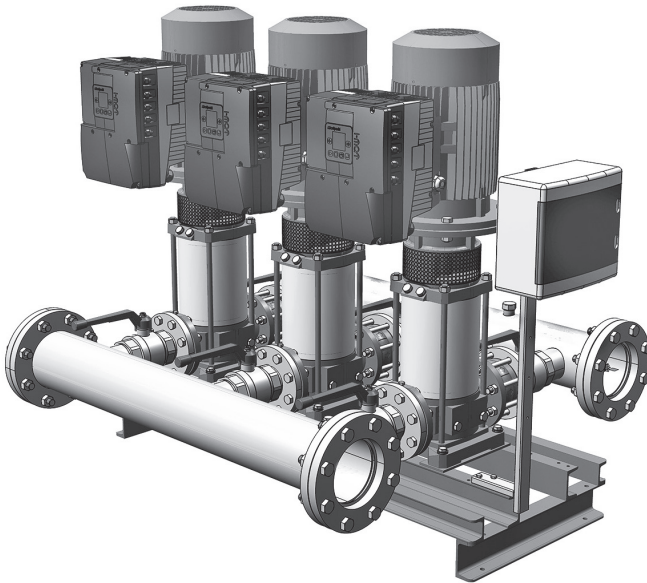


Easymat & IMAT



SUMMARY

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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. English 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 decommissioned. The customer, in case of loss, can request a copy of the manual by contacting Calpeda Ltd 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's name: Calpeda Ltd
Address: 6-8 Wedgwood Rd Ind Est
Bicester OX26 4UL, UK
www.calpeda.co.uk

1.3. Authorized operators

The product is for qualified operators upon final users and specialized technicians. (see above).



It's forbidden for the final user to do any operation reserved only for the authorized technicians. The manufacturer isn't responsible for the related damage done by missing this prohibition.

1.4. Warranty

Warranty covers all defects within the booster set resulting from faulty workmanship and/or materials for a period of two years from the date of installation or 30 months from the date of dispatch from our production centre, whichever is the shorter.



The warranty covers the replacement or repair of the faulty parts and labour to do so. It does not cover any secondary loss, costs associated with the removal, returning or refitting of the set.

Under no circumstances should the faulty equipment be dismantled. Failure to comply could invalidate the warranty.

The warranty may be lost in these cases:

- Whenever the use of this product is different from its intended use described in this manual.
- Defects arising from incorrect installation and/or operation.
- In case of modifications or customizations made without the authorization of the manufacturer.
- In case of technical assistance operations made by non-authorized personnel.
- In case of missing maintenance (described in this manual).

1.5. Technical assistance

Any further information on documents, service assistance, and device parts, please contact:

Calpeda Ltd
6-8 Wedgwood Rd Ind Est,
Bicester OX26 4UL, UK
T: +44 1869 241441 F: +44 1869 240681
E: pumps@calpeda.co.uk
W: www.calpeda.co.uk

2. TECHNICAL DESCRIPTION

Constant pressure booster sets with built-in frequency converter made with multiple pumps, ball valve, non-return valve and pressure gauge on discharge side, ball valve on suction side.

EASYMAT – Domestic and Commercial use
I-MAT – Domestic, commercial and industrial

2.1. Intended use

For clean liquids: non-explosive and non-flammable, non-hazardous for health or the environment, non

aggressive for booster set materials, not containing abrasives, solid or fibrous particles.

Liquid temperature from 0 °C to + 40 °C in line with the regulation.

2.2. Expected improper use

The device is designed and manufactured exclusively for the purpose described in sec. 2.1.



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

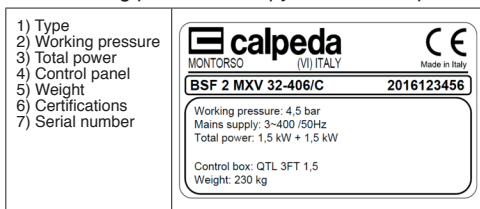


Booster sets must not be used in hazardous areas as they could cause an explosion if there is the danger of ignition by a flame path.

