Close coupled multi-stage submersible clean water pumps

MXS

OPERATING INSTRUCTIONS

1. Operating conditions

Standard construction

- For clean water with a maximum temperature of 35 °C and maximum sand content of 60 g/m³.
- Minimum internal diameter of well: 132 mm.
- Minimum immersion depth: 100 mm.
- Maximum submersion depth: 20 m (with suitable cable length.
- Maximum starts/hour: 30 at regular intervals.

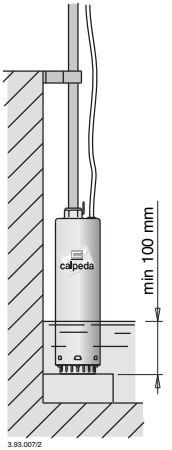
Sound pressure at minimum immersion depth: < 70 dB (A).
Noise disappears when the pump is submersed.

Do not use in ponds, tanks or swimming pools when people may enter or come into contact with the water.

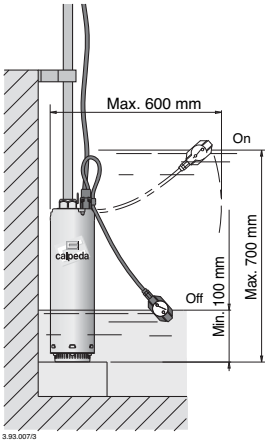
2. Installation

The internal diameter of the delivery pipe must never be smaller than the diameter of the pump connection port: G 1¼ (DN 32).
The pump must be installed in the vertical position with the delivery connection facing upwards.
The pump can be installed immersed (min 100 mm) or submersed (max 20 m) either resting on a bottom surface or suspended.

2.1. Pump in the resting position



Construction without float switch

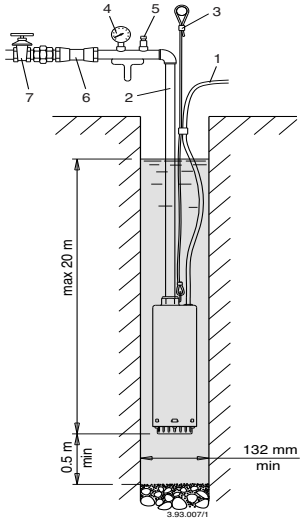


Construction with float switch

The pump can be rested on the flat bottom surface of a tank.

When sand or slime deposits are expected to form, mount the pump on a surface raised from the bottom level so that abrasive matter is not lifted.

2.2. Pump in the suspended position



1. Electric power cable
2. Delivery pipe
3. Safety rope
4. Pressure gauge
5. Air vent valve
6. Check valve
7. Gate valve

The pump can be held in a suspended position by the metal delivery pipe. Tighten the threaded pipe joints firmly to avoid loosening during operation.

Position the pump at a distance of at least 0.5 m from the bottom of a well so that sand is not lifted.

A **safety rope or chain** of non-perishable material should always be used to secure a suspended pump. When a plastic or flexible delivery pipe is used, the safety rope or chain should be utilized for lowering, securing and raising the pump.

Never use the electric power cable to suspend the pump.

Attach the power supply cable to the delivery pipe and to the safety rope with cable clamps at intervals of about 3 m. The power cable should not be taut: allow for a certain degree of slackness between the clamps to avoid the risk of strain caused by expansion of the pipe during operation.

3. 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 always earthed, also with a non-metallic delivery pipe.

ATTENTION: in the case of water containing chloride (or salt water), the earthing (grounding) conductor is useful also to reduce the risk of galvanic corrosion due to electrolytic action, especially with non-metallic delivery pipe and safety rope.

Make sure the frequency and mains voltage correspond with the name plate data.

For use in swimming pools (not when people are in the pool), garden ponds and similar places, a **residual current device** with IΔN 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 on all poles.

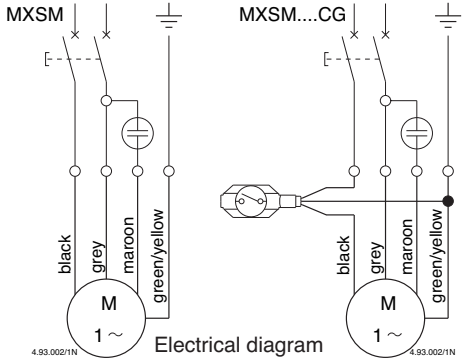
When the water level is not under direct visible control, install a float switch or electrodes to protect the pump against dry running and to set the water levels to stop and automatically start the pump.

The pumps are supplied with power cable type H07 RN8-F, 4G1 mm².
When extension cables are used, make sure the cable wires are of adequate size to avoid voltage drops. For connection of cables in a well, use thermo-shrinking sheathes or other methods for submersed cables.

