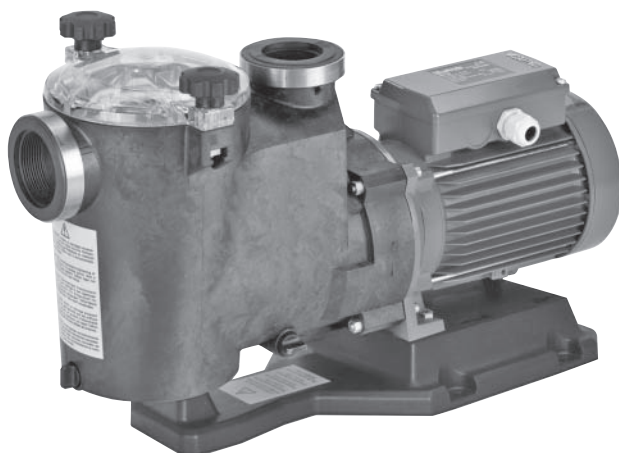


Pompe autoadescanti per piscine
Self-priming swimming pool pumps
Selbstansaugende Schwimmbadpumpen
Pompes autoamorçantes pour piscines
Bombas autoaspirantes para piscinas
Själv-evakuerande poolpumpar
Zelfaanzuigende zwembadpomp
Самозаливающиеся насосы для бассейнов
自吸式泳池泵

MPC

ISTRUZIONI ORIGINALI PER L'USO
OPERATING INSTRUCTIONS
BETRIEBSANLEITUNG
INSTRUCTIONS POUR L'UTILISATION
INSTRUCCIONES DE USO
DRIFT/INSTALLATIONSANVISNINGAR
BEDIENINGSVOORSCHRIFT
Инструкции по эксплуатации
安装使用手册

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1. GENERAL INFORMATION

Before using the product carefully read the information contained in this instruction manual, the manual should be kept for future reference.

Italian is the original language of this instruction manual, this language is the reference language in case of discrepancies in the translations.

This manual is part of the essential safety requirement and must be retained until the product is finally de-commissioned.

The customer, in case of loss, can request a copy of the manual by contacting Calpeda S.p.A. or their agent, specifying the type of product data shown on the label of the machine (see 2.3 Marking)

Any changes, alterations or modifications made to the product or part of it, not authorized by the manufacturer, will revoke the “CE declaration” and warranty.

This appliance should not be operated by children younger than 8 years, people with reduced physical, sensory or mental capacities, or inexperienced people who are not familiar with the product, unless they are given close supervision or instructions on how to use it safely and are made aware by a responsible person of the dangers its use might entail.

Children must not play with the appliance.

It is the user's responsibility to clean and maintain the appliance.

Children should never clean or maintain it unless they are given supervision.

Read carefully the installation section which sets forth:

- The maximum permissible structural working pressure (Chapter 3.1).
- The type and section of the power cable (Chapter 6.5).
- The type of electrical protection to be installed (Chapter 6.5).

1.1. Symbols

To improve the understanding of the manual, below are indicated the symbols used with the related meaning.



Information and warnings that must be observed, otherwise there is a risk that the machine could damage or compromise personnel safety.



The failure to observe electrical information and warnings, could damage the machine or compromise personnel safety.



Notes and warnings for the correct management of the machine and its parts.



Operations that could be performed by the final user. After carefully reading of the instructions, is responsible for maintenance under normal conditions. They are authorized to affect standard maintenance operations.



Operations that must be performed by a qualified electrician. Specialized technician authorised to affect all electrical operations including maintenance. They are able to operate with in the presence of high voltages.



Operations that must be done performed by a qualified technician. Specialized technician able to install the device, under normal conditions, working during “maintenance”, and allowed to do electrical and mechanical interventions for maintenance. They must be capable of executing simple electrical and mechanical operations related to the maintenance of the device.



Indicates that it is mandatory to use individual protection devices.



Operations that must be done with the device switched off and disconnected from the power supply.



Operations that must be done with the device switched on.

1.2. Manufacturer name and address

Manufacturer name: Calpeda S.p.A.
Address: Via Roggia di Mezzo, 39
36050 Montorso Vicentino - Vicenza / Italia
www.calpeda.it

1.3. Authorized operators

The product is intended for use by expert operators divided into end users and specialized technicians. (see the symbols above).



It's forbidden, for the end user, carry out operations which must be done only by specialized technicians. The manufacturer declines any liability for damage related to the non-compliance of this warning.

1.4. Warranty

For the product warranty refer to the general terms and conditions of sale.



The warranty covers only the replacement and the repair of the defective parts of the goods (recognized by the manufacturer).

The Warranty will not be considered in the following cases:

- Whenever the use of the device does not conform to the instructions and information described in this manual.
- In case of changes or variations made without authorization of the manufacturer.
- In case of technical interventions executed by a non-authorized personnel.
- In case of failing to carry out adequate maintenance.

1.5. Technical assistance

Any further information about the documentation, technical assistance and spare parts, shall be requested from: Calpeda S.p.A. (paragraph 1.2).

2. TECHNICAL DESCRIPTION

Self-priming swimming pool pumps with built-in strainer.

The pump is made with high quality plastic materials, corrosion and sand erosion resistant.

With stainless steel diffuser.

Base-plate kit.

2.1. Intended use

For clean or slightly dirty water with solids in suspension, with a maximum temperature of 60 °C.

2.2. Improper use

The device is designed and built only for the purpose described in paragraph 2.1.



Improper use of the device is forbidden, as is use under conditions other than those indicated in these instructions.

Improper use of the product reduces the safety and the efficiency of the device, Calpeda shall not be responsible for failure or accident due to improper use.

2.3. Marking

The following picture is a copy of the name-plate that is on the external case of the pump.

1 Pomptype 2 Capaciteit 3 Opvoerhoogte 4 Motorvermogen 5 Voeding voltage 6 Nom. motorstroom 7 Opmerkingen 8 Frequentie 9 Operation Duty 10 Isolatieklasse 11 Gewicht 12 cosφ 13 Toerental tpm 14 Protection 15 Serienummer 16 Certificaat		Voorbeeld pomp typeplaatje	
1	XXXXXXX	calpeda	CE
2	XXXXXXX	MONTORSO VICENZA	16
3	XXXXXXX	1	15
4	Q min/max X/X m³/h	2	14
5	H max/min X/X m	3	13
6	X kW (XHp) S.F.	4	12
7	220/230V V3~50Hz	5	11
8	X/X A	6	
9	XXXXXXX	7	
10		8	
11		9	
12		10	

3. TECHNICAL FEATURES

3.1. Technical data

Dimensions and weight (see technical catalogue).

Nominal speed 2900/3450 rpm

Protection IPX4

Supply voltage / Frequency:

- up to 240V 1~ 50/60 Hz

- up to 480V 3~ 50/60 Hz

Check that the mains frequency and voltage correspond to the electrical characteristics shown on the indicator plate.

The electric data marked on the label are referred to the nominal power of the motor.

Sound pressure: < 70 dB (A). MPC7: 72 dB (A).

Maximum starts/hour: 10 at regular intervals.

Maximum permissible pressure in the pump casing: 25 m (2,5 bar).

3.2. Operating conditions

Installation in well ventilated location protected from the weather, with a maximum ambient temperature of 40 °C.

4. SAFETY

4.1. General provisions



Before using the product it is necessary to know all the safety indications.

Carefully read all operating instructions and the indications defined for the different steps: from transportation to disposal.

The specialized technicians must carefully comply with all applicable standards and laws, including local regulations of the country where the pump is sold.

The device has been built in conformity with the current safety laws. The improper use could damage people, animals and objects.

The manufacturer declines any liability in the event of damage due to improper use or use under conditions other than those indicated on the name-plate and in these instructions.



Follow the routine maintenance schedules and the promptly replace damaged parts, this will allow the device to work in the best conditions. Use only original spare parts provided from Calpeda S.p.A or from an authorized distributor.



Don't remove or change the labels placed on the device.

Do not start the device in case of defects or damaged parts.



Maintenance operations, requiring full or partial disassembly of the device, must be done only after disconnection from the supply.

4.2. Safety devices

The device has an external case that prevents any contact with internal parts.

4.3. Residual risks

The appliance, designed for use, when used in-line with the design and safety rules, doesn't have residual risks.

4.4. Information and Safety signals

For this kind of product there will not be any signals on the product.

4.5. Individual protection devices

During installation, starting and maintenance it is suggested to the authorized operators to consider the use of individual protection devices suitable for described activities.

During ordinary and extraordinary maintenance interventions, safety gloves are required.

Signal individual protection device



HAND PROTECTION

(gloves for protection against chemical, thermal and mechanical risks).

5. TRANSPORTATION AND HANDLING

The product is packed to maintain the content intact. During transportation avoid to stack excessive weights. Ensure that during the transportation the box cannot move.

It is not necessary to use any special vehicle to transport the packaged device.

The transport vehicles must comply, for the weight and dimensions, with the chosen product (see technical catalogue dimensions and weights).

5.1. Handling

Handle with care, the packages must not receive impacts.

Avoid to impact onto the package materials that could damage the pump.

If the weight exceeds 25 Kg the package must be handled by two person at the same time.

6. INSTALLATION

6.1. Dimensions

For the dimensions of the device (see technical catalogue).

6.2. Ambient requirements and installation site dimensions

The customer has to prepare the installation site in order to guarantee the right installation and in order to fulfill the device requirements (electrical supply, etc...). The place where the device will be installed must fulfill the requirements in the paragraph 3.2.

It's Absolutely forbidden to install the machine in an environment with potentially explosive atmosphere.

6.3. Unpacking



Inspect the device in order to check any damages which may have occurred during transportation.