It will be not accepted liability for the use of our sets with liquids which could be construed as being hazardous to health either by touch, ingestion, or inhalation of fumes or gases given off by the liquid. Calpeda cannot be held responsible for failures or injuries related to the inobservance of the restrictions described.

2.3. Marking

The following picture is a copy of the name-plate.



3. TECHNICAL CHARACTERISTICS

Dimensions and weight (see technical catalogue).

Protection IP54 (depending on pump model)

Supply voltage / Frequency:

EASYMAT 230 V1~50 Hz

I-MAT 400V3~50 Hz

Sound pressure: refer to individual pump data

Maximum permissible pressure: up to 10 bar depending on model.

3.1. Operating conditions

The product works properly only if the followings conditions are respected.

Floating voltage rate: +/-10% max

Floating frequency rate: +/- 4% max

Ambient temperature: up to 40°C

Relative Humidity: up to 90% without condensing

Altitude: Below 1000 m inside a building.



Booster sets must be used in conjunction with a cold water storage tank and must not be connected direct to mains in-line with water byelaw regulations.

3.2. Product overview

The booster set is generally made of:

1 or more pumps
 suction manifold (from 2 pumps)
 interception valve on suction for each pump
 no-return valve on suction for each pump
 interception valve on delivery 1 for each pump
 delivery manifold (from 2 pumps).
 frequency converters (according with the model)
 electrical panel
 one or more pressure vessels with relevant accessories.

4. SAFETY

4.1. General behavior standards



Before using the product it is necessary to acknowledge all the information about safety.

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 nameplate 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 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.



All the power terminals and other terminals must be inaccessible after installation is completed.

4.2. Residual risks

The device, for its design and designation (in accordance to intended use and safety standard), has no residual risks.

4.3. Safety icons and information

Please refer to all product manuals supplied in the pack.

5. TRANSPORT AND HANDLING

During transport do not stack heavy objects on it. Make sure that during transport the vehicle that is used, is big enough for the total dimension of the package.

The vehicles used must be suited for the dimensions and weights of the chosen device.

5.1. Handling



The booster sets are supplied from factory mounted on a pallet base suitable for handling with forklift equipment.

The weight of the booster set may require the use of specialist lifting equipment in order that it can be handled safely. During lift or manoeuvre of the equipment never use the set pipe-work, vessels or fittings as a lifting point.

5.2. Site storage

It is advised that once the set has been delivered it must be placed immediately in a dry, frost and dust free area and secured from interference.

6. INSTALLATION

6.1. 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.

6.2. 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.

6.3. Installation

The booster set should not be installed in roof spaces as the small level of vibration associated with rotating equipment will cause disturbance, and considerable damage could occur in the event of water leakage or loss during commissioning and/or service.

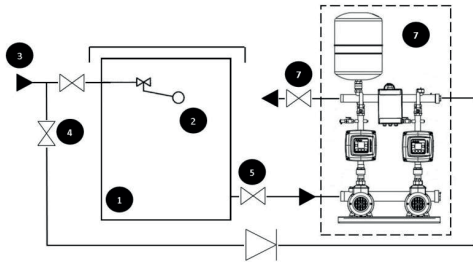
The booster sets should be installed in a well-ventilated, dry frost free position.

External installation should make use of a rodent proof enclosure with adequate ventilation and protected from freezing.

A space around the set of approximately 750 mm should be provided for access and servicing.

Adequate drainage should be provided with protection from water damage in the immediate vicinity should a leak or spillage occur. Adequate lighting should be provided for service, inspection and commissioning.

6.3.1. General arrangement



It is important that the following items are installed over and above those supplied with the standard booster set:

1. Storage tank.
2. Ball/Float valve.
3. Mains Water inlet.
4. Mains Water by-pass
5. Suction Isolating valve.
6. Discharge Isolating valve.
7. Booster set.



Installation must be in accordance with local regulations and Water bye-laws.

