

**INSTALLATION GUIDELINES  
FOR BIODISC<sup>®</sup> UNITS  
BA, BB & NB**



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**Important**

Once installed, the motor should be left on and running.

If there is delayed electrical connection or if there is no power available to operate the unit, then the motor with gearbox must be removed and stored in a dry environment.

The motor keeps dry by generating its own heat when operating. In a non-functioning situation, water vapour can enter the motor and cause corrosion.

The motor must not be left non-operational for a period of 7 days or more.

**HEALTH AND SAFETY**

**These warnings are provided in the interest of safety. You must read them carefully before installing or using the equipment.**

It is important that this document is retained with the equipment for future reference. Should the equipment be transferred to a new owner, always ensure that all relevant documents are supplied in order that the new owner can become acquainted with the functioning of the equipment and the relevant warnings.

Installation should only be carried out by a suitably experienced contractor, following the guidelines supplied with the equipment.

The unit should be commissioned by an approved engineer. Contact Klargester.

We recommend the use of a dust mask and gloves when cutting GRP components.

A qualified electrician should carry out electrical work.

Sewage and sewage effluent can carry micro-organisms harmful to human health. Any person carrying out maintenance on the equipment should wear suitable protective clothing, including gloves. Good hygiene practice should also be observed.

Covers must be kept locked.

Observe all hazard labels and take appropriate action to avoid exposure to the risks indicated.

Customer care hotline phone number is 0845 601 5597

The correct ongoing maintenance is essential for the proper operation of the equipment. Service contracts are available and recommended. Please contact Klargestor for details of your local service provider.

Should you wish to inspect the operation of the equipment, please observe all necessary precautions, including those listed below, which apply to maintenance procedures.

BioDisc units contain rotating machinery and associated drive belts.

Ensure that you are familiar with the safe working areas and accesses.

Ensure that the working area is adequately lit.




The power supply to the equipment must be isolated at the control panel(s) before lifting the covers. Where a specific maintenance procedure requires the equipment to be running with the covers off, all care must be taken to avoid contact with moving parts and electrical components or conductors. Drive guards must be replaced and secured if removed during maintenance.

Once power has been isolated, the control panel must be kept locked shut to avoid accidental re-connection whilst work or inspection is being carried out.

Use only the designated access walkways. Do not walk on the cover or deep well safety mesh(es)

Take care to maintain correct posture, particularly when lifting. Use appropriate lifting equipment when necessary. Keep proper footing and balance at all times. Avoid any sharp edges.

Desludging should be carried out by a licensed waste disposal contractor holding the relevant permits to transport and dispose of sewage sludge. The contractor must refer to the desludge instructions in the Operating Handbook, a copy of the instructions is fastened under the covers.

DECLARATION OF CONFORMITY	
Description of Machine	B Range BioDisc Sewage Treatment Plant
Model	.....
Serial Number (see cover label)	.....
Year of Manufacture	.....
Name of Manufacturer	Klargester Environmental, College Road North, Aston Clinton, Aylesbury Bucks, HP22 5EW.
<u>EUROPEAN DIRECTIVES:</u>	Machinery Directive 89/392/EEC    Low Voltage Directive 73/23/EEC Electromagnetic Compatible Directive 89/336/EEC
We declare that the equipment covered in this manual conforms with the essential Health and Safety requirements.	
<i>Alison Andrusar</i> PRODUCT MANAGER WASTE WATER    1 JUNE 1997	
	
	

BioDisc is the registered trademark of Klargestor Environmental

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**Appendices - BioDisc Wiring Diagrams:**

510100	BA/BB 1 ph.	510102	BA/BB 1 ph (Integral Pump)
510001	BA/BB 1 ph. Alarm Control Panel		

The appropriate wiring diagrams as listed below are supplied, packed with the control panel. If additional copies are required contact Klargester.