Package material, once removed, must be discarded/recycled according to local laws of the destination country.

6.4. Installation

The **MPC Compact Pool** pumps must be installed in well ventilated locations protected from the weather, with the rotor axis horizontal and feet downwards.

Place the pump as close as practicable to the suction source.



To reduce the risk of electric shock install the pump at least 3 m from the inside walls of a swimming pool. For use as a pump in outdoor locations provide suitable protection and mount the pump on an insulating base of at least 100 mm height. Follow **section 6.5**.

Provide space around the unit for **motor ventilation**, easier inspection, removal of the strainer basket, filling and draining the pump and checking (with a screwdriver) for free rotation of the shaft (**fig. 1**). With three-phase motors a sight check of the direction of shaft rotation will be required.

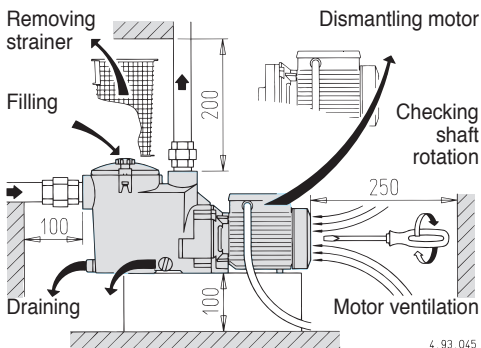


Fig. 1 Minimum access for servicing (mm)

6.4.1. Pipes

Provide a diameter assuring a liquid flow not greater than 1.5 m/s for suction and 3 m/s for delivery.

The pipe diameters must never be smaller than the pump connection ports.

ATTENTION: ensure the inside of pipes are clean and unobstructed before connection.

A **concentrated sand content** with particles larger than the radial clearance between the impeller and the stainless steel wear-ring (about 1 mm) can cause early wear damage and a reduction of the pump performance of about 10%.

For a hydrostatic pressure test of the piping with a pressure higher than 2.5 bar isolate the pump from the rest of the system (close inlet and outlet valves before and after the pump).

6.4.2. Connecting the pipes

Use pipes or fittings in plastic material.

For connection to the threaded ports of the pump casing use a plastic pipe thread sealant (for instance: Loctite 5331).

Teflon tape not recommended. Do not use hemp.

ATTENTION: avoid excessive tightening of pipes or fittings in threaded ports.

Tighten the pipes or fittings only to the degree required to ensure a tight seal.

Excessive torque may cause damage to the pump.

To join metal piping, first connect a transition union with a plastic tailpiece to the threaded port of the pump casing. **Coupling dissimilar materials may cause corrosion and cracks** due to non-uniform expansion and contraction in thermal cycling applications.

Secure all pipes to supports and connect them so that they do not transmit stress, strain or vibration to the pump. The pump must not be subject to the weight or thermal expansion of the piping.

Strain from the piping may damage or warp the pump casing and cause leakage.

6.4.3. Suction pipe

The suction pipe must be perfectly airtight.

With a **pump located below water level** (inflow under positive suction head) (**section 13., fig. 7**), install inlet and outlet valves to isolate the pump.

With a **pump located permanently above the water level** (suction lift operation), with various suction pipes (for skimmers, main drain, fitting for vacuum cleaner), connect all the pipes with their own gate valve to a manifold. As far as possible, locate the pipes and the manifold below water level with the pump being reached by a single vertical pipe (**see section 14., figure 8b and section 7.2.3.**).

With a pump located permanently above the water level of a swimming pool, avoid suction lifts higher than 3 m with respect to the main drain. With a suction lift above 1.5 m fit a check valve (accessible) in the suction line from the main drain.

In operating with flexible hoses, use a reinforced spiral suction hose in order to avoid hose narrowing due to suction vacuum.

6.4.4. Delivery pipe

Fit a gate valve in the delivery pipe to adjust delivery and head.

Install a pressure gauge.

6.5. Electrical connection



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

Follow all safety standards.

The unit must be properly earthed (grounded).

Connect the earthing (grounding) conductor to the terminal with the $\oplus$ marking.

Compare the frequency and mains voltage with the name-plate data and connect the supply conductors to the terminals in accordance with the appropriate 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.

If the terminal box is provided with an inlet gland, use a flexible power supply cord of the H07 RN-Ftype with section of cable not less than (par. 16 TAB 1).

If the terminal box is provided with an inlet bushing, connect the power supply cord through a conduit.

For use in swimming pools, garden ponds and similar places, a **residual current device** with ΔN not exceeding 30 mA must be installed in the supply circuit. Install a **device for disconnection from the mains** (switch) 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 **MPCM**, are supplied with a capacitor connected to the terminals and (for 220-240 V - 50 Hz) with an incorporated thermal protector.

In Austria pumps to be used in swimming pools and garden ponds should be equipped with a fixed connection line according to ÖVE B/ EN 60555 Part 1 to 3; power supply should be via a ÖVE tested isolating transformer whereby the secondary nominal voltage should not exceed 230V.



ATTENTION: When the pump is fed by a frequency converter, the minimum frequency should not fall below 25Hz and in any case the total head of the pump should never be lower than 3 m.

7. STARTUP AND OPERATION

7.1. Preliminary checks before start-up of the pump

Do not start-up the device in case of damaged parts.

7.2. First starting



7.2.1. Checking the direction of rotation

ATTENTION: when the pump is started for the first time, **with three-phase motors check the direction of rotation.**

With the three-phase models **MPC 51, 61, 71**, check the direction of rotation before filling the pump (see also **section 8.4.**).

First check that the shaft turns by hand.
For this purpose use the screwdriver notch on the shaft end at the motor fan side. Turn the shaft by hand only in the direction indicated by the arrows on the pump casing.

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 check rotation of the pump shaft, which must be as shown by the arrows on the pump casing: clockwise when viewing the shaft from the motor end. Otherwise, disconnect electrical power and reverse the connections of two phases.

7.2.2. Filling

ATTENTION: avoid running dry.

When operating with the **pump below water level** (inflow under positive suction head), fill the pump by opening the suction gate valve slowly and completely, keeping the delivery gate valve open to release the air.

When the pump is located above the water level (suction lift operation) fill the pump with water up to suction port level through the opening on the strainer after removing the cover (**fig. 2**).

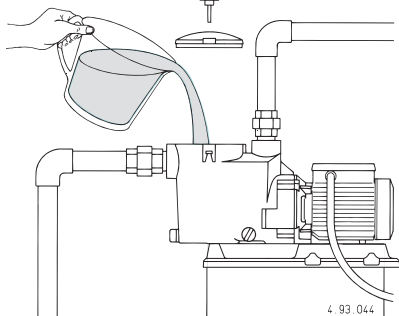


Fig. 2 Filling

After starting, check that the pump works within its field of performance and that the absorbed current shown on the name-plate is not exceeded; otherwise adjust the delivery gate valve.

Avoid long operation with a closed valve.

7.2.3. Self-priming

(Capability to clear the air in the suction pipe when starting **with the pump located above the water level** and when the suction pipe cannot be filled manually, as in the case of a missing foot valve).

Maximum suction lifts and minimum self-priming times (see the data sheet) are reached with a standard electric motor ($n = 2900$ rpm), air-free water with a temperature below 25°C and a single suction pipe with inlet diameter equal to that of the suction connection of the pump.

Conditions for self-priming:

- Pump casing filled with water up to suction port level before starting.

Note that with suction lift above 1,5-2 m (without a foot valve or a check valve into the suction pipe) the filling operation must be repeated before each start-up.

- Suction and discharge valves completely opened and pipes not obstructed.
- Strainer basket not obstructed.
- Suction pipe with connections perfectly airtight, and properly immersed in the water to be lifted.
- O-ring on the strainer casing and mechanical seal perfectly airtight (properly seated, clean and not damaged).
- Hand wheels on strainer cover and thumbscrew drain plug on strainer casing tightened to prevent air entering.
- Discharge pipe without check valve, with minimum 80 cm straight vertical free pipe above discharge port. With suction lift below 2 m vertical section on the pump can be 50 cm. With suction lift lower than 1 m, an elbow can be mounted directly onto the delivery port without a vertical section of piping.

On expiry of the foreseen times, make sure (through the transparent strainer cover) pump priming has taken place and that water is flowing regularly.

If the pump does not prime, check all conditions above and remedy where necessary.

Repeat the priming operation again after the pump has been completely filled with cold water.

Avoid long operation with an unprimed pump or with a suction pipe not immersed in the water i.e. if water level of the pool falls too low.

By lowering the water to a level below the skimmers and other suction ports (for emptying of the pool), keep open only the gate valve in the pipe for suction from the bottom (main drain).

7.3. Switch off of the pump



The appliance must be switch off every time there are faults. (see troubleshooting).

The product is designed for a continuous duty, the switch off is performed by disconnecting the power supply by means the expected disconnecting devices. (see paragraph "6.5 Electrical connection").

8. MAINTENANCE

Before any operations it's necessary to disconnect the power supply.

If required ask to an electrician or to an expert technician.



Every maintenance operations, cleaning or repairation executed with the electrical system under voltage, it could cause serious injuries to people.



If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

In case of extraordinary maintenance, or maintenance operations that require part-removing, the operator must be a qualified technician able to read schemes and drawings.

It is suggested to register all maintenance operation executed.



During maintenance keep particular attention in order to avoid the introduction of small external parts, that could compromise the device safety. It is forbidden to execute any operations with the direct use of hands. Use water-resistant, anti-cut gloves to disassemble and clean the filter or in other particular cases.



During maintenance operations external personnel is not allowed.

Maintenance operations that are not described in this manual must be made only by special personnel authorized by Calpeda S.p.A.