6.3.2. Foundation

The set should be installed with anti-vibration mounting pads and anti-vibration pipe coupling especially

in noise sensitive areas. Otherwise install the set on a level concrete plinth which will not distort or twist

the base-plate, use shims if required. Always install in a horizontal position and use adequate fixings. Do

not install on a wooden substructure or any potentially flexible substructure.

6.3.3. Storage tank and bypass

The booster sets must be used in conjunction with an adequately sized water storage tank, supplied and installed in accordance with the water byelaws. The set must not be directly connected to a mains water

supply. In the event of a failure of the booster set it is advised that a cold water mains bypass should be fitted to allow for a continued supply even at a reduced pressure. The bypass should be installed in-line with water byelaws.

6.4. Pipes

Ensure the insides of pipes are clean and unobstructed before connection.

ATTENTION: The pipes connected to the booster set should be secured to rest clamps so that they do not transmit stress, strain or vibrations to the booster set.

The pipe diameters must not be smaller than the booster set connections.

Isolation valves should be fitted before the set suction manifold and on the discharge manifold after the set to allow the set to be removed without a major loss of water in the system.

6.4.1. Suction pipe

The suction pipe must be perfectly airtight and be led

upwards in order to avoid air pockets.

With a booster set located above the water level (suction lift operation) fit a foot valve with strainer which must always remain immersed.

With the liquid level on the suction side above the pump (inflow under positive suction head) fit an inlet gate valve.

For suction from a storage tank fit an anti-backflow valve.

Follow local specifications if increasing network pressure.

6.4.2. Delivery pipe

Fit a gate valve in the delivery pipe.

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 plate data and connect the in accordance with the diagrams.



The set is supplied with a separate control box which allows control and monitoring features to be connected without accessing either the motor terminal box or the inverter terminals. Please follow carefully the wiring diagrams supplied.

6.6. Power supply connection

Electrical supply must comply with the description in section 3.


If the electric control box is connected to an electric plant with a differential switch (ELCB) or a Ground Fault Circuit Interrupter (GFCI) as a further protection, these devices must comply the

following characteristics:
 Suitable to control leakage current and, in case of short pulsed leakage current.
 Must operate in case of a fault alternating current, and in case of fault current with DC content, such as fault pulse DC current and flat DC current
 The electric control box must have installed a B-type differential switch or GFCI.
 These protections must be signed with the followings symbol.



7. STARTUP AND OPERATION

7.1. Commissioning

 It is strongly advised that commissions of the set must be done using an approved agent or one of our Engineers.
 Correct commissioning will guarantee the longevity of the set and ensure that it operates at optimum efficiency.

water supply and all electrical connections made. Most of the basic functions are pre-programmed at the time of production but the most basic settings must be checked. If modifications on the settings are required refer to the Easymat or I-Mat manual in this pack

7.2. Vessel pressure



Before installation, check the status of the air cushion load in the vessel.
 Air preloaded pressure of the vessel must be of 0,2 bar lower than the restart pressure value.

7.3. First starting



After completing hydraulic and electrical connection and checked the preloaded pressure (for booster set with membrane tank), start the plant as indicated below:
 Prime the pumps (see the pumps' instructions).

Pump with suction lift:

- Fill the suction pipe and the pump body by means of the plug hole located close to the delivery port of the pump.
- Fill the suction tube by pouring water through the plug hole on the suction manifold of the pump.


Pump with positive suction head:

- Open the gate-valve in the suction pipeline. With sufficient head, the water will overcome the resistance of the non-return valve fitted in the suction side of the pump and will fill the pump body. Otherwise, prime the pump with the plug hole near the delivery port.



Never run the pump for more than five minutes with a closed gate valve


Starting pumps

Press the button  (play) in all the frequency converter, to change the pump status from STOP to run. The pump starts up with the acceleration ramp set to reach the wished set-point.












When the motor start turning, check the direction of rotation.

If the booster set has been primed correctly, after a few seconds the pressure will begin to increase on the display.

If, after a few seconds of operation the pressure remains at 0.0 bar, stop the booster set by selecting  (stop) in each frequency converter as priming has not been carried out correctly and the pump is idling. Re-prime the pumps and repeat the starting up procedure.


