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

CLS
COMMERCIAL LEISURE SUPPLIES

NMP

OPERATING INSTRUCTIONS

calpeda®

CE

EN

SUMMARY

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.
Do not use in ponds, tanks or swimming pools or where people may enter or come into contact with the water.
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
Close-coupled self-priming centrifugal pumps with built-in strainer.
Inner basket with Ø 3 mm holes.
NMP: version with pump casing and lanter bracket in cast iron.
B-NMP: version with pump casing and lanter bracket in bronze.
(the pumps are supplied fully painted).

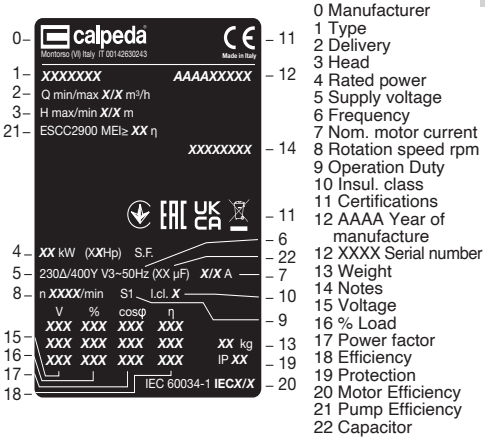
2.1 Intended use
For water circulation in swimming pool filtration systems.
For clean or slightly dirty water with solids in suspension.
Liquid temperature up to 60° C.

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.



3 TECHNICAL FEATURES
3.1 Technical data
Dimensions and weight (paragraph 12.1).
Nominal speed 2900/3450 rpm
Protection IP54 (IP 55 Special construction)
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: up to 2,2 kW: ≤ 70 dB (A);
from 3 to 7,5 kW: ≤ 85 dB (A).
Max. starts per hour at regular intervals:
60 up to 2,2 kW
40 from 3 to 7,5 kW
Maximum permissible working pressure up to 60 m (6 bar).
The max. inlet water pressure: PN (Pa) - Hmax (Pa).

3.2 Operating conditions
Installation in well ventilated location protected from the weather, with ambient temperature of 0°C to +40°C. Relative humidity: from 10% to 55% non-condensing.

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 allows 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, where it is required to remove the filter, 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 packed cannot move.
The transport vehicles must comply, for the weight and dimensions, with the chosen product (see paragraph 12.1 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 (see paragraph 12.1 dimensions and weights).

5.2. Storage
The appliance must be stored in a dry place, protected from shocks and preferably in its original packaging.
Respect the following storage conditions:
- Ambient temperature from -10°C to +70°C
- Relative humidity: from 10% to 90% non-condensing.

6 INSTALLATION

6.1 Dimensions
For the dimensions of the device refer to the annex "Dimensions" (paragraph 12.1 Annexes).

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.
Raise the pump-motor unit slowly (see paragraph 12.2 fig.1), making sure it does not move from side to side in an uncontrolled way, to avoid the risk of imbalance and tipping up.

6.4. Installation
The **NMP** pumps must be installed with the rotor axis horizontal and delivery port upwards.
Place the pump as close as possible to the suction source.
Provide clearance around the unit for **motor ventilation**, for easier inspection and maintenance.

6.4.1. Pipes
Ensure the insides of pipes are clean and unobstructed before connection.
ATTENTION: The pipes connected to the pump should be secured to rest clamps so that they do not transmit stress, strain or vibrations to the pump.
The inside diameter of the pipe-work depends on the desired flow.

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.

6.4.2. Suction pipe

The suction pipe must be perfectly airtight and be led upwards in order to avoid air pockets.
If operating with **flexible hoses**, use a reinforced spiral suction hose in order to avoid hose narrowing due to a suction vacuum.
With a **pump located above the water level** (suction lift operation), fit a **foot valve** or a **check valve** on the suction connection.
With **a pump located below water level** (inflow under positive suction head) install a gate valve.

6.4.3. Delivery pipe

Fit a gate valve in the delivery pipe to adjust delivery, head, and absorbed power.
Install a pressure gauge.
With a geodetic head of over 15 m fit a check valve between the pump and the gate valve in order to protect the pump from water hammering.

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 ⏚ 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-F type with section of cable not less than (par. 12.3 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 (not when persons 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 in all poles.
With a three-phase motor install an overload protection with curve D device appropriate for the rated current of the pump.

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

EN

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

ATTENTION: never run the pump dry. Start the pump after filling it completely with liquid.

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

ATTENTION: for transportation the cover is temporarily closed with hexagon nuts.
Replace them with the hand knobs (15.12) located inside the filter.

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.