For further technical information regarding the use or the maintenance of the device, contact Calpeda S.p.A.

8.1. Routine maintenance



The motors with supply current directly switched by thermally sensitive switches can start automatically.



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

Inspect and clean the strainer basket periodically.

The frequency of cleaning depends on operation time of the pump, pool environment, wind (for open air swimming pools) and the number and behaviour of the bathers.

With the pump located below water level, close the suction and delivery gate valves before removing the cover.

The strainer can be easily accessed by removing the strainer cover (fig. 3).

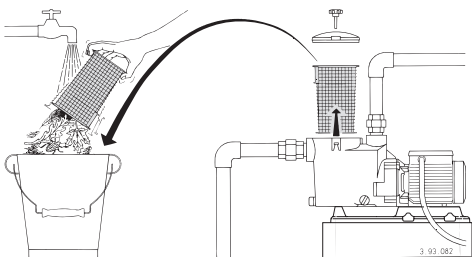


Fig. 3 Removing and cleaning the strainer

ATTENTION: do not use oil to lubricate the O-ring seal. Use only water and neutral soap to clean the transparent strainer cover. Do not use solvents.

After cleaning, put the strainer basket in its proper position. Fill with water up to suction port level (see section 7.2.2.).

Position the strainer cover properly with the O-ring seal on the casing and tighten the handwheels uniformly.



Disinfectant or chemical products for water treatment must not be poured directly into the pump.

Risk of reactions and emission of harmful fumes. Risk of corrosion in stagnant water conditions (also with an increase in temperature and decrease of pH value).

If the event of prolonged standstill periods or if freezing may be expected, drain the pump completely by removing the two thumbscrew drain plugs with reusable O-ring gaskets (fig. 4).

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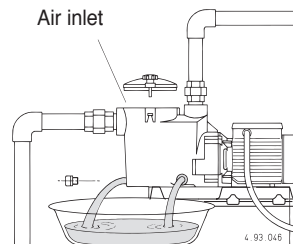


Fig. 4 Draining

Tighten drain plugs by hand. Do not use pliers or other tools.

If necessary, use pliers only to unscrew. Excessive torque may cause damage.

ATTENTION: after a long idle period, before restarting the unit, fill the pump casing with water and check with a screwdriver that the shaft is not jammed.

If the shaft is jammed, dismantle the motor and remove the cause.

8.2. Dismantling the system

Close the suction and delivery gate valves and drain the pump casing before dismantling the pump.

8.3. Dismantling the pump



Drain the pump casing before dismantling (see fig. 4 and section 12.). For dismantling and reassembly see construction in the cross-section drawing (section 15.).

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. 5a).

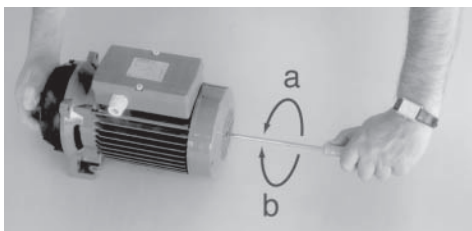


Fig. 5 Dismantling (a) and remounting (b) the impeller

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 be removed.

8.4. Assembling

To replace to mechanical seal (36.00) place the rotating part of the seal on 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 243.

If this type of product is not used, check the direction of rotation before filling the pump (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 (fig. 5b). 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) (fig. 6).

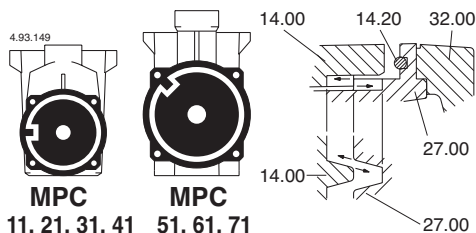


Fig. 6 Locating lug/slot for assembling pump casing (14.00) - diffuser cover (27.00).

ATTENTION: to avoid leakage or failure due to misalignment and localized overstressing, the screws

(14.24) with the nuts (14.28) must be uniformly tightened with alternated crossover tightening in diametrically opposed positions. Tightening torque for screws (14.24): 7 Nm.

9. DISPOSAL



The final disposal of the device must be done by specialized company.

Make sure the specialized company follows the classification of the material parts for the separation.

Observe the local regulations and dispose the device accordingly with the international rules for environment protection.

10. SPARE PARTS

10.1. Spare-parts request

When ordering spare parts, please quote their designation, position number in the cross section drawing and rated data from the pump name plate (type, date and serial number).

The spare parts request shall be sent to CALPEDA S.p.A. by phone, fax, e-mail.

11. EISIGNATION OF PARTS

Nr.	Designation
14.00	Pump casing
14.14	Plug
14.15	O-ring
14.20	O-ring
14.24	Screw
14.28	Nut
14.29	Washer
15.00	Strainer cover
15.04	O-ring
15.12	Hand wheel
15.16	Square nut
15.50	Strainer basket
27.00	Diffuser cover
27.04	Diffuser funnel
27.08	O-ring
28.00	Impeller
28.12	Retaining ring
36.00	Mechanical seal
70.00	Lantern bracket
73.00	Ball bearing
73.08	V-ring, pump side
76.00	Motor casing with winding
76.16	Support
78.00	Shaft with rotor packet
81.00	Ball bearing
82.00	Motor end shield
82.04	Compensating spring
82.08	Screw
88.00	Motor fan
90.00	Fan cover
90.04	Screw
92.00	Tie-bolt
98.00	Terminal box cover

Changes reserved.

12. TROUBLESHOOTING



WARNING: Turn off the power supply before performing any operations.
Do not allow the pump or motor to run when dry even for a short period.
Strictly follow the user instructions and if necessary contact an authorised service centre.

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PROBLEM	PROBABLE CAUSES	POSSIBLE REMEDIES
1) The motor does not start	1a) Unsuitable power supply 1b) Incorrect electrical connections 1c) Engine overload protective device cuts in. 1d) Blown or defective fuses 1e) Shaft blocked 1f) If the above causes have already been checked, the engine may be malfunctioning	1a) Check that the mains frequency and voltage correspond to the electrical characteristics shown on the indicator plate 1b) Connect the power supply cable to the terminal board correctly. Check that the thermal overload protection is set correctly (see data on the engine indicator plate) and make sure that the fuseboard upline of the engine has been properly connected 1c) Check the power supply and make sure that the pump shaft is turning freely. Check that the thermal overload protection has been set correctly (see engine indicator plate) 1d) Replace the fuses, check the electric power supply and points a) and c) 1e) Remove the cause of blockage as indicated in the "Blocked pump" instruction booklet 1f) Repair or replace the engine by applying to an authorised service centre
2) Pump blocked	2a) Prolonged periods of inactivity with formation of rust inside the pump 2b) Presence of solid bodies in the pump rotor 2c) Bearings siezed	2a) Rotation may be started directly from the pump shaft or from the joint (remember to turn off the electricity supply first) or contact an authorised service centre 2b) If possible, dismantle the pump casing and remove any solid foreign bodies inside the rotor, if necessary contact an authorised service centre 2c) If the bearings are damaged replace them or if necessary contact an authorised service centre
3) The pump functions but no water comes out	3a) Possible infiltration of air from suction tube connections, drain plugs or filling of pump or from the gaskets of the suction pipe 3b) Foot valve blocked or suction pipe not fully immersed in liquid 3c) Suction filter blocked	3a) Check which part is not tight and seal the connection adequately 3b) Clean or replace the bottom valve and use a suction pipe suitable for the application 3c) Clean the filter, if necessary, replace it. See point 2a) also.
4) Insufficient flow	4a) Pipes and accessories with diameter too small causing excessive loss of head 4b) Presence of deposits or solid bodies in the internal passages of the rotor 4c) Rotor deteriorated 4d) Worn rotor and pump case 4e) Excessive viscosity of the liquid pumped (if other than water) 4f) Incorrect direction of rotation 4g) Suction head excessive in relation to the suction capacity of pump 4h) Suction pipe too long	4a) Use pipes and accessories suitable for the specific application 4b) Clean the rotor and install a suction filter to prevent other foreign bodies from entering 4c) Replace the rotor, if necessary, contact an authorised service centre 4d) Replace the rotor and the pump casing 4e) The pump is unsuitable 4f) Invert the electrical connections on the terminal board or control panel 4g) Try to close the feeder gate partially and/or reduce the difference in level of the pump and the liquid being aspirated 4h) Bring the pump closer to the suction tank so as to use a shorter pipe. If necessary use a pipe of a wider diameter
5) Noise and vibrations from the pump	5a) Rotating part unbalanced 5b) Worn bearings 5c) Pump and pipes not firmly attached 5d) Flow too strong for the diameter of the delivery pipe 5e) Functioning in cavitation 5f) Unbalanced power supply 5g) Incorrect alignment of pump-motor unit	5a) Check that no solid bodies are obstructing the rotor 5b) Replace the bearings 5c) Anchor the delivery and suction piping as needed 5d) Use bigger diameters or reduce the pump flow 5e) Reduce the flow by adjusting the feeder gate and/or using pipes with a bigger internal diameter. See point 4g) too 5f) Check that the mains voltage is right 5g) If necessary, the unit must be re-aligned
6) Leakage from the mechanical seal	6a) The mechanical seal has functioned when dry or has stuck 6b) Mechanical seal scored by presence of abrasive parts in the liquid pumped 6c) Mechanical seal unsuitable for the type of application 6d) Slight initial drip during filling or on first start-up	In cases 6a), 6b) and 6c), replace the seal, if necessary contact an authorised service centre 6a) Make sure that the pump casing (and the suction pipe if the pump is not self-priming) are full of liquid and that all the air has been expelled. See point 5 e) too. 6b) Install a suction filter and use a seal suited to the characteristics of the liquid being pumped. 6c) Choose a seal with characteristics suitable for the specific application 6d) Wait for the seal to adjust to the rotation of the shaft. If the problem persists, see points 6a), 6b) or 6c) or contact an authorised service centre.