7.4. Inversion of the direction of rotation






To change the direction of rotation of the motor push the button  (menu) and then with the button  (plus) or  (minus) move up to the programming parameter UP. Confirm with  (enter) and with the button  (plus) or  (minus) move up to the parameter UP04, confirm with (enter) and by pushing of the button  (plus) change the value, confirm with  (enter). To exit the program, push  (menu) until you arrive on the basic display, when you are out from the setup mode the icon disappear.

7.5. Quick set-point modification



It is possible to change the set point pressure without enter on the user parameter (UP menu). Pushing the button  (enter) for more than 5 seconds, in any of the frequency converter, you will enter directly to the set point pressure (UP05 parameter).

By pushing of the buttons  (plus) or  (minus) change the pressure value and confirm with  (enter).

By pushing of the button  (menu) the system will return to the basic display (see paragraph 9.1.).

7.6. Switch off of the pump



The appliance must be switch off every time there are faults.

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.

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 booster set.



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.

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

8.1. Routine maintenance and inspection



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



Close the suction and delivery gate valves and before attempting any maintenance activity.

It is suggested to make an inspections at least every 6 months. The inspection must include:

1. Check that there are no leaks especially around the area of the pump seals.
2. Check for any corrosion or signs of wear.

3. Check that the pump rotate freely.

4. Check that there is no sign of water at the vessel air valve by quickly depressing the air valve needle.

5. Check that the pump/s are operating correctly and quietly without excessive vibration.

6. Check that the system operates smoothly and comes to rest when there is no demand and the set pressure has been reached.

7. Check all electrical cables and fittings for signs of damage or wear.

8. Check the vessel pre-charge.

9. Check the operation of any float switches or safety or protection devices.



We advise that for a reliable and constant supply of water that you take out a maintenance contract. These are especially devised for the set you have and the work is carried out by fully qualified and experienced staff.

8.2. Dismantling the system



Close the suction and delivery gate valves and drain the booster set before dismantling.

9. DISPOSAL



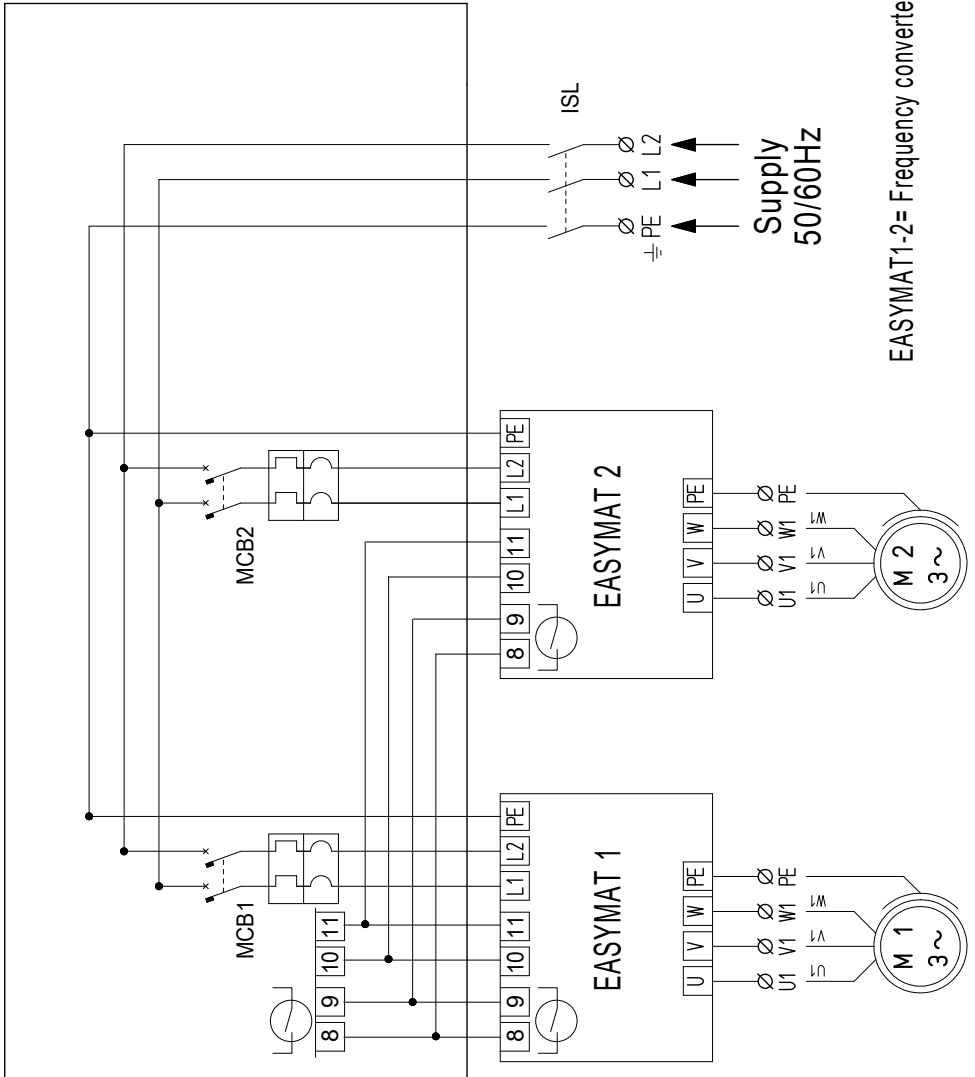
The final disposal of the device must be done by specialized company.