With a three-phase motor check that the direction of rotation is as shown by the arrow on the pump casing, otherwise, disconnect electrical power and reverse the connections of two phases.
With a suction lift operation it may be necessary to wait a few minutes for the pump to prime.
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.

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 reparation 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 suggest 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

Before every maintenance operations disconnect the power supply and make sure that the device could not accidentally operate.

Inspect and clean the strainer basket periodically. The strainer can be easily accessed by removing the strainer cover. With the pump located below water level, close the suction and delivery gate valves before removing the cover.

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).

When the pump remains inactive it must be emptied completely if there is a risk of freezing (see paragraph 12.2 **fig. 3**).
Before restarting the unit, check that the shaft is not jammed and fill the pump casing completely with liquid.

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

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

For dismantling and reassembly see construction in the cross section drawing.

The motor and all internal parts can be dismantled without removing the pump casing and pipes.

By removing the nuts (14.28) the motor can be taken out complete with the impeller.

8.4. Pumps with IP 55 protection (Special construction)

To always assure IP 55 degree of protection, it is necessary to check the following points:

- Before starting the motors, carefully control the position of the gasket between terminal box and its cover. For cable of small size, use a protective covering between cable and cable gland.
- When disassembling the end shields of the motors, restore the existing joint using the sealing glue LOCTITE type 510 or other equivalent sealing system, if any, and check the perfect assembly of the sealing ring on the shaft.

9. DISPOSAL

European Directive 2012/19/EU (WEEE)

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, e-mail.

10.2 DESIGNATION OF PARTS

Nr.	Designation
14.00	Pump casing
14.12	Plug (draining)
14.20	Gasket
14.24	Screw
14.28	Nut
14.46	Plug
15.00	Strainer cover
15.04	O-ring
15.08	Screw
15.12	Hand wheel
15.50	Strainer basket
28.00	Impeller
28.04	Impeller nut
28.20	Key
32.00	Lantern bracket
32.30	Guard
32.32	Screw
32.33	Caged Nut
36.00	Mechanical seal
36.50	Circlip
46.00	Deflector
70.20	Screw
70.21	Washer
73.00	Pump-side bearing
76.00	Motor casing with winding
76.04	Cable gland
76.16	Support
76.20	Pin
76.54	Terminal box, set
78.00	Shaft with rotor packet
81.00	Fan-side bearing
82.00	Motor end shield, fan side
82.04	Compensating spring
82.08	Screw
88.00	Motor fan
88.04	Circlip
90.00	Fan cover
90.04	Screw
94.00	Capacitor
98.00	Terminal box cover
98.04	Screw
98.08	Gasket