3.1. Single-phase pumps MXSM

Supplied with incorporated thermal protector.
The motor will stop if overheating is detected. When the windings cool down (after 2 to 4 minutes), the thermal protector enables re-starting.

Control box with starting capacitor is included in the scope of supply.



3.2. Three-phase pumps MXS

Install in the control box an overload-protective device in accordance with the name-plate current.

4. Starting

With a three-phase power supply make sure the direction of rotation is correct.

For this purpose, with the gate valve at any aperture position, check the pressure (with the pressure gauge), or flow rate (sight check) after starting. Switch off power, invert the connections of two phases on the control panel, re-start and check the pressure or flow rate capacity again.
The correct direction of rotation will provide a considerably greater and easily distinguishable pressure and delivery capacity.

Make sure the pump is operating within its range of rated performance and that the absorbed current indicated on the name-plate is not exceeded. Otherwise, adjust the delivery gate valve or the setting of pressure switches if installed.

ATTENTION: never allow the pump to run for more than five minutes with a closed gate valve.

ATTENTION: never run the pump dry, not even for a short trial run.
Never start the pump before it has been immersed to a depth of at least 100 mm.

Construction with float switch:
the float switch, connected directly to the pump, controls starting and stopping.

Check that the float switch is free from any obstacle.

If necessary, adjust the float-switch cable.

Execessive cable length may cause the motor to overheat and the pump to run dry.

Construction without float switch:
If there is no air vent valve in systems with a check valve, the minimum immersion depth at first start-up must be 300 mm. An air vent valve must be used in systems with an immersed delivery outlet.
Do not start the pump with a completely closed shut-off gate valve.
Never take the pump out of the water while the pump is still operating.

5. Maintenance

Under normal operating conditions the pump will not require maintenance.

If freezing may be expected while the pump remains inactive and it is not submersed at a safe depth, remove the pump from the water and leave it in a dry place.

ATTENTION: if the pump is temporarily used with dirty liquids or water containing chloride, flush the pump briefly with clean water immediately after use to remove any deposit.

If the pump has not been used for a long time and does not start or gives no water (but electrical connections are in order), the pump must be removed from the water and checked to see if it is choked by any foreign matter or blocked by sediment, deposits or any other cause.

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

6. Dismantling

6.1. Checking rotation of the shaft

Refer to the cross-section drawing on page 29 - 30.
For MXS 203,204,205,206,404,405:
While the pump is positioned horizontally, remove the screws (14.24), the square nuts (14.28) and suction strainer (15.50). Hold the first stage casing (25.01) tightly with one hand so that is does not rotate and, with a wrench on the nut (28.04), turn the shaft in the clockwise direction.
For MXS 207,8,9,10, MXS 406,7,8,9,10, MXS 805,6,7,8,9:
Remove the filter 15.50 by extracting it with a screwdriver and hammer.
With a wrench on the nut (28.04), turn the shaft in the clockwise direction.

If the shaft is blocked and cannot be freed, dismantling should continue until the cause has been found and removed.

6.2. Inspection of the hydraulic parts

For MXS 203,204,205,206,404,405:
The O-ring (14.20) and then the complete motor assembly with all internal pump parts are removed from the external jacket (14.02).
The first impeller can be inspected by removing the first stage casing (25.01).
Once the nuts (28.04) and washer (28.08) are removed the spacer sleeves (64.15), impellers (28.00) and the other stage casings (25.02 and 25.05) can be dismantled one after the other.

For MXS 207,8,9,10, MXS 406,7,8,9,10, MXS 805,6,7,8,9:
Unscrew the cable gland 70.16, extract the complete connector and unhook it, both for the feed cable and the float if present. Slacken the preload of the three bolts 12.20.
Remove the 6 bolts 14.24 and relative plugs 14.29 and remove the delivery outlet casing 12.01, extract the outer liner 14.02 keeping the pump horizontal. The first impeller can be inspected by removing the first stage casing (25.01).
Once the nuts (28.04) and washer (28.08) are removed the spacer sleeves (64.15), impellers (28.00) and the other stage casings (25.02 and 25.05) can be dismantled one after the other.

Other parts should not be dismantled.
The motor and pump functions can be impaired by erroneous procedure or tampering with internal parts.

6.3. Oil chamber

If the oil chamber has to be inspected, follow these instructions:

CAUTION: there may be slight pressure in the oil chamber.
Care must be taken to avoid a sudden spurting of oil. Wait until the oil chamber cover (34.03) has cooled down.
For MXS 203,204,205,206,404,405:
Before removing the mechanical seal (36.00), loosen the screws (70.18) and raise the cover (34.03), applying force simultaneously on two opposite points of the cover rim, to let off pressure from the oil chamber. Carry out this operation while holding the motor in the upturned vertical position.