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.

Changes reserved.

10 ELECTRICAL DIAGRAM

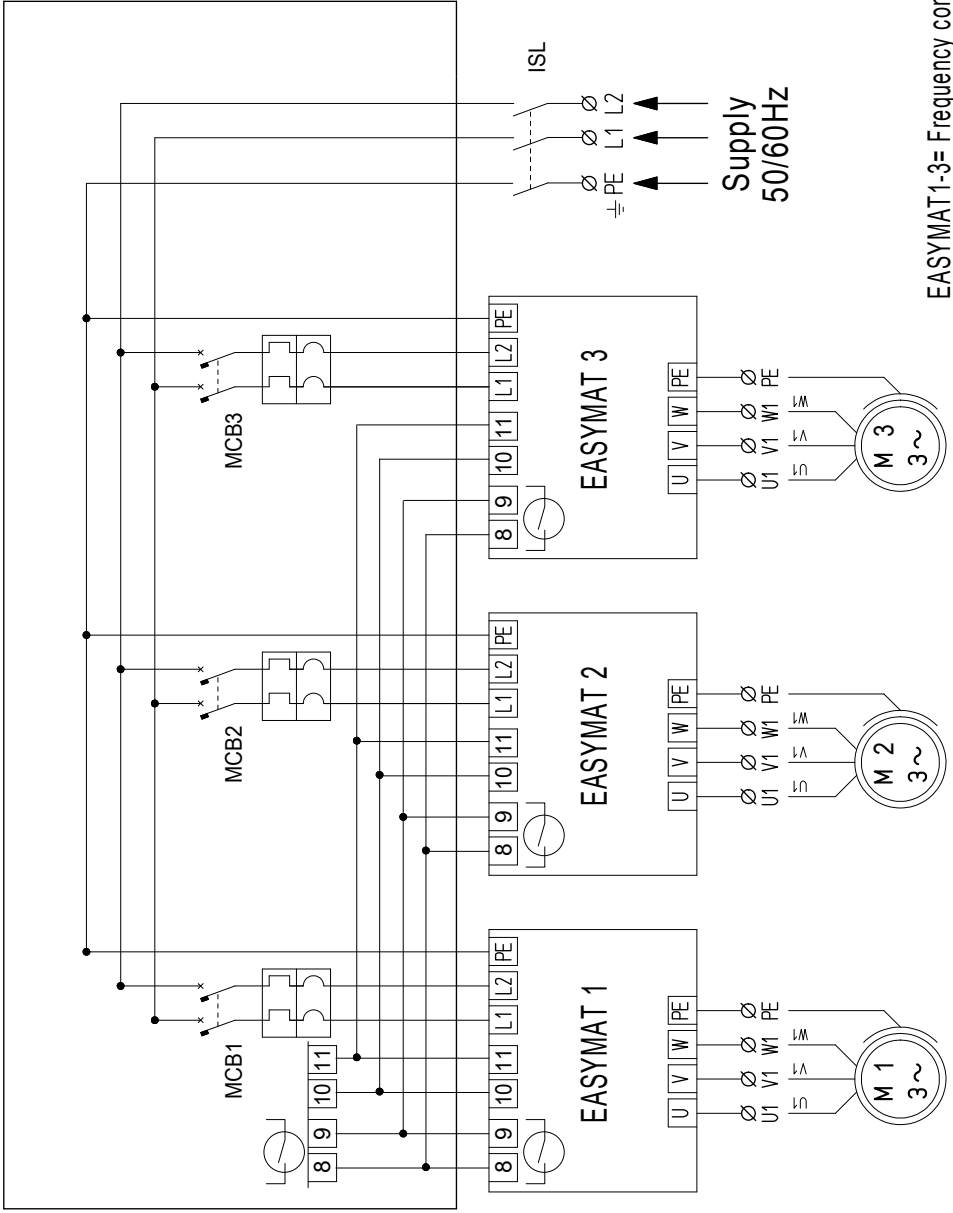
Panel Type	MCB (1,2)
QTE2 -10M	10A
QTE2 -16M	16A
QTE2 -20M	20A