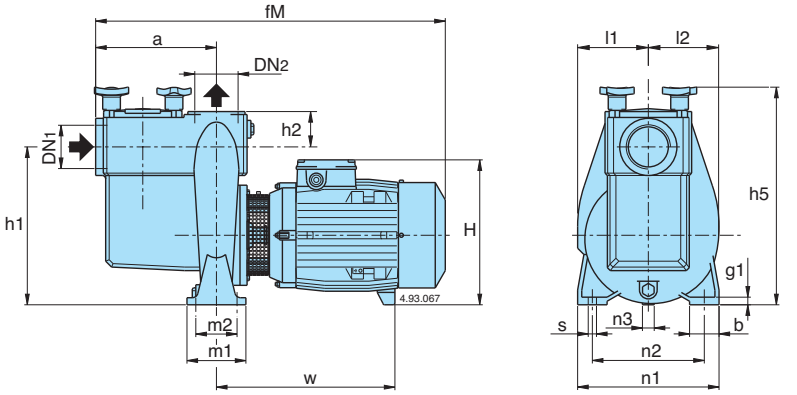
11. TROUBLESHOOTING

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

PROBLEM	PROBABLE CAUSES	POSSIBLE REMEDIES
1) The engine 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) Motor failed	1a) Check that the mains frequency and voltage are suitable. 1b) Connect the power supply cable correctly. Check the setting of the thermal overload protection. 1c) Check the power supply and make sure that the pump shaft is turning freely. Check the setting of the thermal overload protection. 1d) Replace the fuses, check points a) and c) 1e) See "Blocked pump" instruction booklet 1f) Repair or replace the engine.
2) Pump blocked	2a) Prolonged periods of inactivity . 2b) Presence of solid bodies in the impeller 2c) Bearings blocked	2a) Unblock the pump by using a screw driver to turn the relevant notch on the back of the shaft. 2b) Remove any solid foreign bodies inside the impeller 2c) Replace the bearings.
3)The pump functions but no water comes out	3a) Presence of air inside the pump or suction pipe 3b) Possible infiltration of air. 3c) Foot valve blocked or suction pipe not fully immersed in liquid 3d) Suction filter blocked	3a) Release the air from the pump using the delivery control valve. 3b) Check which part is not tight and seal the connection. 3c) Clean or replace the bottom valve and use a suitable suction pipe . 3d) Clean the filter, if necessary, replace it . See point 2b) also.
4) Insufficient flow	4a) Pipes and accessories with diameter too small 4b) Presence of deposits or solid bodies in the impeller 4c) Rotor deteriorated 4d) Worn rotor and pump case 4e) Gases dissolved in the water 4f) Excessive viscosity of the liquid pumped 4g) Incorrect direction of rotation	4a) Use pipes and accessories suitable for the specific application 4b) Clean the impeller and install a suction filter 4c) Replace the impeller 4d) Replace the impeller and the pump casing 4e) Perform the opening and closing manoeuvres through the feeder gate 4f) The pump is unsuitable 4g) Invert the electrical connections in the terminal board
5) Noise and vibrations from the pump	5a) Worn bearings 5b) Unbalanced power supply	5a) Replace the bearings 5b) Check that the mains voltage is right
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 6a) Make sure that the pump casing is full of liquid and that all the air has been expelled. 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).

Changes reserved.

12.1 Dimensions and weights

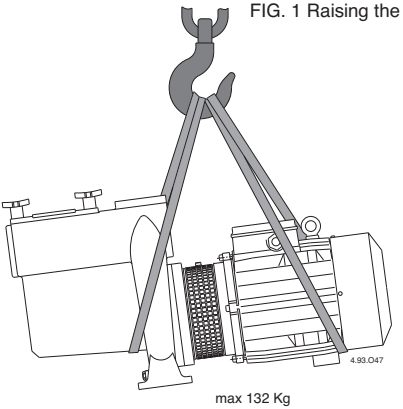


TYPE	DN1	DN2	mm																
	ISO 228		a	fM	h1	h2	H	h5	m1	m2	n1	n2	n3	b	s	l1	l2	w	g1
(B) **NMP 32/12DE-FE** (B) **NMP 32/12S/A-A/A**	G 2	G 2	195	510	230	50	228	320	100	70	190	140	30	50	14	106	99	220	12
(B) **NMP 50/12G/A-H/A** (B) **NMP 50/12F/B** (B) **NMP 50/12D/A**	G 2 1/2	G 2 1/2	205	540 580 602	262	60	240 240 250	360	100	70	240	190	37 37 20	50	14	120	117	234 274 298	12
(B) **NMP 65/12E** (B) **NMP 65/12A-C**	G 3	G 3	320	724 782	360	80	298 325	470	125	95	280	212	60 49	65	14	157	159	303 343	15

TYPE	**NMP** kg	**B-NMP** kg
(B) **NMP 32/12FE**	30	32
(B) **NMP 32/12DE**	30	32
(B) **NMP 32/12A/A**	31	33
(B) **NMP 32/12S/A**	33	35
(B) **NMP 50/12H/A**	37	39
(B) **NMP 50/12G/A**	38,5	40
(B) **NMP 50/12F/B**	41,5	44,5
(B) **NMP 50/12D/A**	50,5	54,5
(B) **NMP 65/12E**	76	86,5
(B) **NMP 65/12C**	89	99
(B) **NMP 65/12A**	94,5	104,5

12.2 Installation examples

FIG. 1 Raising the pump



max 132 Kg

15.12

FIG. 2
Filling

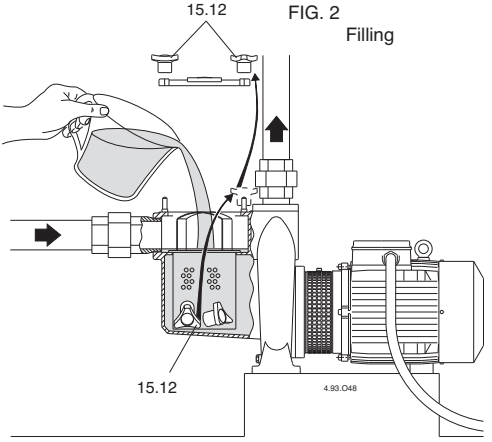
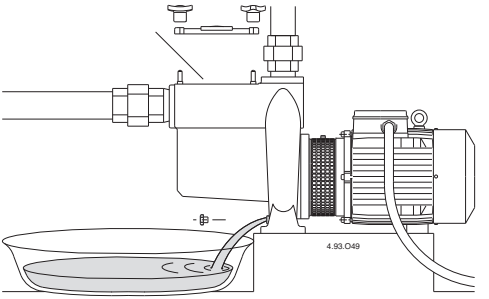


