors to the terminals as indicated in the diagram inside the terminal box cover.

**ATTENTION: never allow washers or other metal parts to fall into the internal cable opening between the terminal box and stator.**

If this occurs, dismantle the motor to recover the object which has fallen inside.

The flexible power supply cord must be at least of the H05 RN-F or H05 VV-F type. For outdoor whirlpool or spas the mains cable must be at least of the H07 RN-F type.

All the electrical components must be located outside the reach of individuals who use the pool and must be positioned or attached without any risk of their falling into the bathtub.

Switch for disconnecting the pump from mains power supply: install a device for disconnection from the mains with a contact separation of at least 3 mm in all poles.

With a three-phase motor install an overload protection device appropriate for the rated current of the pump.

**Single-phase SPAM pumps** are supplied with a capacitor connected to the terminals and (for 220-240 V - 50 Hz) with an incorporated thermal protector.

## **5. Starting and operation**

**ATTENTION: never run the pump dry, not even for a short trial run.**

Start the pump when the bathtub has been filled. Stop the pump before the bathtub is drained.

To avoid damage to the pump due to prolonged operation in a no-water situation make sure the installed unit has level detectors or sensors to impede starting and to provide automatic stopping if there is no water in the bathtub or install a timer to protect against the risk of prolonged accidental operation.

**At first start-up or following a long idle period**, check that the shaft turns by hand.

For this purpose use the screwdriver notch on the shaft end ventilation side. Turn the shaft by hand only in the direction indicated by the arrows on the pump casing.

Note that a slight degree of resistance to rotation is normal; this is due to friction caused by the mechanical seal.

The pump might be jammed by an obstruction, foreign matter, sticking of mechanical seal surfaces or other causes.

If the shaft cannot be freed by hand, the pump will have to be dismantled and cleaned.

**With three-phase motors check the direction of rotation.**

Do not start the motor if the shaft is jammed. **If jammed, the impeller may unscrew should the motor start rotating backwards.** Reverse rotation can also damage the mechanical seal.

**Momentarily start the motor** to make sure pump shaft rotation corresponds to the direction indicated by the arrows on the pump casing: rotation is clockwise when viewing the shaft from the fan end.

Otherwise, disconnect electrical power and reverse the connections of two phases.

Never drop or insert any object into any opening.

Do not operate this unit without the guard over the suction fitting

## 6. Maintenance

Clean the filter inserted in the bathtub suction opening at regular intervals.

The pump does not require servicing except for disassembly for cleaning and removal of any obstruction from inner parts and the draining hole when, with use and in the course of time, performance or self-draining capacity are found to be reduced.

Avoid cleaning an installed pump by hosing down directly with jets of water without protection panels on the bathtub.



**Disconnect electrical power before any servicing operation and make sure the pump cannot be accidentally switched on.**

## 7. Dismantling

For dismantling and re-assembly see construction in the cross-section drawing (page 14).

Remove the motor assembly with the lantern bracket (32.00) from the pump casing (14.00), after removing the screws (14.24), the nuts (14.28) and the washers (14.29), levering them out with two screwdrivers in diametrically opposed positions.

To remove the impeller (28.00) insert a large straight-blade screwdriver in the slot on the shaft (78.00) at the ventilation end. Grip the impeller with one hand and unscrew it, turning the shaft **counter-clockwise** and twisting with both hands (fig. 3a).

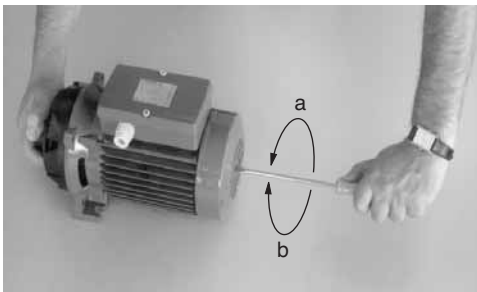


Fig. 3 Dismantling (a) and remounting (b) the impeller

If it is not possible to hold or move the shaft with the screwdriver, remove the fan cover (90.00) and motor fan (88.00) and unscrew the impeller by gripping the shaft with a suitable wrench.

With the impeller the rotating part of the mechanical seal (36.00) will remove.

## 8. Re-assembly

To replace the mechanical seal (36.00) fit the rotating part over the impeller hub (28.00) and push the spring right down as far as the front shoulder. In this way, correct spring compression will be ensured in subsequent assembly.

Lubricate the seal with water and align the impeller on the motor shaft.