EASYMAT1-2= Frequency converter

ELECTRICAL DIAGRAM

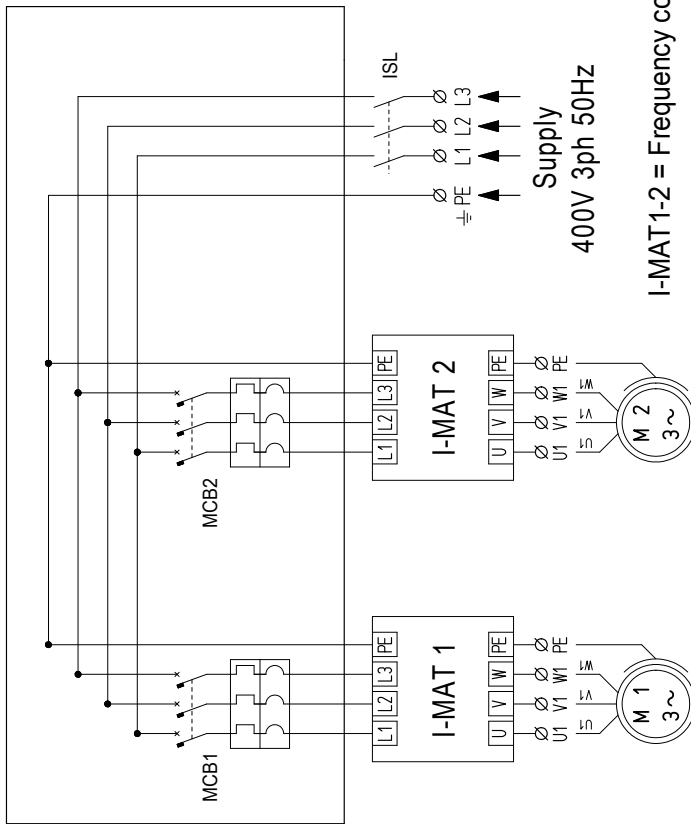
Panel Type	MCB (1,2,3)
QTE3 -10M	10A
QTE3 -16M	16A
QTE3 -20M	20A