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1. 总则

使用本产品前请仔细阅读此操作手册的内容，并保留此操作手册以供参考。
此操作手册为意大利语，如有翻译偏差以意大利语为准。
此操作手册是安全保障必不可少的一部分，在产品最终达到正常工作前请牢记本手册。
万一用户不慎遗失本手册，可以向CALPEDA S.P.A.或其代理商要求一份复印件，请详述产品铭牌上的资料（见2.3 标记）
未经制造商认可的有关其产品或部件的任何更改变化，将撤消“CE 声明”和质保。

此产品不应让8岁以下的未成年、身体有缺陷、心智不全或无任何经验的人操作，除非在充分的指导或监督下让相关人员知道如何安全的使用，并且通过一个负责人来让相关人员了解到可能会产生的危险。

不得让儿童接触本产品。

用户有义务清洁和维护本产品。除非在有人监督的情况下，否则儿童不应清洁和维护本产品。

仔细阅读安装部分的规定：

- 最大允许的结构工作压力详见3.1
- 电源线的类型及剖面详见6.5
- 所安装电器设备的防护类型详见6.5

1.1. 符号标记

为了便于理解本操作手册，下面给出常用标记符号的含义。



一定要注意通告和警告的标记，否则可能导致产品损坏或人身安全的风险。



忽略有关电气的警告，可能导致产品损坏或人身安全的风险



提示和警告正确操作处理产品及其部件



最终用户可以进行的操作

终端用户：仔细阅读本操作手册后，产品使用者可以负责正常状态下的维护工作。他们可以进行产品的清洁和长期停滞后的重新启动此类标准维护工作。



必须由有资格的专业电工才能进行的操作

专业电工：有资格的专业电工，负责所有电气设备的运行包括维护，应具有高压电资格。



必须由有专业技术资格的人才能进行的操作

专业技术人员：正常状态下，具有产品安装和维护能力的专业技术人员，可以从事电气和机械方面的维护工作。能够从事简单的与设备维护相关的电气和机械方面的操作。



指示必须使用个别的保护装置



必须断开电源并断开与电源的连接才能进行的操作



必须接通电源才能进行的操作

1.2. 制造商名称和地址

制造商名称：CALPEDA S.P.A.
地址：Via Roggia di Mezzo, 39
36050 Montorso Vicentino - Vicenza / Italia
www.calpeda.it

1.3. 授权操作者

本产品只能由有经验的终端用户和专业技术人员操作

禁止终端用户操作那些只能由专业技术人员操作的工作，对未按本规章执行而引起的损害制造商不负任何责任

1.4. 质保

质保参见总则和销售条款

质保期内将更换或维修有问题的产品部件（由制造商验证的）。

下面因素不在质保范围：

- 由于产品使用者没有按照说明及本手册的通告信息操作造成的损坏
- 未经制造商认可的对产品的任何改变而造成的损坏
- 由非专业人员操作造成的损坏
- 由不当的维修造成的损坏

1.5. 技术支持

任何技术支持、备件及更多的产品信息均可联系：Calpeda S.p.A. (附件1.2章)。

2. 技术说明

自吸式泳池泵内含过滤器。

泵头使用优质塑胶制成，具有极强的耐腐蚀及耐磨损性能。

不锈钢材质的扩散器。

一体式底座。

2.1. 预期用途

用于清洁或含有微量固体颗粒悬浮物的水，最高使用温度为60° C

2.2. 不当使用

本产品只用于2.1中所述用途

 除了本说明手册中指示的用途外,严禁其他不当用途

不当使用将降低本产品的安全性和效率,由于不当使用而造成的损坏和意外,CALPEDA不承担责任

2.3. 标记

下面给出的是泵外壳上的标牌的图片

1 型号	泵标牌图示	
2 流量		
3 扬程	MONITORSO VICENZA	Marking label
4 额定功率	1- XXXXXXXX	XXXXXXX - 16
5 电源电压	2- Q min/max X/X m³/h	XXXXXXX - 15
6 电流	3- H max/min X/X m	IP XX - 14
7 注释	4- X kW (XHp) S.F.	n XXXX/min - 13
8 频率	5- 220Δ/380Y V3~50Hz	cosφ X - 12
9 运行工作制	6- X/X A	S1 I.cl. X X kg - 11
10 绝缘等级	7- XXXXXXXX	
11 重量		
12 功率因数		
13 转速rpm		
14 保护等级		
15 序列号		
16 认证		

3. 技术特性

3.1. 技术参数

尺寸和重量（详见产品样本）

额定转速 2900/3450rpm

保护等级 IPX4

电压/频率

- 高达 240V 1~ 50/60 Hz

- 高达 480V 3~ 50/60 Hz

检查主电源的电压、频率等参数是否符合电机铭牌所示

标牌的电气数据依据电机的正常功率而标出。

噪声等级< 70 dB (A). MPC7: 72 dB (A).

每小时最大启动次数：时间间隔相同的情况下可启动10次

泵壳允许最大压力：25 m (2.5 bar)。

4. 安全性

4.1. 总则

 使用本产品前应了解有关安全的指示
仔细阅读所有的操作说明和从搬运到处理的每一步指示专业技术人员必须认真遵从所有的适用标准和法律，包括产品应用地当地的规章

产品安装使用应符合现行的安全法规

不当的使用可能会对人身、动物和其他对象造成损害
制造商对于由于不当使用或未按本操作手册和标牌的标示使用所造成的损坏不负责任

 按照日程维护计划表操作并及时更换损坏的部件可使产品工作在最佳状态
使用CALPEDA S.P.A或其指定代理商提供的原厂配件

 不要撕下或改变产品上的标识
当产品有问题或部件有损坏的情况下不要启动产品

 由于维修时会全部或部分的拆开产品,因此之前务必断开供电电源

4.2. 安全装置

本产品具有全外部壳体,可防止与内部部件的任何接触

4.3. 剩余风险

当按照本产品的设计功能和所有安全规则使用本产品时没有剩余风险

4.4. 通告和安全预示

没有任何安全预示在此类产品上面

4.5. 个别的保护装置

在安装、使用和维修期间，建议操作人员使用适合此操作的个别保护装置或手段当进行日常或个别的维修工作时

标示的个别保护装置

 手的保护
(防热、化学品和机械损害的手套)

5. 搬运操作

货物应包装完好

运输过程中应避免超重，并确保货物不会移动。确保运输车辆和所运货物尺寸符合

无需特殊车辆运输

运输车辆应与被运货物的尺寸重量相符合(尺寸和重量详见产品样本)。

5.1. 搬运

小心搬运，轻拿轻放

避免冲撞包装材料以免损坏泵的外套

对于重量超过25公斤的包装物需由两人同时抬抬

6. 安装

6.1. 尺寸

设备的外形尺寸（详见产品样本）

6.2. 环境要求和安装位置的尺寸

客户应将本产品妥当的安装于适当位置以满足设备的要求（供电需要等）

安装位置应满足章节3.2中的要求

禁止将产品安装于有潜在易燃易爆危险的环境中

6.3. 拆箱



开箱检查产品是否因运输而损坏

拆开的包装材料应根据产品使用国当地的法律规定遗弃或再利用

6.4. 安装

MPC泳池泵必须安装在通风良好的环境中，其底部向下且转子轴应水平放置。

泵的安装位置应尽可能置于泳池附近。



为降低触电的风险，应将水泵安装于距泳池内壁至少3米远的位置。当将水泵置于室外用于便携式水泵时应提供适当的保护，保证泵基础高度至少达到100mm来作为绝缘的基础。详见6.5

为保证设备转子旋转自如，电机组应预留足够的空间便于通风换气、设备检修、滤网的更换、灌泵以及排水检查（包括螺丝刀的空间），参见图1。对于三相的电机设备，还需要一定的空间检查电机转向是否正确。

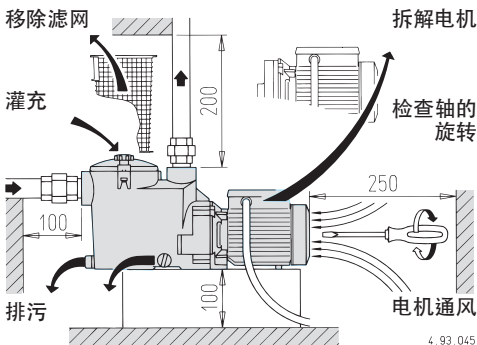


图1 最小检修尺寸

6.4.1. 管路

为保证介质的流动性，管路的外径规格应按照，入口流速不大于1.5m/s，出口流速不大于3m/s来提供。

注意：在连接管路前应确保管路的干净畅通。一定浓度的砂砾，若其直径大于叶轮与耐磨环的径向间隙（约1mm），会引起更快的磨损且泵效率会降低10%左右。

管路的静压测试应大于2.5bar并且在实验时应将泵系统以外的部分隔离。

（测试前后都应关闭泵的进出口阀门）

6.4.2. 管路的连接

应使用塑料材质的管路或接头配件。

对于连接到泵壳的螺纹接口处，应使用管路专用的密封胶（如：乐泰 5331）

不推荐使用聚四氟乙烯胶带。不允许使用纤维密封。

注意：请勿将螺纹管路或连接件拧得过紧。

管路或连接件只需要保证密封性即可。

过大的扭力会引起泵的损坏。

对于金属管路，应先通过一个带螺纹接头的塑料转换单元连接至泵壳。

确保所有的管路的连接和支撑稳固并不会因此对泵产生应力、扭力、或震动。决不能让水泵承受管路的重量或热膨胀的影响。

管路的扭力或弯曲力会引起泵壳的损坏及漏水。

6.4.3. 入口管路

务必保证入口管路的气密性。

当泵安装在水位以下的位置时（保证入口的正水头）

（参见13章节，图7），安装入口和出口的阀门来隔离泵和管路。

当泵安装在水位以上的位置时（自吸运行）用多条入口管路（管路组成：撇清器，主排水管，真空接头），将所有管路配件及配套闸阀连接至歧管，确保管路和歧管在液位以下再通过一根垂直的管路连接至泵（参见13章节，图8b及7.2.3章节）当泵安装在水位之上时，入口主管路与泵的高度差不能超过3m。建议在入口主管路上1.5m高的位置安装止回阀。若使用软管，请务必使用增强螺旋软管，防止因真空吸力而导致进水不畅。