510030	BA/BB/BC 3 ph	510003	BA/BB/BC 3 ph. Alarm Control Panel
510027	BA/BB 3 ph (Integral Pump)	510004	NB 1 ph.
510005	NB 1 ph. Alarm Control Panel	510006	NB/C 3 ph.
510007	NB/C 3 ph. Alarm Control Panel	510018	Independent Loss of Rotation Alarm
510023	Independent High level Alarm	510105	BA/BB 1 ph. integral pump (Ireland)
510103	BA/BB 1 ph. (Ireland)		

## 1.0 Introduction

These Guidelines represent Best Practice for the installation of these Klargester BioDisc Units. Many years of specialist experience has led to the successful installation of thousands of BioDisc units. It must be noted, however, that these Guidelines are necessarily of a general nature. It is the responsibility of others to verify that they are appropriate for the specific ground conditions and in-service loads of each installation. Similarly, any information or advice given by employees or agents of Klargester regarding the design of an installation must be verified by a qualified specialist (e.g. civil engineering consultant). Once installed the unit should be commissioned by an approved engineer.

## 2.0 Handling & Storage

- 2.1. Care must be taken to ensure that the unit is not damaged during delivery and handling on site.
- 2.2. The design requirements of Klargester products will frequently mean that the centre of gravity of the unit is "offset". Care must therefore be taken to ensure that the unit is stable when lifting.
- 2.3. When lifting the unit, use webbing slings of a suitable specification, which must be attached to the designated lifting points.
- 2.4. Do not use chains.
- 2.5. Lifting equipment should be selected by taking into account the unit weight, length and the distance of lift required on site.
- 2.6. Klargester Environmental accepts no responsibility for the selection of lifting equipment.
- 2.7. Whenever Klargester BioDisc units are stored or moved on site, ensure that the storage location is free of rock, debris and any sharp objects which may damage the unit. The BioDisc must be placed on ground which is flat and level to evenly support the base of the unit.
- 2.8. Please read the manual completely and ensure that you are fully aware of all the instructions, particularly those relating to delayed electrical connection.

## 3.0 Site Planning

The following points should be considered before installation of the equipment:

- 3.1. The discharge must have the consent of the relevant Environmental Regulator.
- 3.2. The installation should have Planning and Building Control approval.
- 3.3. Ground conditions and water table level should be assessed. If the water table will be above the base of the unit at any time of the year, adequate concrete back-fill must be provided to avoid flotation. In poorly draining ground, consideration should also be given to the likelihood of flotation due to surface water collecting in the back-fill. It should be borne in mind that the inlet drain trench will act as a land drain, directing surface water to the back-fill around the unit.
- 3.4. If discharge is to a soakaway, a porosity test should be carried out in accordance with BS 6297 or the provisional European standard to assist in assessing sub-soil drainage and designing the sub-surface irrigation system.
- 3.5. There must be at least 1 metre of clear, level ground all around the unit to allow for routine servicing.
- 3.6. Wherever practicable, the unit should be installed as far as possible from any habitable building. Many Local Authorities will insist on a minimum distance of 15 metres.
- 3.7. Care should be taken not to place the unit in close proximity to any openings within the building.
- 3.8. Adequate access must be provided for routine de-sludging and maintenance. Usually the unit should be sited within 30 metres of a hard standing area suitable for a vacuum tanker. Vehicles should not be permitted within a distance equal to the depth of the unit, unless suitable structural protection is provided to the installation.