For MXS 207,8,9,10, MXS 406,7,8,9,10, MXS 805,6,7,8,9:
Remove the rotating part of the mechanical seal 36.00, extract the oil chamber cover 34.03, taking care not to damage the O-rings 70.09 and 78.12 and the fixed part of the mechanical seal.

When refilling the chamber use only white oil suitable for food machinery and pharmaceutic use (quantity = 35 g).
First, mount the fixed parts of the seal (36.00) on the oil chamber cover (34.00) and then the oil chamber cover (34.03) on the motor cover (70.00) with the O-ring (70.09).

7. Spare parts

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).

Any pumps that require inspection/repairmust be sent back complete with cable and electric control box.

8. Designation of parts

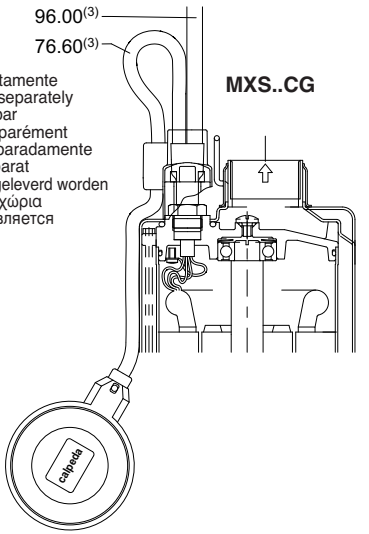
Nr.	Designation
12.01	Delivery casing
12.20	Screw
14.02	External jacket
14.20	O-ring
14.24	Screw
14.28	Square nut
14.29	Washer
14.54	Wear ring (1)
15.50	Suction strainer
25.01	First stage casing
25.02	Stage casing
25.05	Last stage casing
25.10	Washer for missing impeller
28.00	Impeller
28.04	Impeller nut
28.08	Washer
34.03	Oil chamber cover
36.00	Mechanical seal
36.51	Retaining ring, split
36.52	Shoulder ring
36.54	Spacer
64.15	Spacer sleeve
70.00	Motor cover, pump side
70.05	O-ring
70.09	O-ring
70.10	O-ring
70.12	Cable gland rubber ring
70.13	Washer
70.16	Cable gland
70.18	Screw
72.00	Upper mechanical seal
72.02	Circlip
73.00	Pump side bearing
76.01	Motor jacket with winding
76.60	Float switch
76.62	Jacket cover
78.00	Shaft with rotor packet
78.12	O-ring
81.00	Bearing
82.01	Motor end-shield, non-drive end
82.02	Screw
82.03	O-ring
82.04	Compensating spring
82.05	Screw
92.00	Tie-bolt
96.00	Cable

(1) Inserted in the stage casing, cannot be supplied separately
(2) Oil

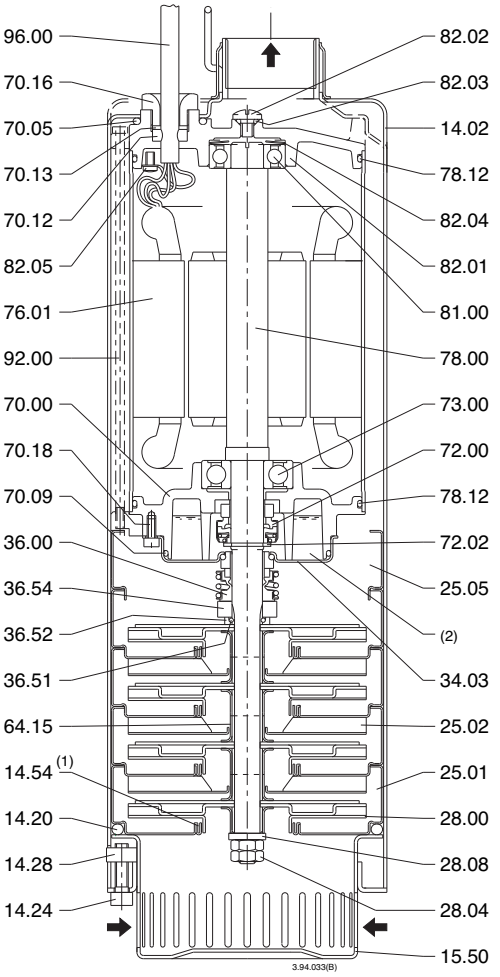
Changes reserved.