6.4.4. 出水管

在出水管中安装一闸阀，以调节流量，扬程和轴功率。

一定要安装压力表。

6.5. 电气联接



必须由合格电工根据当地规范进行电气联接。
必须遵守安全标准。

泵-电机机组必须可靠地接地。
把接地导线接到标有记号的端子上 ⊕。

请对照电源电压和铭牌上所标数值，根据接线盒内盖上的电路图联接电源。



注意：绝对不允许将垫片等金属部件掉入电机接线盒的定子线圈中。

如果发生此种问题，必须拆开电机，取出部件。

如果接线盒的进线口为密封管，则应使用H07RN-F型柔软的电线。电缆的剖面不低于表(章16)的相关规定。

如果接线盒的进线口是套管，则应通过套管连接电线。

作为用于游泳池，花园池塘的泵，必须在电源线路中安装漏电保护器，其灵敏度不大于30毫安。

安装一个使电源断开的装置，各电极之间至少有3mm的间隙。

对于三相电机，根据其额定电流一定要安装一个过载保护装置曲线D。

对于单相的MPCM泵，提供一个连接在接线柱上的电容，对于220-240V-50Hz的电源，还提供一个相连的热保护装置。

在奥地利必须通过。VE（奥地利电工协会）检验的隔离变压器对在游泳池和花园池中使用的泵进行供电。按照。VE B/EN 60555 第1 至3 部分标准的该泵装配有一个固定的连接导线，同时二次额定电压不允许超过230V。



注意：当泵由变频器控制的时候，频率不允许低于25Hz并且水泵总扬程在任何情况下都不能低于3m

7. 启动和运行

7.1. 启动前的预检

当存在有故障的部件时不要启动本产品

7.2. 首次启动



7.2.1. 检查转向

注意：对于三相电机，首次启动泵时要检查泵的转向。

对于MPC 51, 61, 71型号的泵在检查转向应先灌泵（详见8.4章节）

首次检查时，用手转动泵轴盘泵。

可以使用螺丝刀转动电机非驱动端的轴端后部。盘泵时注意泵壳上指示的旋转方向。

如果泵轴有卡阻，不能启动电机。

有卡阻时，应卸下叶轮并启动电机让其反转。反向旋转可能会损伤机封。

应让电机短时间反转的同时检查泵轴的转动情况。

7.2.2. 灌泵

注意：防止干转

当水泵在水位以下运行时（水会自行流进出口），通过缓慢的开启阀门使流入的水将空气排出。

当水泵在水位之上运行时（自吸运行），用清水通过过滤器灌泵，直到水位与拆下的盖板水平。

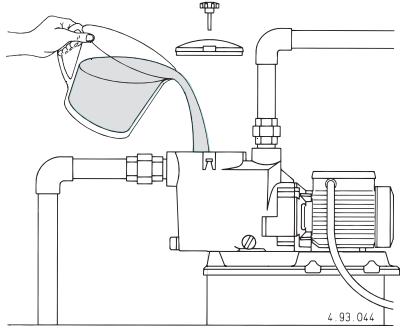


图2 灌泵

启动后，检查水泵现场的使用性能，同时其实际电流不应超过名牌所示的电流要求，否则需要通过出口阀门调节。

避免长时间闭阀运行。

7.2.3. 自吸

（当泵在水位上方运行且入口管路不能人工灌满水时，应排空水泵入口管路内的空气，否则底阀将失效）

最大自吸能力及自吸时间（见数据表）与电机相关（n=2900 rpm），不含空气的水温应低于25 °C 并且泵入口与入口管路尺寸应相同。

自吸条件

- 启动前将泵壳用水灌满至入口。

请注意，对于吸程要求高于1.5—2m的工况（入口管路无底阀或止回阀），每次启动前必须灌泵。

- 进出口阀门全开且管路畅通

- 过滤器无阻塞

- 入口管路必须完全密封，并且完全浸没在水中。

- 在过滤器壳体、机封上的O型圈密封性能良好（安装到位，清洁且无损）

- 将在过滤器盖上的手轮和在过滤器壳体上的排污塞拧紧，防止进入空气

- 出口管路如果没有单向阀，用最短为80cm长度的垂直自由管路连接至出口。吸程低于2m的垂直管路可用50cm的管路。吸程低于1m时，则出口无需垂直管路，可直接配合弯头使用。

定期检查，（通过透明过滤器盖）确保泵启动后内部的水是流动的。

如果泵工作状态不佳，检查上述的条件要求并及时纠正。

再次启动运行水泵时，应完全充满冷水。
避免一台状态不佳的泵或入口管路未完全浸入水中（水池中的水位过低）的泵长时间运行。
当水位下降到低于撇清器以及其他入口（排空水池），保持水池底部管路上的闸阀打开（主排水）。

7.3. 泵的停车



当存在故障时必须关闭设备



本产品设计为连续工作，当希望断开本产品时可断开供电源停机(见章节6.5 电气连接)

8. 维修

任何维修操作前都应该先断开电源,必要时可由电工或专业技术人员操作



在带电情况下的任何类似清洁或维修的操作都可能对人身造成严重伤害



如果电源电缆出现损坏，必须由厂商、厂商代理或相同资质的人员进行更换。

突发的维修或需要部分拆解零件的维修,都必须由能看懂结构图的专业人员来操作



建议记录所有的维修过程,在维修期间特别小心注意不要带入任何外部细小异物,这会对产品的造成损害



不要在无防护措施的情况下用手直接操作，应带防水防割的手套进行过滤器的拆解清洁或其他维修工作



维修期间无关人员禁止入内

本操作手册中没有介绍的维修工作只能由CALPEDA授权的特别人员来完成
有关产品使用和维修的更多信息请联系CALPEDA S.P.A.

8.1. 日常维护



电机通过热敏开关直接控制电流的通断，可自动启动。



任何检修都需要断开电源并且确保不会意外开启。

定期检查并清理过滤器。清洗的频率取决于泵的运行时间、水池环境、风（户外泳池）以及游泳人的数量。
对于安装在水位下的泵，移去盖板前应关闭进出口闸阀。

移开盖板后，过滤器可以很容易的取放（图3）。

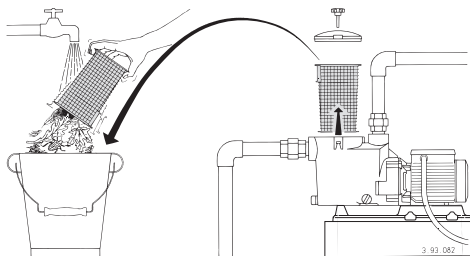


图3 移除和清理滤网

注意：不要给O型密封圈使用油来润滑。使用水 and 中性肥皂清理透明滤网盖。不能使用有机溶剂。
清理后，回装滤网提篮到恰当的位置。
灌泵至入口处（见构造图7.2.2）。
正确的回装滤网盖，通过手轮保证壳体上的O型圈密封。



用于水处理的消毒剂或化学品决不能直接倒入泵中。

有化学反应的废物扩散的风险。不流动的水有锈蚀的风险（也会随着温度的升高PH值会下降）
如果长期停滞或有冻结的预期，则应通过移除两个螺母塞及配套的O型圈垫片排空水泵（图4）。

进气口

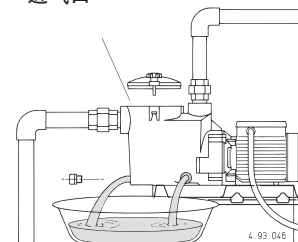


图4 排水

用手拧紧排水塞。不要使用钳子或工具。
如果必要，只能使用钳子松开螺丝。过大的扭力会造成损坏。
注意：停滞一个较长周期后，重启前应灌泵并用螺丝刀检查泵轴是否卡阻。
如果卡阻，应拆卸电机并排除故障。

8.2. 系统的分解

分解前，关闭进出口隔栅。

8.3. 泵的拆解



拆解前排空泵（见图4及剖面图12）。对于拆解和重新装配见剖面构造图（剖面图15）
若从泵壳（14.00）上拆下带支架（32.00）的电机，

应卸下螺丝 (14.24)、螺母 (14.28) 及垫片 (14.29)，再用螺丝刀在对向位置从泵壳上分离出电机。
用较大的一字螺丝刀插入电机轴 (78.00) 末端的槽口来拆卸叶轮 (28.00)。
用手握住叶轮并拧开叶轮，双手配合相对反向拧动轴拆卸叶轮 (图5a)。