- 3.9. BioDisc units must be installed at a level which will allow connection to the incoming drain and a free discharge at the system outlet (excepting units with an integral discharge pump). Effluent pumping stations are available to lift the discharge to a higher level and/or pump to remote discharge points.
- 3.10. The unit should be installed so that the bottom lip of the cover is 95mm above local ground level. If the unit has to be recessed, measures must be taken to ensure that it cannot be flooded by surface water run-off.
- 3.11. BioDisc covers are not suitable for walking on. Where necessary the BioDisc should be fenced off or otherwise protected. Maintenance access must be maintained as above.
- 3.12. The drainage system connecting to the BioDisc must be adequately vented in accordance with the Building Regulations. The head of the drainage system should be connected to a stack pipe, open at high level, so as to draw foul air from the system and sited with consideration to prevailing wind direction. Tile vents & Air admittance valves should not be used as the sole drainage ventilation facility, but if this cannot be avoided, the BioDisc should be independently ventilated. All inspection points within the drain system should be sealed so as to enable ventilation at high level.
- 3.13. An adequate electrical supply must be provided, complying with current electrical regulations. The electrical details in Section 6.2.6. will enable selection of suitable cable and current overload protection, taking into account the distance from the power source to the control panel and any other relevant factors. In most cases steel wire armoured (SWA) cable, minimum 1.5sq mm will be suitable, selection of the cable is the responsibility of the installing electrician.
- 3.14. Residual Current Device (RCD) protection is required for BioDisc units fitted with an integral discharge pump. RCD protection is not obligatory for BioDisc units without a discharge pump, but is suggested as an extra precaution.
- 3.15. Independent pump stations or any other associated equipment should have a separate power supply.
- 3.16. Proximity to a mains water hose pipe connection point is recommended, for maintenance purposes. Such a supply should be connected in accordance with water bylaws and regulations. **Never leave a hose connected and immersed in sewage.**
- 3.17. Installation should only be carried out by suitably qualified and experienced contractors in accordance with the Health and Safety at Work Act. Electrical work should be carried out by a qualified electrician, working to the latest edition of IEE.

#### 4.0 Installation - General

- 4.1. When units are installed in unstable ground conditions where movement of the surrounding material and/or unit may occur, the connecting pipework should be designed to minimise the risk of damage from differential movement of the unit(s) and/or surrounding material.
- 4.2. In situations where the excavation will not maintain a vertical wall, it will be necessary to support side walls of the excavation (e.g. with suitable trench sheets and bracing systems) to maintain a vertical wall from the bottom to the top of the excavation. DO NOT completely remove the shoring system until after the back-filling is complete, but before the concrete fully hardens.
- 4.3. In areas where the water table is above the bottom of the excavation and/or the excavation is liable to flood, the excavation should be de-watered, using suitable pumping equipment, until the installation is complete. In such conditions it may be advisable to line the excavation with polythene sheeting, to prevent cement being washed out of the concrete surround/base.
- 4.4. During installation care must be taken to ensure that the body of any unit is uniformly supported so that point loads through the unit are avoided.
- 4.5. A water supply must be available on site to enable the unit to be ballasted during back-filling.
- 4.6. Concrete Specification SK296 (below) is a *general* specification. It is not a site specific installation design.
- 4.7. **A Dry Site** is defined as one where groundwater lies below the base of the excavation at all times and the subsoil is free-draining. If in any doubt, assume "Wet Site" conditions.

<b>CONCRETE SPECIFICATION SK296 IN ACCORDANCE WITH BS 5328 PARTS 1,2,3 AND 4</b>	
TYPE OF MIX	DESIGN
PERMITTED TYPE OF CEMENT	BS 12 (OPC): BS 12 (RHPC): BS 4027 (SRPC)
PERMITTED TYPE OF AGGREGATE (coarse & fine)	BS 882
NOMINAL MAXIMUM SIZE OF AGGREGATE	20 mm
GRADES: C30 (30 N/mm <sup>2</sup> ) C30 (30 N/mm <sup>2</sup> ) C20 (20 N/mm <sup>2</sup> )	REINFORCED & ABOVE GROUND WITH HOLDING DOWN BOLTS REINFORCED (EG. FOR HIGH WATER TABLE) UNREINFORCED (NORMAL CONDITIONS)
MINIMUM CEMENT CONTENT	C30 C20
	270 - 280 Kg/M <sup>3</sup> 220 - 230 Kg/M <sup>3</sup>
SLUMP (NOT IN ACCORDANCE WITH BS 5328)	25mm
RATE OF SAMPLING	READY MIX CONCRETE SHOULD BE SUPPLIED COMPLETE WITH APPROPRIATE DELIVERY TICKET IN ACCORDANCE WITH BS 5328 PART 3
<b>NOTE: STANDARD MIXES SHOULD NOT BE USED WHERE SULPHATES OR OTHER AGGRESSIVE CHEMICALS EXIST IN GROUND WATER</b>	