FIG. 3
Draining

Air inlet



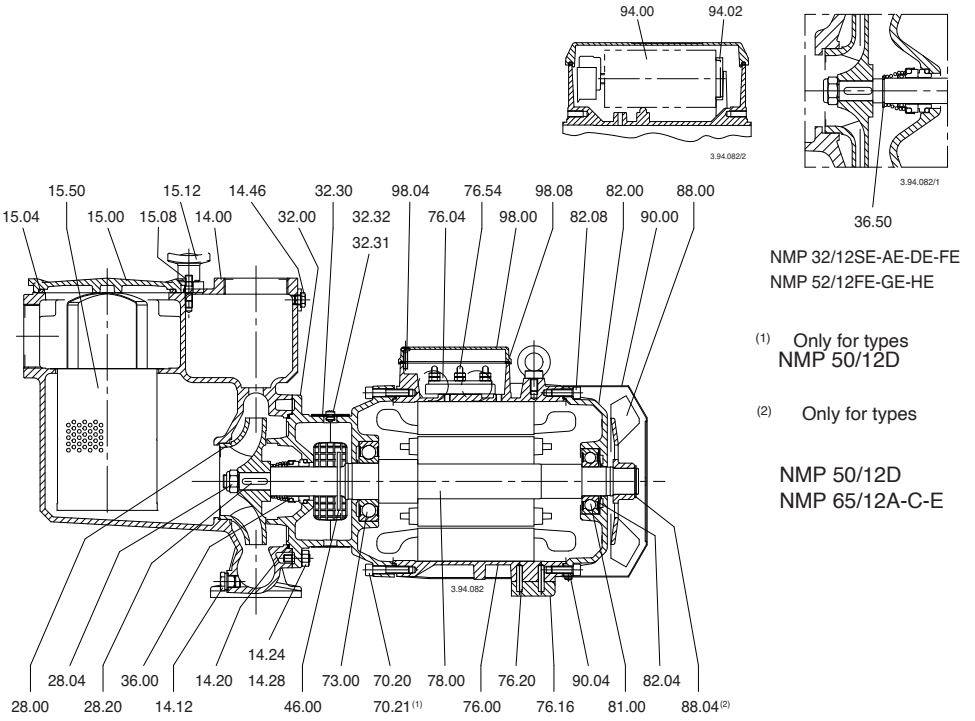
12.3. Minimum cross-sectional area of conductors

Tab. 1

TAB 1IEC 60335-1

Rated current of appliance	Nominal cross-sectional area mm^2
>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

12.4.Drawing for dismantling and assembly



NMP 32/12SE-AE-DE-FE
NMP 52/12FE-GE-HE

(1) Only for types
NMP 50/12D

(2) Only for types

NMP 50/12D
NMP 65/12A-C-E

UK DECLARATION OF CONFORMITY

Manufacturer's Name: Calpeda S.P.A.
Address: Via Roggia di Mezzo 39, 36050 Montorso Vicentino (VI) Italy
We Calpeda S.P.A. declare that:
the undersigned company certifies under its sole responsibility that the pumps specified below satisfy the following requirements of UK regulations.
Pump Models : NMP, NMPM, B-NMP, B-NMPM

UK Regulations:
Supply of Machinery (Safety) Regulations 2008
Electrical Equipment (Safety) Regulations 2016
Electromagnetic Compatibility Regulations 2016
The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012
The Ecodesign for Energy-Related Products and Energy Information (Amendment) (EU Exit) Regulations 2019

Applicable designated standards:
BS ISO 12100:2010; BS 809:1998+A1:2009
BS 60335-1:2012/A2:2019; BS 60335-2-41:2003/A2:2010
BS EN 55014-1:2017+A11:2020; BS 55014-2:2015; BS 61000-3-2:2019+A1:2021; BS 61000-3-3:2013/A1:2019

Person authorised to compile the technical file:
Federico De Angelis
Calpeda S.p.A.
Via Roggia di Mezzo 39, 36050 Montorso Vicentino (VI) Italy

Montorso Vicentino - Italy – 03.2024

CALPEDA S.p.A.
Amministratore Delegato
Federico De Angelis

GB **DECLARATION OF CONFORMITY**

We CALPEDA S.p.A. declare that our Pumps NMP, NMPM, B-NMP, B-NMPM, with pump type and serial number as shown on the name plate, are constructed in accordance with Directives 2006/42/EC, 2009/125/EC, 2011/65/EU, 2014/30/EU, 2014/35/EU and assume full responsibility for conformity with the standards laid down therein. Commission Regulation No. 2019/1781.

CLS
COMMERCIAL LEISURE SUPPLIES

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Montorso Vicentino, 03.2024

CALPEDA S.p.A.
Amministratore Delegato
Federico De Angelis

calpeda®

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