**ATTENTION: with the three-phase models, to avoid the unscrewing (and breaking) of the impeller should the motor start rotating backwards, clean the threaded shaft end and apply on the first half of the threaded part Loctite 638 (to avoid unscrewing due to the resistant-force of the water in the case of a backward rotation).**

Grip the impeller with one hand and turn the shaft with a screwdriver in the **clockwise** direction until tight.

With this operation the front surfaces of the mechanical seal come into contact without rubbing against each other during tightening.

Clean the O-ring (14.20) and seal surfaces with water.

**When replacing the motor assembly with the impeller, be careful to insert the locating lug inside the pump casing (14.00) into the locating slot on the diffuser cover (27.00).**

## 9. Spare parts

When ordering spare parts, please quote the data stamped on the name-plate, the part designation and the position number of each spare part required (in accordance with the cross-section drawing on page 14).

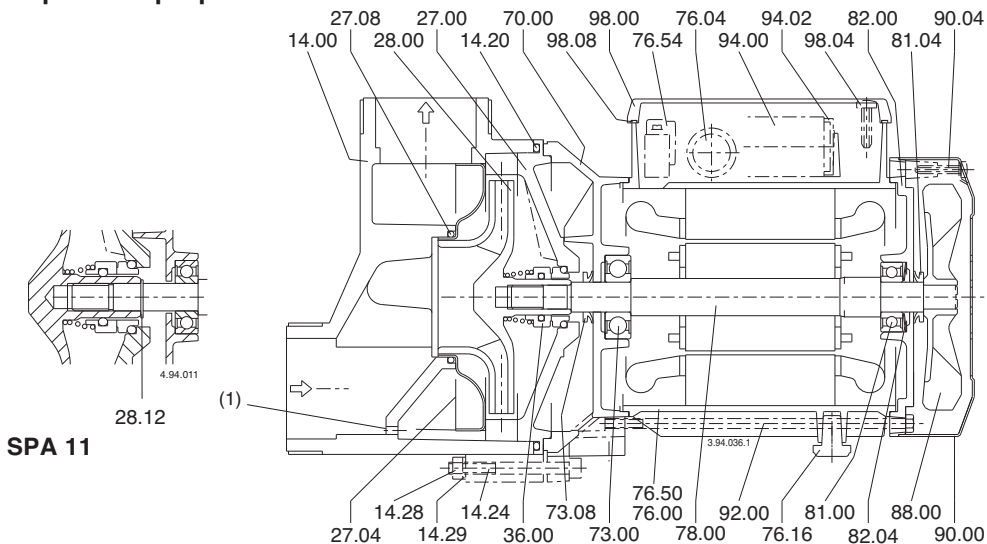


For safety and hygiene, any **pumps that require inspection/repair** must be drained and carefully cleaned inside and outside before dispatch/submission.

Through the pump ports, wash down all accessible parts.

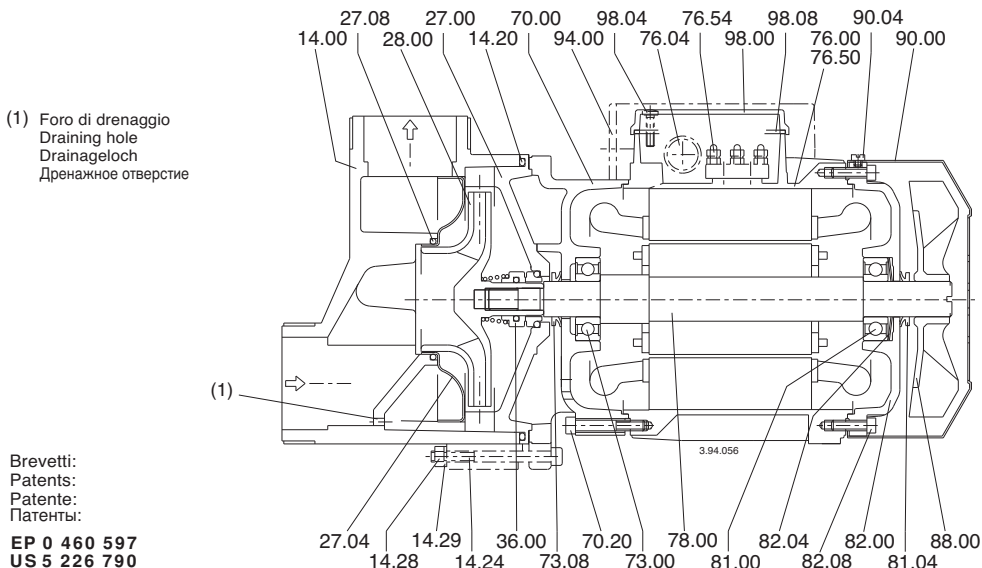
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**Disegni in sezione**  
**Cross section drawings**  
**Schnittzeichnungen**  
**Чертежи в разрезе**