## 5.0 BioDisc Installation

- 5.1. If you have not already done so, remove the package tied to the outside of the unit. This contains a copy of the Installation Guidelines and a cover key.
- 5.2. Excavate a hole of sufficient length and width to accommodate the unit and a minimum of 150mm concrete surround and to a depth which allows for the burial depth of the unit plus a minimum 150mm thick concrete bed.
- 5.3. Lay a concrete bed, of thickness appropriate to site conditions. In wet or unstable ground conditions it may be necessary to lay an additional hard-core sub-base (see notes 3.3 & 4.3).
- 5.4. In the centre of the bed lay a circular mound of concrete, approximately 700mm across and 50mm high, to ensure that the concave base of the BioDisc will be fully supported.
- 5.5. Lower the unit onto the concrete and bed it in, ensuring that there are no voids under the BioDisc base.
- 5.6. Unlock and remove the cover. Remove the Control Panel and Owners Pack from inside the unit.
- 5.7. Check that the inlet and outlet orientation is correct and that the unit is level. The unit must be level from side to side within 5mm at the top flange. If necessary, lift the unit off the base and apply further concrete as needed to level. It is essential that the flange levels are checked regularly throughout the installation process. Should the unit become out of level, immediate remedial action is advised, to maintain the unit within the levels stated in section
- 5.8. Haunch up concrete all round the base of the unit to at least 150mm above the base level.
- 5.9. Pour water into the primary (inlet) chamber and the final (outlet) chamber, to a depth of 1 metre.
- 5.10. Back-fill according to site conditions (see sections 4.7 and 4.8)

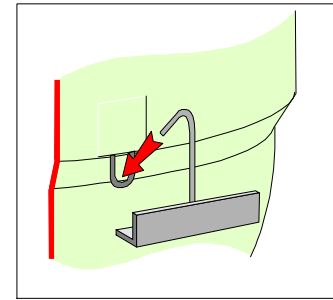
**Note: 1250mm inlet invert depth units must be back-filled with concrete to within 500mm of ground level as a minimum, irrespective of site conditions.**

**Wet Site :**

1. Assemble the four anchor bars supplied and insert them into the holding down points as shown.
2. Place concrete back-fill to approximately 1 metre above the unit base, ensuring good compaction to avoid voids.