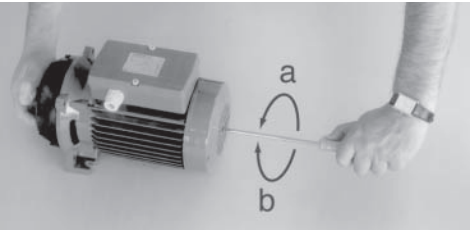


图5 拆卸 (a) 和回装(b)叶轮

如果不能用螺丝刀稳定或移动轴，则拆下风扇盖 (90.00) 和电机风扇 (88.00) 再用一个合适的扳手固定住轴并拧开叶轮。
对于机械密封 (36.00) 在与叶轮同时转动的部分也应拆下。

8.4. 组装

对于安装机封 (36.00)，应把机封的转动部分套在叶轮的筒形部分中，并尽量把弹簧推压到轮肩部位，这样在随后的组装中就能保证正确的弹簧压缩量，以减少机械密封漏水机会。
用水润滑密封并且对齐电机轴上的叶轮来回装。
注意：对于三相模式，应将电机反向转动避免叶轮的螺栓松动 (或破损)，清洁轴端上的螺纹并在螺纹前半部分涂抹乐泰243。

如果此类型的产品还未开始使用，则应在灌泵前先检查泵的转向 (避免类似水锤的力量使叶轮反转而导致的松动)
单手握住叶轮同时用螺丝刀顺时针转动轴直到拧紧。
用这种方法来使机械密封的各密封面有效密封，而不致在紧固时引起相互摩擦 (图5b)。用水来清洁O型圈 (14.20) 和密封面。
在更换佩带叶轮的电机时，应小心的插入泵壳 (14.00) 内的定位凸缘进入到扩散器盖 (27.00) 上的定位槽 (图6)。

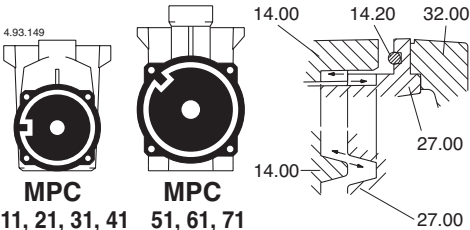


图6 用于组装泵壳 (14.00) - 扩散器盖 (27.00) 的定位凸缘/槽

注意：为避免安装失误和局部的超应力导致的泄露或失效，螺栓(14.24)及配套螺母 (14.28) 必须在对角位置均匀的上紧。螺栓(14.24) 上紧力矩为：7Nm。

9. 处理



产品的最终处理应由专业公司操作
确保专业公司是按照材料分类方式处理
按照当地的法规和有关环境保护的国际准则处理

10. 备件

10.1. 订购备件

订购备件时请根据剖面图提供备件的名称和位置编号及泵铭牌上的数据 (型号、参数和序列号)
备件需求请电话、传真、邮件给CALPEDA S.P.A

11. 部件名称

- 名称
- 14.00 泵壳
 - 14.14 水堵
 - 14.15 O形圈
 - 14.20 O型圈
 - 14.24 螺丝
 - 14.28 螺母
 - 14.29 垫片
 - 15.00 过滤器盖
 - 15.04 O形圈
 - 15.12 手动旋钮
 - 15.16 方螺帽
 - 15.50 过滤器
 - 27.00 盖-扩散体
 - 27.04 扩散体-漏斗形
 - 27.08 O形圈
 - 28.00 叶轮
 - 28.12 弹性挡圈
 - 36.00 机械密封
 - 70.00 泵侧电机盖
 - 73.00 泵侧轴承
 - 73.08 V型环，泵侧
 - 76.00 带绕组的
 - 76.16 支脚
 - 78.00 轴与转子
 - 81.00 风扇侧轴
 - 82.00 风扇侧
 - 82.04 补偿弹
 - 82.08 螺丝
 - 88.00 电机风
 - 90.00 风扇罩
 - 90.04 螺丝
 - 92.00 连接螺栓
 - 98.00 接线盒

保留更改权利

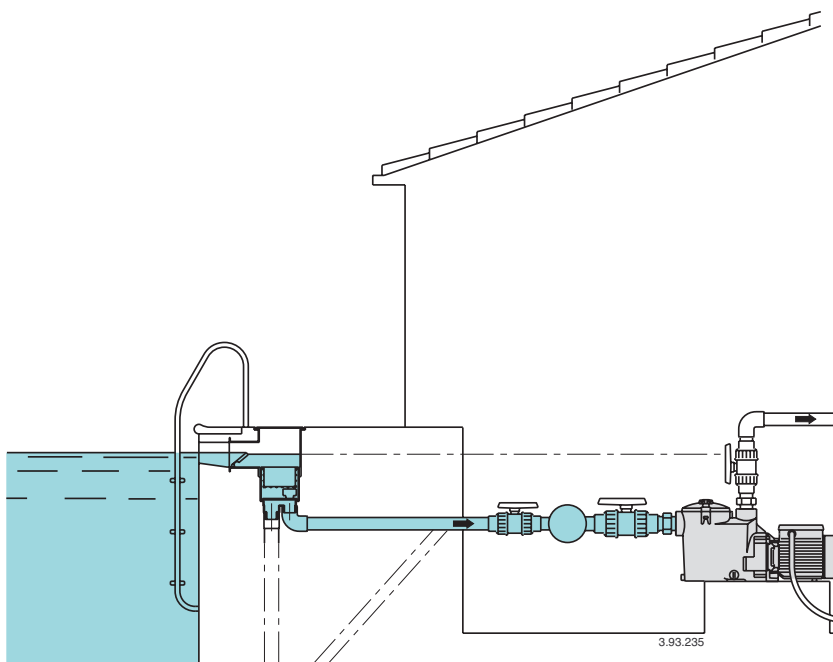
12. 常见故障和解决方法



警告: 任何操作之前均应断开电源.
决不允许泵组干转,即使是短时间的.
严格按照使用说明书操作,如有必要请联系授权服务中心.

故障现象	故障的可能原因	解决办法
1) 电机不启动	1a) 电源供应不匹配 1b) 接线错误 1c) 电机过载保护装置动作 1d) 保险丝故障 1e) 轴卡死 1f) 若上述原因已检查确认, 那可能是电机故障	1a) 检查供电电源的电压、频率是否符合电机铭牌所示 1b) 正确连接主电源线到接线端子, 检查热过载保护装置的正确性 (见电机铭牌上的数据) 务必保证电机保险丝安装正确。 1c) 检查供电电源并确保泵轴可自如的转动。检查热过载保护是否被正确的设定 (看电机铭牌数据) 1d) 更换保险丝, 检查主电源重复a) 和 c) 的步骤 1e) 见2) 泵卡阻 1f) 向授权的服务中心申请维修或更换电机
2) 泵卡阻	2a) 设备长时间的停放使泵内部生锈 2b) 泵转子内部有固体异物 2c) 轴承损坏	2a) 从泵轴或联轴器处直接盘泵 (盘泵前首先要切断电源), 或者联系授权服务中心 2b) 如果可能, 请拆除泵壳并除去内部转子中的异物。如有需要请联系授权服务中心 2c) 如果轴承受损请更换或联系授权服务中心
3) 泵工作但不出水	3a) 可能入口管路连接处漏气、或是排/灌堵处、入口管路垫片处) 3b) 底阀堵塞或吸入管没有完全浸入在液体中 3c) 入口过滤器堵塞	3a) 检查看哪里没拧紧连接到位并正确连接 3b) 清洁或更换底阀并使用适合于工况的进口管路 3c) 清洁过滤器, 或更换。同时参见2a)
4) 流量不足	4a) 管路及其附件直径过小导致水头损失过大 4b) 流道内有沉积物或固体异物 4c) 转子腐蚀损坏 4d) 转子和泵壳磨损 4e) 泵送介质粘度过高 (不同于水) 4f) 旋转方向错误 4g) 吸程超过了泵的自吸能力 4h) 入口管路过长	4a) 请使用符合工况的管路及其附件 4b) 清洁转子并安装入口过滤器以防止外部固体异物进入 4c) 更换转子, 如果需要请联系授权服务中心 4d) 更换转子和泵壳 4e) 泵不适用 4f) 在控制柜内或电机接线盒内对调任意两根接线 4g) 请尝试部分关闭供水阀门和/或降低泵的安装高度, 液体将被吸入。 4h) 使泵尽量靠近入口水箱以便缩短进口管路。如有必要应选用大口径进水管。
5) 泵的噪音和震动	5a) 转子不平衡 5b) 轴承磨损 5c) 泵和管路未固定到位 5d) 输送管路直径过小 5e) 发生汽蚀 5f) 供电电源不平衡 5g) 泵与电机不同心	5a) 检查转子中是否有固体异物 5b) 更换轴承 5c) 将进出水管路固定到位 5d) 使用更大直径的管路或降低泵的流量 5e) 通过调节供水阀门降低流量, 并且/或 使用内径更大的管路。参考4g) 5f) 检查供电电压是否正确 5g) 再次校正同心度
6) 机封漏水	6a) 机封干转或粘连 6b) 泵送介质中有磨蚀性物质导致机封划损 6c) 机封不适用于当前工况 6d) 在第一次启动或灌泵时的轻微滴漏	对于6a), 6b) 和 6c) 的情况, 更换机封, 如果需要请联系授权服务中心 6a) 务必保证泵壳体内 (如为非自吸泵, 吸入管道内) 充满液体, 且空气已被完全排出, 参见5e)。 6b) 安装入口过滤器, 使用与泵送介质特点匹配的机封 6c) 选用适用于此工况的机封 6d) 待泵运行一会儿机封自行调整, 如果问题依旧请参考6a), 6b), 6c)或联系授权服务中心。

13. Pompa sotto il livello dell'acqua
Pump located below the water level
Pumpe unter dem Wasserspiegel
Pompe installée sous le niveau de l'eau
Bomba por debajo del nivel del agua
Pump under vätskenivån
Pomp onder het waterniveau
Насос ниже уровня воды
泵安装在水位以下



Italiano

ATTENZIONE: questa pompa non è sommergibile.