EASYMAT1-3= Frequency converter

ELECTRICAL DIAGRAM

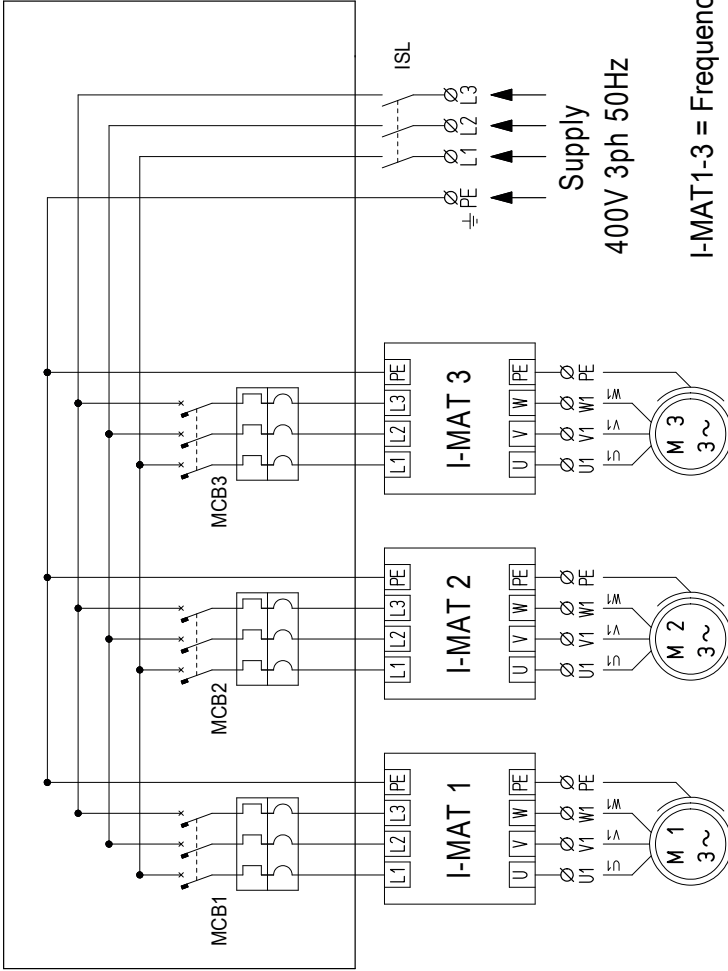
Panel Type	MCB (1,2)
QT12-10T	10A
QT12-16T	16A
QT12-32T	32A



C	C	C	C	1A	1A	2A	2A	2A	1A	1A	2A	2A	E	U	V	W
1	2	1	3	7	8	9	7	8	2	3	4	2	Common	Pump 1	Pump 1	Pump 2
Float 1	Float 2	Remote ON/OFF	Common	N/O	N/C	N/C	Common	N/O	N/C	N/C	N/C	Common	N/O	Pump 2 Alarm 1	Pump 1 Alarm 1	Pump 1 Alarm 1

ELECTRICAL DIAGRAM

Panel Type	MCB (1,2,3)
QT13-10T	10A
QT13-16T	16A
QT13-32T	32A



C	C	C	C	1A	1A	1A	1A	2A	2A	2A	3A	3A	3A	E	U	V	W	E	U	V	W	E	U	V	W	
1	2	1	3	9	10	7	8	9	7	8	9	7	8	9	7	8	9	7	8	9	7	8	9	7	8	9
Float 1	Float 2	Remote ON/OFF	Common	N/O	N/C	Common	N/O	N/C	Common	N/O	N/C	Common	N/O	N/C	Common	N/O	N/C	Common	Pump 1 Alarm 1	Pump 2 Alarm 1	Pump 3 Alarm 1	Pump 1	Pump 2	Pump 3		

GB

DECLARATION OF CONFORMITY

We CALPEDA Ltd declare that our booster sets with type and serial number as shown below, are constructed in accordance with Directives 2006/42/EC and 2014/30/EU, and assume full responsibility for conformity with the standards laid down therein.

The manufacturer also declares that the following harmonised international standards have been applied:

- EN ISO 12100:2010
- EN 809:1998+A1:2009
- EN 60204-1:2006/A1:2009
- EN 61800-3:2004

Bicester 01.2018

Managing Director
Calpeda Ltd

Ken Hall



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