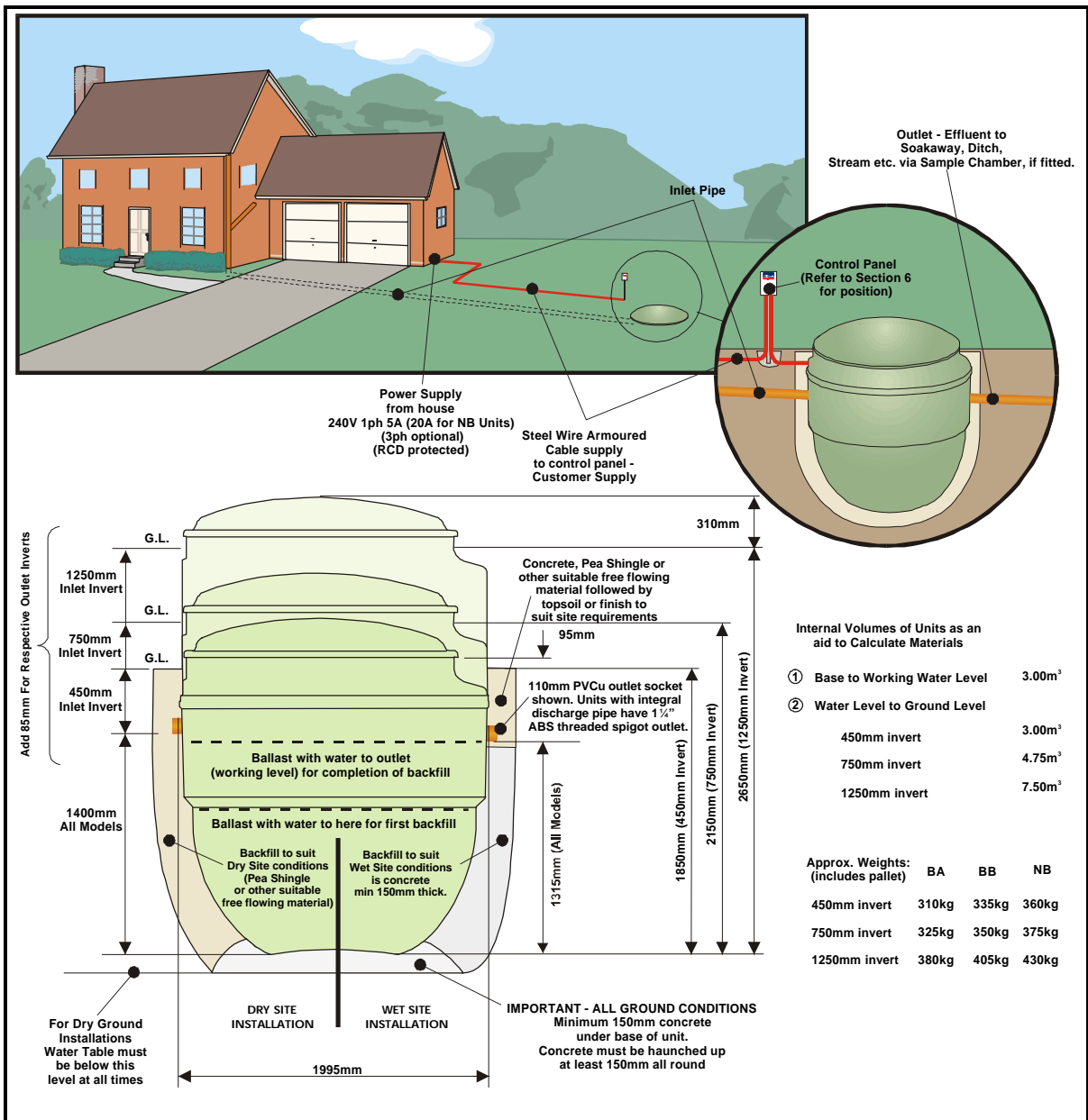
**Do not use vibrating pokers.**

3. Raise the water level inside the unit to just below the outlet
4. Continue back-filling with concrete up to the level of the outlet.



**Dry Site :**

1. Back-fill to the outlet level with pea shingle (3-18mm), or other non-cohesive, non-compressible free-flowing granular material. **Do not use sand.**
- 5.11 Connect the inlet and outlet pipework when safe access can be gained. Short lengths of "rocker" pipe with flexible joints should be used adjacent to the unit to allow for any minor differential movement. Units with integral discharge pump have a 1 1/4 inch BSP threaded spigot outlet.
- 5.12 Check the cables attached to the Control Panel and drill the corresponding number of 40mm holes in the BioDisc case, 100mm below ground level and adjacent to one end of the baffle supporting the Motor/gearbox. Units with an Integral Discharge Pump require an additional hole, 100mm below ground level, diameter to suit the conduit to be used (see Section 6.1.5).
- 5.13 If an Independent Loss of Rotation Alarm and/or High Level Alarm are to be fitted, each will require a hole to suit the conduit or cable to be used (see Section 6.1.6). Seal the holes after inserting cables.
- 5.14 Erect the Control Panel as described in Section 6.0.



- 5.15 Continue to back-fill, with concrete (wet site) or free flowing granular material (dry site), up to ground level. The finished surface should be 95 mm minimum lower than the lip of the cover.
- 5.16 **Important: Read section 8.2 regarding delayed electrical installation.**

**6.0 Control Panel Installation**

**6.1. General Installation**

6.1.1 The control panel should be positioned adjacent to the unit, so that:

- a) It does not interfere with cover removal.
- b) It is convenient for the incoming power supply.
- c) It cannot be reached by someone standing in or on the BioDisc unit.
- d) It is close enough to enable the electrical connections to be made in the BioDisc.

This usually indicates a panel position about 1.5 metres distance from the BioDisc.