Con la pompa sotto il livello dell'acqua, prima dello smontaggio del coperchio filtro chiudere le saracinesche in aspirazione e mandata.

Prima di smontaggi per interventi di manutenzione all'impianto abbassare sotto la bocca di aspirazione della pompa il livello dell'acqua nella vasca.

Prima di riempire la vasca accertarsi della chiusura dei tappi di scarico e del coperchio filtro sulla pompa.

English

ATTENTION: this pump is not submersible.

With the pump located below the water level, close the suction and delivery gate valves before removing the strainer cover.

Lower the water level in the swimming pool below the suction port of the pump before disassembling for servicing operations.

Make sure the thumbscrew drain plugs and the strainer cover are properly seated and tightened before filling the swimming pool.

Deutsch

ACHTUNG! Diese Pumpe ist keine Unterwasserpumpe.

Bei Anordnung der Pumpe unterhalb des Wasserspiegels sind vor Demontage des Filterdeckels die Absperrorgane vor und hinter dem Aggregat zu schließen. Der Wasserstand ist auf ein Niveau unterhalb des Saugstutzens der Pumpe abzusenken bevor eine evtl. Demontage für Wartungsarbeiten an der Anlage beginnt.

Vor Wiederbefüllung des Schwimmingspools ist sicherzustellen, daß Entleerungsstopfen und Filterdeckel korrekt und dicht montiert sind.

Français

ATTENTION: cette pompe n'est pas submersible.

Avec la pompe installée sous le niveau de l'eau, avant le démontage du couvercle du préfiltre, fermer toutes les vannes d'aspiration et de refoulement.

Avant tout démontage pour les opérations d'entretien dans le local technique, baisser le niveau de l'eau de la piscine sous l'orifice d'aspiration de la pompe.

Avant de remplir la piscine, s'assurer que le couvercle du préfiltre est bien bloqué ainsi que le bouchon de vidange du corps de pompe.

Español

ATENCIÓN: Esta bomba no es sumergible.

Con la bomba por debajo del nivel de agua, antes de desmontar la tapa del filtro, cerrar las válvulas de compuerta de la aspiración y de la impulsión.

Para realizar el mantenimiento de la instalación, antes de desmontar, bajar el nivel del agua en el tanque por debajo de la boca de aspiración de la bomba.

Antes de volver a llenar el tanque, asegurarse de cerrar los tapones de descarga y la tapa del filtro.

Svenska

VARNING: Denna pumptypen är ej dränkbar.

När pumpen befinner sig under vättskenivån, stäng sug- samt tryckledningens ventiler innan avlägsning av locket till silkorgen sker.

Sänk vatten nivån i badpoolen under suganslutningen till pumpen före isärtagning för serviceingrepp i anläggningen. Se till att turnskruvarna på dräneringspluggarna samt sillkorgens lock är tillräckligt tätade och åtdragna före uppfyllnad av poolen.

Nederlands

ATTENTIE: Deze pomp is geen dompelpomp.

Wanneer de pomp beneden de waterspiegel geplaatst is moeten de afsluiters in zowel de pers- als ook in de zuigleiding gesloten worden voordat het filterdeksel verwijderd wordt.

Laat het waterniveau in het zwembad dalen tot onder het niveau van de zuigaansluiting van de pomp voordat de pomp gedemonteerd wordt in geval van servicewerkzaamheden aan de installatie.

Voordat het zwembad weer gevuld wordt dienen de aftappluggen en het filterdeksel korrekt en waterdicht gemonteerd te zijn.

Русский

ВНИМАНИЕ: этот насос не является погружным.

При положении насоса ниже уровня воды, перед снятием крышки фильтра следует закрыть заслонки на всасывании и на подаче.

Перед проведением тех. обслуживания системы понизить уровень воды в резервуаре до уровня ниже всасывающего раструба.

Перед заполнением резервуара убедиться в том, что сливные пробки и крышка фильтра насоса закрыты.

中文

注意：本产品非潜水泵。

对于安装在水位以下的泵，移去盖板前应关闭进出口闸阀。

拆卸检修前，降低泳池内的水位到泵入口以下。

务必保证在回灌泳池前，排污塞和过滤网盖正确的安装到位。

14. Pompa sopra il livello dell'acqua
 Pump located above the water level
 Pumpe über dem Wasserspiegel
 Pompe au dessus du niveau de l'eau
 Bomba sobre el nivel del agua
 Pump placerad ovanför vättskenivån
 Pomp boven het waterniveau
 Насос в положении выше уровня воды
 泵安装在水位之上

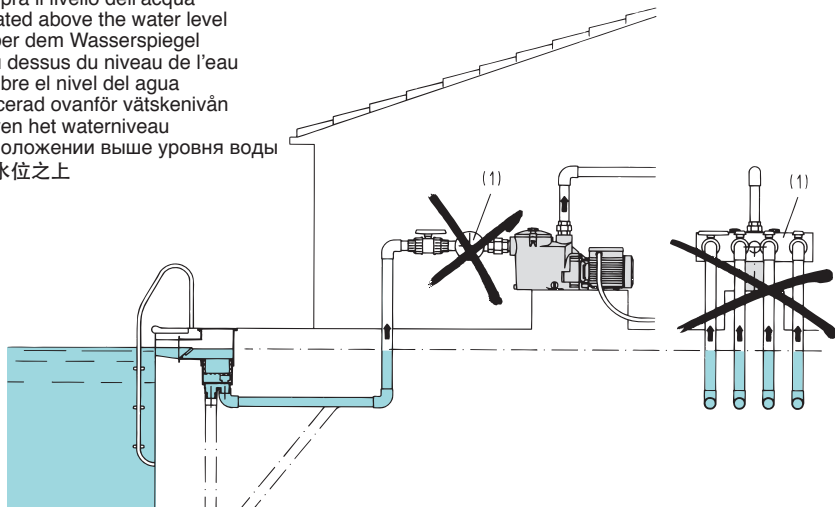
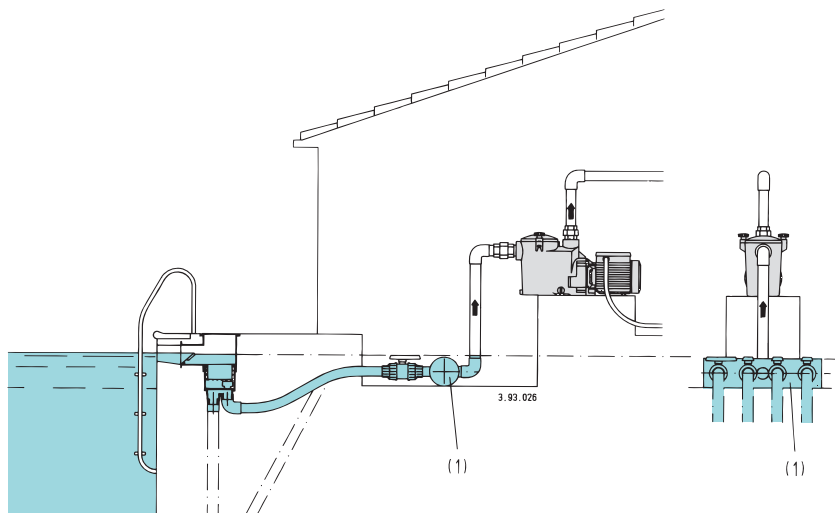


Fig. 8a



- (1) Collettore
 Manifold
 Sammelrohr
 Collecteur
 Colector
 Rörkoppel
 Verzamelleiding
 Коллектор
 歧管

- Fig. 8b**
 Soluzione da preferire
 Preferred solution
 Bevorzugte Lösung
 Solution préférée
 Solucion preferente
 Föredragen installation
 Aanbevolen oplossing
 Рекомендуемое решение
 首选方案

Con più tubi aspiranti (per skimmers, scarico di fondo, attacco per pulitore del fondo), per quanto possibile disporre i tubi ed il collettore sotto il livello dell'acqua e raggruppare la pompa con un solo tubo verticale (figura 8b).

Riducendo la lunghezza (il volume) di tubazione aspirante da riempire d'acqua con la pompa si riduce il tempo di autoadescamento (vedere capitolo 5.3.).

English

With various suction pipes (for skimmers, main drain, fitting for vacuum cleaner), as far as possible, locate the pipes and the manifold below water level with the pump being reached by a single vertical pipe (figure 8b).

By reducing the length (volume) of the suction pipe to be filled with water by the pump, you will reduce the priming time (see section 5.3.).

Deutsch

Mit mehreren Saugrohren (für Skimmer, Bodenablauf, Steckkupplung für Bodenabsauggerät), die Saugleitungen und das Sammelrohr möglichst unterhalb des Wasserspiegels zur Pumpe heranzuführen und die Pumpe nur durch ein vertikales Saugrohr erreichen (Abb. 8b).

Wird die Länge (das Volumen) der Saugleitung, die durch die Pumpe gefüllt werden muß, oberhalb des Wasserspiegels so kurz wie möglich gehalten, wird die Ansaugzeit reduziert (Siehe Kapitel 5.3.).

Français

Avec différents tuyaux d'aspiration (pour skimmers, bonde de fond, raccord pour aspirateur balai) autant que possible, placer les tuyaux et le collecteur sous le niveau de l'eau, jusqu'à atteindre la pompe avec un seul tuyau vertical (figure 8b).

En réduisant la longueur (le volume) de la conduite d'aspiration qui doit être remplie d'eau avec la pompe le temps d'autoamorçage se réduit (voir le chapitre 5.3.).