**SPA 11**

**SPA 11, 21/A, 31/A**



- (1) Foro di drenaggio  
 Draining hole  
 Drainage Loch  
 Дренажное отверстие

Brevetti:  
 Patents:  
 Patente:  
 Патенты:

EP 0 460 597  
 US 5 226 790

**SPA 41**

<b>Nr.</b>	<b>Denominazione</b>
14.00	Corpo pompa
14.20	O-ring
14.24	Vite
14.28	Dado
14.29	Rosetta
27.00	Coperchio diffusore
27.04	Parete diffusore
27.08	O-ring
28.00	Girante
36.00	Tenuta meccanica
70.00	Lanterna di raccordo
73.00	Cuscinetto
73.08	V-ring
76.00	Carcassa con avvolg.
76.04	Pressacavo
76.16	Appoggio
76.54	Morsettiera
78.00	Albero-rotore
81.00	Cuscinetto
81.04	V-ring
82.00	Coperchio motore
82.04	Molla di compensaz.
88.00	Ventola
90.00	Calotta
90.04	Vite
92.00	Tirante
94.00	Condensatore
94.02	Anello ferma cond.
98.00	Coperchio scat. mors
98.04	Vite
98.08	Guarnizione

<b>Nr.</b>	<b>Teile-Benennung</b>
14.00	Pumpengehäuse
14.20	Runddichtung
14.24	Schraube
14.28	Mutter
14.29	Scheibe
27.00	Diffusor-Deckel
27.04	Diffusor-Wand
27.08	Runddichtung
28.00	Lauftrad
36.00	Gleitringdichtung
70.00	Antriebslaterne
73.00	Wälzlager
73.08	V-Ring
76.00	Motorgehäuse mit Wicklung
76.04	Kabelführung
76.16	Stütze
76.54	Klemmenbrett
78.00	Welle mit Rotorpaket
81.00	Wälzlager
81.04	V-Ring
82.00	Motorlagergehäuse
82.04	Federscheibe
88.00	Lüfterrad
90.00	Lüfter-Haube
90.04	Schraube
92.00	Verbindungsschraube
94.00	Kondensator
94.02	Sicherungsring für Kond.
98.00	Klemmenkastendeckel
98.04	Schraube
98.08	Flachdichtung

<b>Nr.</b>	<b>Part designation</b>
14.00	Pump casing
14.20	O-ring
14.24	Screw
14.28	Nut
14.29	Washer
27.00	Diffuser cover
27.04	Diffuser wall
27.08	O-ring
28.00	Impeller
36.00	Mechanical seal
70.00	Lantern bracket
73.00	Ball bearing
73.08	V-ring
76.00	Motor casing with winding
76.04	Cable gland
76.16	Support
76.54	Terminal board
78.00	Shaft with rotor packet
81.00	Ball bearing
81.04	V-ring
82.00	Motor end shield
82.04	Compensating spring
88.00	Motor fan
90.00	Fan cover
90.04	Screw
92.00	Tie-bolt
94.00	Capacitor
94.02	Capacitor gland
98.00	Terminal box cover
98.04	Screw
98.08	Gasket

<b>N°</b>	<b>Название</b>
14.00	Корпус насоса
14.20	Уплотнительное кольцо
14.24	Винт
14.28	Гайка
14.29	Шайба
27.00	Крышка диффузора
27.04	Стенка диффузора
27.08	Уплотнительное кольцо
28.00	Рабочее колесо
36.00	Мех. уплотнение
70.00	Соединительная втулка
73.00	Подшипник
73.08	Шевронная манжета
76.00	Каркас двигателя с обмоткой
76.04	Зажимное устройство для кабелей
76.16	Опора
76.54	Зажимная коробка
78.00	Вал-ротор
81.00	Подшипник
81.04	Шевронная манжета
82.00	Крышка двигателя
82.04	Уравновешивающая пружина
88.00	Вентилятор
90.00	Колпачок
90.04	Винт
92.00	Анкерный болт
94.00	Конденсатор
94.02	Стопорное кольцо конденсатора
98.00	Крышка зажимной коробки
98.04	Винт
98.08	Уплотнение

**I****DICHIARAZIONE DI CONFORMITÀ**

Noi CALPEDA S.p.A. dichiariamo sotto la nostra esclusiva responsabilità che le Pompe SPA, SPAM, tipo e numero di serie riportati in targa, sono conformi a quanto prescritto dalle Direttive 2004/108/CE, 2006/42/CE, 2006/95/CE e dalle relative norme armonizzate.