- 6.1.2 Set the panel leg(s) in a concrete base, minimum 250mm thick and prop the panel to prevent movement until the concrete has set. Allow 350mm minimum clearance from finished ground level to the bottom of the panel.
- 6.1.3 Control panels are supplied with pre-fitted cable(s) within a conduit. Lay the cable(s) in a 500mm deep trench and bed them on a layer of sand or similar soft material.

6.1.4

**6.1.5 Control panels for units with an Integral Discharge Pump:**

Install suitable conduit between the Control Panel and the BioDisc in the same trench as the cables, using a gland at either end to prevent water ingress. Fit a draw-wire, to enable the pump cable to be pulled through later.

- 6.1.6 Additional conduits, with draw wires, may be required for Independent Loss of Rotation Alarm and/or Independent High Level Alarm. Refer to Sections 6.2.4 and 6.2.6.
- 6.1.7 Cover the cable(s)/conduit(s) with a layer of sand or similar soft material and warning tape. Back-fill the cable trench with graded spoil, free of large stones or any other material which might damage the cable(s).
- 6.1.8 The Control Panel key is attached to the panel, either in the protective bag at the end of the motor/gearbox cable or clipped to the panel leg.

**6.2 Electrical Installation**

Refer to the wiring diagram. Standard wiring diagrams are included with this document. Specialised wiring diagrams are included within the control panel.

6.2.1. Depending on type, the control panel is supplied with one or more pre-fitted cables.

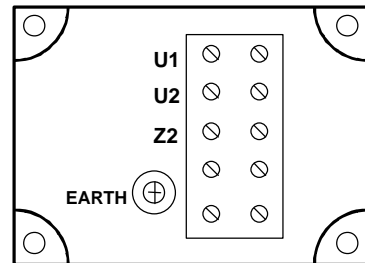
- a) Every Control Panel has a motor/gearbox cable.
- b) Control Panels for NB units have an additional Sludge Return Pump cable .
- c) Alarm Control Panels have an extra cable for the Loss of Rotation sensor.

Each cable is fitted with a gland for connection to its appropriate terminal box or junction. The conduit passes through the 40mm hole drill in the BioDisc casing. This should be sealed using an appropriate sealer e.g. Mastic, Silicone sealer.

6.2.2. Open the Motor Terminal Box. (The Motor Terminal Box must not be removed, as this will affect the integrity of the sealing washer between the terminal box and the motor body).

Insert the motor cable into the terminal box and fit the gland provided, ensuring that one washer is outside the terminal box and the other is inside.

Connect the cable, matching the connector numbers to the terminals. (See illustration).



**MOTOR TERMINAL BOX**

Note:

When routing cables it is important to avoid the possibility of condensation running along the cable and into the terminal box. This can be achieved by positioning the cable to run upwards just before entering the terminal box. If this is not possible a loop should be put in the cable, close to the terminal box.

6.2.3. *Units with Alarm Control Panel, and/or Sludge Return Pump:*

Refer to the wiring diagram attached and connect the cable(s) to the appropriate electrical junction(s) in the BioDisc, fitting the glands supplied.

6.2.4. *Units with Independent Loss of Rotation Alarm:*

Use a suitable length of interconnecting cable (customer supply) between the LOR terminal box in the BioDisc and the Alarm Panel. Pull the cable through the conduit, using the draw-wire previously fitted. Alternatively steel wire armoured cable may be used.

Refer to the wiring diagram and connect the cable to the appropriate connection points in the High Level Alarm panel. Loss of Rotation Alarm Units can be sited remotely from the BioDisc, up to a maximum of 100 metres. The interconnecting cable should be laid in a separate trench to prevent electrical interference. Instructions are provided with the kit to assist with the sensor positioning. These do require on site adjustment to ensure correct operation.