Español

Con más tubos de aspiración (para skimmers, vaciado del fondo, conexión limpia fondos), para cuando es posible disponer los tubos y el colector debajo el nivel del agua, añadir a la bomba un solo tubo vertical (figura 8b).

Reduciendo la longitud (el volumen) de la tubería de aspiración, para el rellenado de agua con la bomba, se reduce el tiempo de cebado (ver el capítulo 5.3.).

Med varierande sugledningar (för skimmers, huvud dränering, anslutning för dammsugare) anslut alla rörledningarna med egna avstängningsventiler till ett rörkoppel så långt borta som möjligt från huvudledningen samt under vätskenivån så att endast ett vertikalt rör anslutes till pumpen (se figur 8b).

Genom att reducera sugledningens längd (volymen) förkortas därmed den självvakuerande tiden som pumpen behöver för att fylla ledningen (se kapitel 5.3.).

Nederlands

Bij meerdere zuigleidingen (voor skimmers, bodemaafvoer, snelkoppeling waterstofzuigers) installeer voor zover mogelijk alle leidingen, inclusief de hoofdleidingen beneden het waterniveau en installeer 1 verticale leiding naar de pomp (figuur 8b).

Zo hoeft alleen maar het gedeelte van de leiding dat zich boven het waterniveau bevindt door de pomp met water gevuld te worden en wordt de aanzuigtijd verkort (zie paragraaf 5.3.).

Русский

С 2 или более всасывающими трубами (для пеноотделителей, донного слива, крепления для донного очистителя) насколько возможно расположите трубы и коллектор ниже уровня воды и подведите к насосу одну вертикальную трубу (см. рис. 8б).

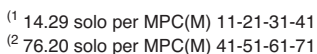
Уменьшая длину (объем) всасывающей трубы, которая заполняется водой вместе с насосом уменьшается время самовсасывания (см. раздел 5.3).

中文

对于各种入口管路（撇清器，主排水管，真空接头），尽可能把管路汇集于水位以下并由一条垂直的管路连接泵（图8b）

应缩短入口到泵的管路长度（容量），这样会减少启动时间（见剖面图5.3）

Drawing for dismantling and assembly
Zeichnung für Demontage und Montage
Dessin pour démontage et montage
Dibujo para desmontaje y montaje
Ritning för demontering och montering
Onderdelentekening
Чертеж для демонтажа и сборки
组装与分解图



77 / 80

16. Sezione minima dei conduttori
Minimum cross-sectional area of conductors

Tab. 1

TAB 1IEC 60335-1

Corrente nominale dell'apparecchio Rated current of appliance A	Sezione nominale Nominal cross-sectional area mm ²
>0,2 ÷ ≤3	0,5 ^a
>3 ÷ ≤6	0,75
>6 ÷ ≤10	1,0
>10 ÷ ≤16	1,5
>16 ÷ ≤25	2,5
>25 ÷ ≤32	4
>32 ÷ ≤40	6
>40 ÷ ≤63	10

^a Questi cavi possono essere usati solo se la loro lunghezza non supera 2 m tra il punto in cui il cavo o la sua protezione entra nell'apparecchio e l'entrata nella spina.

These cords may only be used if their length does not exceed 2 m between the point where the cord or cord guard enters the appliance and the entry to the plug.

IT

DICHIARAZIONE DI CONFORMITÀ

Noi CALPEDA S.p.A. dichiariamo sotto la nostra esclusiva responsabilità che le Pompe MPC, MPCM, tipo e numero di serie riportati in targa, sono conformi a quanto prescritto dalle Direttive 2006/42/CE, 2009/125/CE, 2014/30/EU, 2014/35/EU e dalle relative norme armonizzate. Regolamento della Commissione N. 640/2009.

GB

DECLARATION OF CONFORMITY

We CALPEDA S.p.A. declare that our Pumps MPC, MPCM, with pump type and serial number as shown on the name plate, are constructed in accordance with Directives 2006/42/EC, 2009/125/EC, 2014/30/EU, 2014/35/EU and assume full responsibility for conformity with the standards laid down therein. Commission Regulation No. 640/2009.

D

KONFORMITÄTSERKLÄRUNG

Wir, das Unternehmen CALPEDA S.p.A., erklären hiermit verbindlich, daß die Pumpen MPC, MPCM, Typbezeichnung und Fabrik-Nr. nach Leistungsschild den EG-Vorschriften 2006/42/EG, 2009/125/EG, 2014/30/EU, 2014/35/EU entsprechen. ErP-Richtlinie N. 640/2009.

F

DECLARATION DE CONFORMITE

Nous, CALPEDA S.p.A., déclarons que les Pompes MPC, MPCM, modèle et numero de série marqués sur la plaque signalétique sont conformes aux Directives 2006/42/CE, 2009/125/CE, 2014/30/EU, 2014/35/EU. Règlement de la Commission N° 640/2009.

E

DECLARACION DE CONFORMIDAD

En CALPEDA S.p.A. declaramos bajo nuestra exclusiva responsabilidad que las Bombas MPC, MPCM, modelo y numero de serie marcados en la placa de características son conformes a las disposiciones de las Directivas 2006/42/CE, 2009/125/CE, 2014/30/EU, 2014/35/EU. Reglamento de la Comisión n.º 640/2009.

DK

OVERENSSTEMMELSESERKLÆRING

Vi CALPEDA S.p.A. erklærer hermed at vore pumper MPC, MPCM, pumpe type og serie nummer vist på typeskiltet er fremstillet i overensstemmelse med bestemmelserne i Direktiv 2006/42/EC, 2009/125/EC, 2014/30/EU, 2014/35/EU og er i overensstemmelse med de heri indeholdte standarder. Kommissionens forordning nr. 640/2009.

NL

CONFORMITEITSVERKLARING

Wij CALPEDA S.p.A. verklaren hiermede dat onze pompen MPC, MPCM, pomptype en serienummer zoals vermeld op de typeplaat aan de EG-voorschriften 2006/42/EU, 2009/125/EU, 2014/30/EU, 2014/35/EU voldoen. Verordening van de commissie nr. 640/2009.

SF

VAKUUTUS

Me CALPEDA S.p.A. vakuutamme että pumpppumme MPC, MPCM, malli ja valmistusnumero tyyppikilvystä, ovat valmistettu 2006/42/EU, 2009/125/EU, 2014/30/EU, 2014/35/EU direktiivien mukaisesti ja CALPEDA ottaa täyden vastuun siitä, että tuotteet vastaavat näitä standardeja. Komission asetus (EY) N:o 640/2009.

S

EU NORM CERTIFIKAT

CALPEDA S.p.A. intygar att pumpar MPC, MPCM, pumptyp och serienummer, visade på namnplåten är konstruerade enligt direktiv 2006/42/EC, 2009/125/EC, 2014/30/EU, 2014/35/EU. Calpeda åtar sig fullt ansvar för överensstämmelse med standard som fastställts i dessa avtal. Kommissionens förordning nr 640/2009.

GR

ΔΗΛΩΣΗ ΣΥΜΦΩΝΙΑΣ

Εμείς ως CALPEDA S.p.A. δηλώνουμε ότι οι αντλίες μας αυτές MPC, MPCM, με τύπο και αριθμό σειράς κατασκευής όπου αναγράφετε στην πινακίδα της αντλίας, κατασκευάζονται σύμφωνα με τις οδηγίες 2006/42/ΕΟΚ, 2009/125/ΕΟΚ, 2014/30/ΕΥ, 2014/35/ΕΥ και αναλαμβάνουμε πλήρη υπευθυνότητα για συμφωνία (συμμόρφωση), με τα στάνταρς των προδιαγραφών αυτών. Κανονισμός Αρ. 640/2009 της Επιτροπής.

TR

UYGUNLUK BEYANI

Bizler CALPEDA S.p.A. firması olarak MPC, MPCM, Pompalarımızın, 2006/42/EC, 2009/125/EC, 2014/30/EU, 2014/35/EU, direktiflerine uygun olarak imal edildiklerini beyan eder ve bu standartlara uygunlug'una dair tüm sorumlulug'u üstleniriz. 640/2009 sayılı Komisyon Yönetmeliği.

RU

ДЕКЛАРАЦИЯ СООТВЕТСТВИЯ

Компания "Calpeda S.p.A." заявляет с полной ответственностью, что насосы серий MPC, MPCM, тип и серийный номер которых указывается на заводской табличке соответствуют требованиям нормативов 2006/42/CE, 2009/125/CE, 2014/30/EU, 2014/35/EU. Постановление Комиссии № 640/2009.

中文

声明

我们科沛达泵业有限公司声明我们制造的 MPC, MPCM, (在标牌上的泵型号和序列号)均符合以下标准的相应目录:2006/42/EC,2009/125/EC,2014/30/EU,2014/35/EU.本公司遵循其中的标准并承担相应的责任.委员会条例 No.640/2009

Montorso Vicentino, 09.2017

Il Presidente
Marco Mettifofo



CONSERVARE QUESTE ISTRUZIONI
SAVE THESE INSTRUCTIONS
DIESE BETRIEBSANLEITUNG AUFBEWAHREN
CONSERVER CES INSTRUCTIONS
CONSERVAR ESTAS INSTRUCCIONES
SPARA DENNA INSTRUKTIONEN
DIT BEDIENINGSVOORSCHRIFT BEWAREN
СОХРАНЯЙТЕ ДАННЫЕ ИНСТРУКЦИИ !



Calpeda s.p.a. - Via Roggia di Mezzo, 39 - 36050 Montorso Vicentino - Vicenza / Italia
Tel. +39 0444 476476 - Fax +39 0444 476477 - E.mail: info@calpeda.it www.calpeda.com