**GB****DECLARATION OF CONFORMITY**

We CALPEDA S.p.A. declare that our Pumps SPA, SPAM, with pump type and serial number as shown on the name plate, are constructed in accordance with Directives 2004/108/EC, 2006/42/EC, 2006/95/EC and assume full responsibility for conformity with the standards laid down therein.

**D****KONFORMITÄTSERKLÄRUNG**

Wir, das Unternehmen CALPEDA S.p.A., erklären hiermit verbindlich, daß die Pumpen SPA, SPAM, Typbezeichnung und Fabrik-Nr. nach Leistungsschild den EG-Vorschriften 2004/108/EG, 2006/42/EG, 2006/95/EG entsprechen.

**F****DECLARATION DE CONFORMITE**

Nous, CALPEDA S.p.A., déclarons que les Pompes SPA, SPAM, modèle et numero de série marqués sur la plaque signalétique sont conformes aux Directives 2004/108/CE, 2006/42/CE, 2006/95/CE.

**E****DECLARACION DE CONFORMIDAD**

En CALPEDA S.p.A. declaramos bajo nuestra exclusiva responsabilidad que las Bombas SPA, SPAM, modelo y numero de serie marcados en la placa de características son conformes a las disposiciones de las Directivas 2004/108/CE, 2006/42/CE, 2006/95/CE.

**DK****OVERENSSTEMMELSESERKLÆRING**

Vi CALPEDA S.p.A. erklærer hermed at vore pumper SPA, SPAM, pumpe type og serie nummer vist på typeskiltet er fremstillet i overensstemmelse med bestemmelserne i Direktiv 2004/108/EC, 2006/42/EC, 2006/95/EC og er i overensstemmelse med de heri indeholdte standarder.

**P****DECLARAÇÃO DE CONFORMIDADE**

Nós, CALPEDA S.p.A., declaramos que as nossas Bombas SPA, SPAM, modelo e número de série indicado na placa identificadora são construídas de acordo com as Directivas 2004/108/CE, 2006/42/CE, 2006/95/CE e somos inteiramente responsáveis pela conformidade das respectivas normas.

**NL****CONFORMITEITSVERKLARING**

Wij CALPEDA S.p.A. verklaren hiermede dat onze pompen SPA, SPAM, pomptype en serienummer zoals vermeld op de typeplaat aan de EG-voorschriften 2004/108/EU, 2006/42/EU, 2006/95/EU voldoen.

**SF****VAKUUTUS**

Me CALPEDA S.p.A. vakuutamme että pumppumme SPA, SPAM, malli ja valmistusnumero tyyppikilvistä, ovat valmistettu 2004/108/EU, 2006/42/EU, 2006/95/EU direktiivien mukaisesti ja CALPEDA ottaa täyden vastuun siitä, että tuotteet vastaavat näitä standardeja.

**S****EU NORM CERTIFIKAT**

CALPEDA S.p.A. intygat att pumpar SPA, SPAM, pumptyp och serienummer, visade på namnplåten är konstruerade enligt direktiv 2004/108/EC, 2006/42/EC, 2006/95/EC. Calpeda åtar sig fullt ansvar för överensstämmelse med standard som fastställts i dessa avtal.

**GR****ΔΗΛΩΣΗ ΣΥΜΦΩΝΙΑΣ**

Εμείς ως CALPEDA S.p.A. δηλώνουμε ότι οι αντλίες μας αυτές SPA, SPAM, με τύπο και αριθμό σειράς κατασκευής όπου αναγράφεται στην πινακίδα της αντλίας, κατασκευάζονται σύμφωνα με τις οδηγίες 2004/108/ΕΟΚ, 2006/42/ΕΟΚ, 2006/95/ΕΟΚ, και αναλαμβάνουμε πλήρη υπευθυνότητα για συμφωνία (συμμόρφωση), με τα στάνταρς των προδιαγραφών αυτών.

**TR****UYGUNLUK BEYANI**

Bizler CALPEDA S.p.A. firması olarak SPA, SPAM, Pompalarımızın, 2004/108/EC, 2006/42/EC, 2006/95/EC, direktiflerine uygun olarak imal edildiklerini beyan eder ve bu standartlara uygunluğuna dair tüm sorumluluğu üstleniriz.

**RU****ДЕКЛАРАЦИЯ СООТВЕТСТВИЯ**

Компания "Calpeda S.p.A." заявляет с полной ответственностью, что насосы серий SPA, SPAM, тип и серийный номер которых указывается на заводской табличке соответствуют требованиям нормативов 2004/108/CE, 2006/42/CE, 2006/95/CE.

Montorso Vicentino, 01.2010

Il Presidente  
Licia Mettifogo



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