		Full Load Current (Amps)		
		BA	BB	NB
Motor	240 volt single phase	0.51	0.51	0.51
	415 volt three phase	0.22	0.22	0.22
Integral discharge pump	240 volt single phase only	2.2	2.2	N/A
Sludge return pump	240 volt single phase only	N/A	N/A	2.2

Description	Connection Point	Connector Type	End Numbers
Motor/Gearbox	Motor/Gearbox Terminal box (in BioDisc)	Spade	Three Phase : U1, V1, W1, Earth
			Single Phase : U1, U2, Z2, Earth
Sludge Return Pump	Sludge Return Pump Junction Box (in BioDisc)	N/A	L1, N1, Earth
Integral Discharge Pump	Switch (in Control Panel)	N/A	N/A
Alarm Control Panel	L.O.R. Sensor Junction Box (in BioDisc)	Pin	4, 5, Earth*
Independent Loss of Rotation Alarm	Terminals 1 & 2 (in Alarm Panel) & L.O.R. Sensor Junction Box (in BioDisc)	N/A	N/A
High Level Alarm (Discharge Pump)	Terminals 1 & 2 (in Alarm Panel)	N/A	N/A

- Combined Alarm Control Panel only - Independent LOR Alarm uses customer supplied interconnecting cable - refer to wiring diagram.

6.2.5. *Units with an Integral Discharge Pump:*

Pull the pump cable through the hole drilled in the BioDisc case and through the conduit, using the draw-wire previously fitted. Refer to the wiring diagram and connect the pump cable to the appropriate connection points in the Control Panel. Check the pump float setting is correct i.e. 75mm free length of cable between pump handle and float. Setting the incorrect length will affect the pump operation, which if rendered inoperable may flood the motor. Check this is correct and that the float does not jam.

6.2.6. *Optional independent high level alarm (units with integral discharge pump) RECOMMENDED:*

If the Alarm Panel is adjacent to the BioDisc, pull the high level float cable through hole drilled in the BioDisc case and through the conduit, using the draw-wire previously fitted. Refer to the wiring diagram and connect the float cable to the appropriate connection points in the High Level Alarm panel.

If the Alarm Panel is remote from the BioDisc, use a watertight terminal box (fixed in any convenient position above water level) and a suitable length of interconnecting cable (customer supply) to connect to the Alarm Panel. The cable should be SWA or conduit protected.

- 6.2.6. Ensure that any loose cables inside the BioDisc are securely tied to the structure, clear of the drive arrangement and do not present a trip hazard.
- 6.2.7. Connect the incoming power supply to the control panel and alarm panels, if appropriate, using a suitable gland. Appropriate cable and current overload protection should be provided. (See section 3.12 - 3.14). Ensure that the panel(s) are securely closed.

## **7.0 Ancillary Equipment**

- 7.1. Ancillary items should be installed in accordance with the Installation Guide supplied e.g.  
Crude Sewage Pump Station /Effluent Pump Station/Effluent Sample Chamber

## **8.0 Start Up**

- 8.1. We recommend that the unit is commissioned by an approved engineer.
- 8.2. Refer to the Owners Handbook for details of the Start Up Procedure.
- 8.2. Once the unit has been installed it should be left filled with water. Please switch on the motor, following the procedure in the Owners Handbook and leave the unit running, even if there is no sewage being fed into the plant.

**If the unit has been installed with no operational power supply, then remove the motor/gearbox unit and store it in a dry or heated environment until such time as the unit is ready for permanent operation.**

**DO NOT CONNECT UNITS WITH INTEGRAL PUMPS TO A SEWAGE SUPPLY, WITHOUT ENSURING THAT THE ELECTRICITY IS CONNECTED AND THAT THE UNIT IS OPERATIONAL (IF THE MOTOR AND GEARBOX IS FLOODED, REPLACEMENTS WILL BE REQUIRED)**