Disegni in sezione
Cross section drawings
Schnittzeichnungen
Dessins en coupe
Planos de sección
Sprängskiss
Onderdelentekening
Σχέδιο διατομής
Чертеж в разрезе

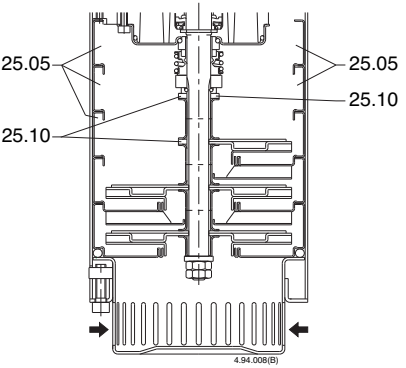
MXS 203,204,205,206
MXS 404,405



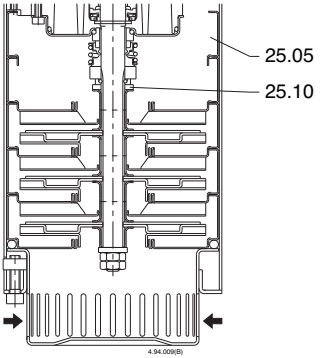
(3) Non fornibile separatamente
Cannot be supplied separately
Nicht getrennt lieferbar
Ne peut être livré séparément
No se suministra separadamente
Kan ej levereras separat
kan niet afzonderlijk geleverd worden
Δεν αντικαθίσταται χώρια
Отдельно не поставляется



MXS 203
MXS 402-60Hz **MXS 403-60Hz**



MXS 803



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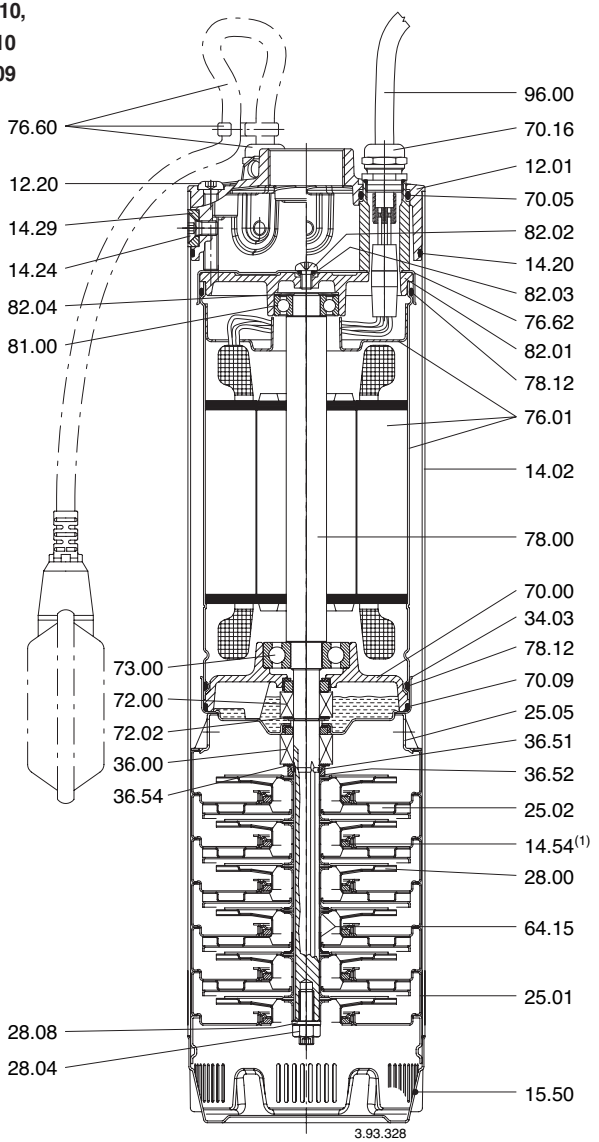
MXS 207-208-208-209-210,
MXS 406-407-408-409-410
MXS 805-806-807-808-809



(I) DICHIARAZIONE DI CONFORMITÀ

Noi CALPEDA S.p.A. dichiariamo sotto la nostra esclusiva responsabilità che le Pompe MXS, MXSM, 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 MXS, MXSM, 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 responsability for conformity with the standards laid down therein.

(D) KONFORMITÄTSERKLÄRUNG

Wir, das Unternehmen CALPEDA S.p.A., erklären hiermit verbindlich, daß die Pumpen MXS, MXSM, 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 MXS, MXSM, 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 MXS, MXSM, modelo y numero de serie marcados en la placa de caracteristicas 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 MXS, MXSM, 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 MXS, MXSM, modelo e número de série indicado na placa identificadora são construìdas 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 MXS, MXSM, 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 MXS, MXSM, malli ja valmistusnumero tyyppikilvcstä, 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. intygar att pumpar MXS, MXSM, 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 MXS, MXSM, με τύπο και αριθμό σειράς κατασκευής όπου αναγράφετε 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 MXS, MXSM, 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 MXS, MXSM, тип и серийный номер которых указывается на заводской табличке соответствуют требованиям нормативов 2004/108/CE, 2006/42/CE, 2006/95/CE.

Il Presidente

Montorso Vicentino, 01.2010

Licia Mettifogo