**Should any problem be experienced, please contact Klargester to request a commissioning service.**

SPECIFICATION	PART No.	REF
* ENCLOSURE	80200001	
* KEY LOCK	80200041	
* MCB 3A 2 POLE	32100121	F1
* 5 MTRS 20mm FLEXIBLE CONDUIT	70300001	
* 2 - GLANDS FOR FLEXIBLE CONDUIT	70300011	
* 2 - 20mm LOCKNUTS	70300021	
* 2 - 20mm WASHER	70300031	
* 1 METRE GALVANIZED ANGLE IRON	92200001	
* 5.25 MTRS 4 CORE 1mm FLEX CABLE	72300001	
* CAPACITOR 3 uF	02400001	C1
* VINYL LABEL 'KLARGESTER'	K0033	
* VINYL LABEL 'DO NOT WALK ON COVER'	K0056	
* VINYL LABEL '230 VOLTS WARNING LABEL'	K0043	
* 2 - CABLE TIES	70500001	

PART No. E0180

ALL DIMENSIONS ARE IN MILLIMETRES - DO NOT SCALE

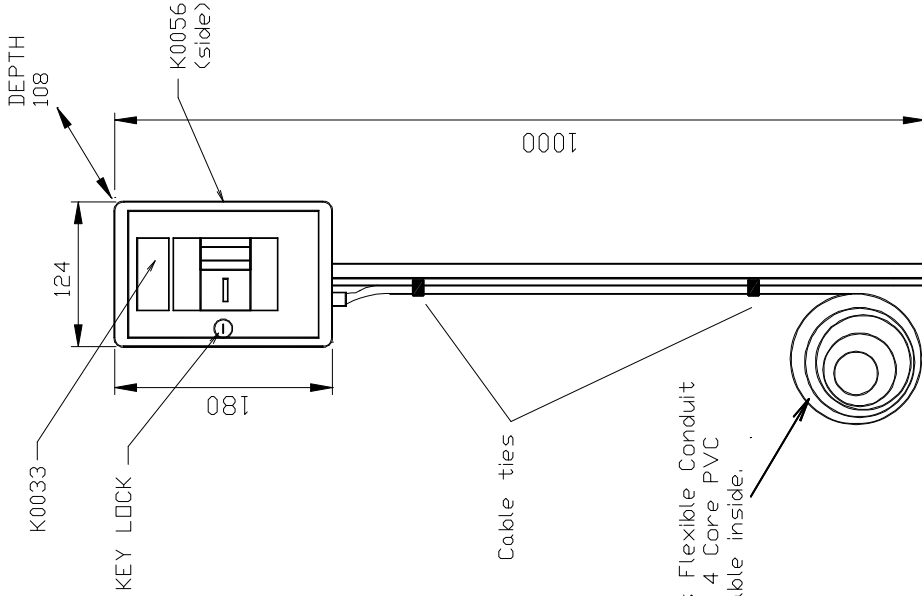
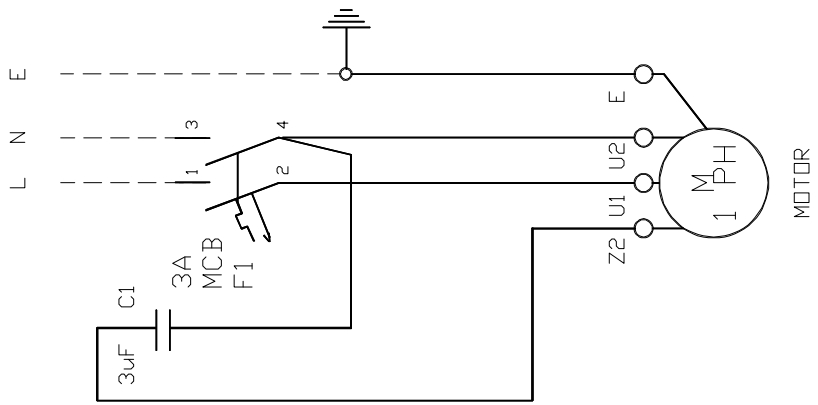
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Treatment Systems  
Klargester Environmental Ltd.  
College Road North, Aston Clinton,  
Aylesbury, Bucks. HP22 5EW.  
Tel:- 01296 633000  
www.klargester.co.uk

TITLE  
BA/BB BIDDISC  
1 PHASE  
CONTROL PANEL

SCALE 1:1 SHEET SIZE A4 ISSUE 3

510100

MAINS SUPPLY  
220/240 VOLTS 1PH 50HZ

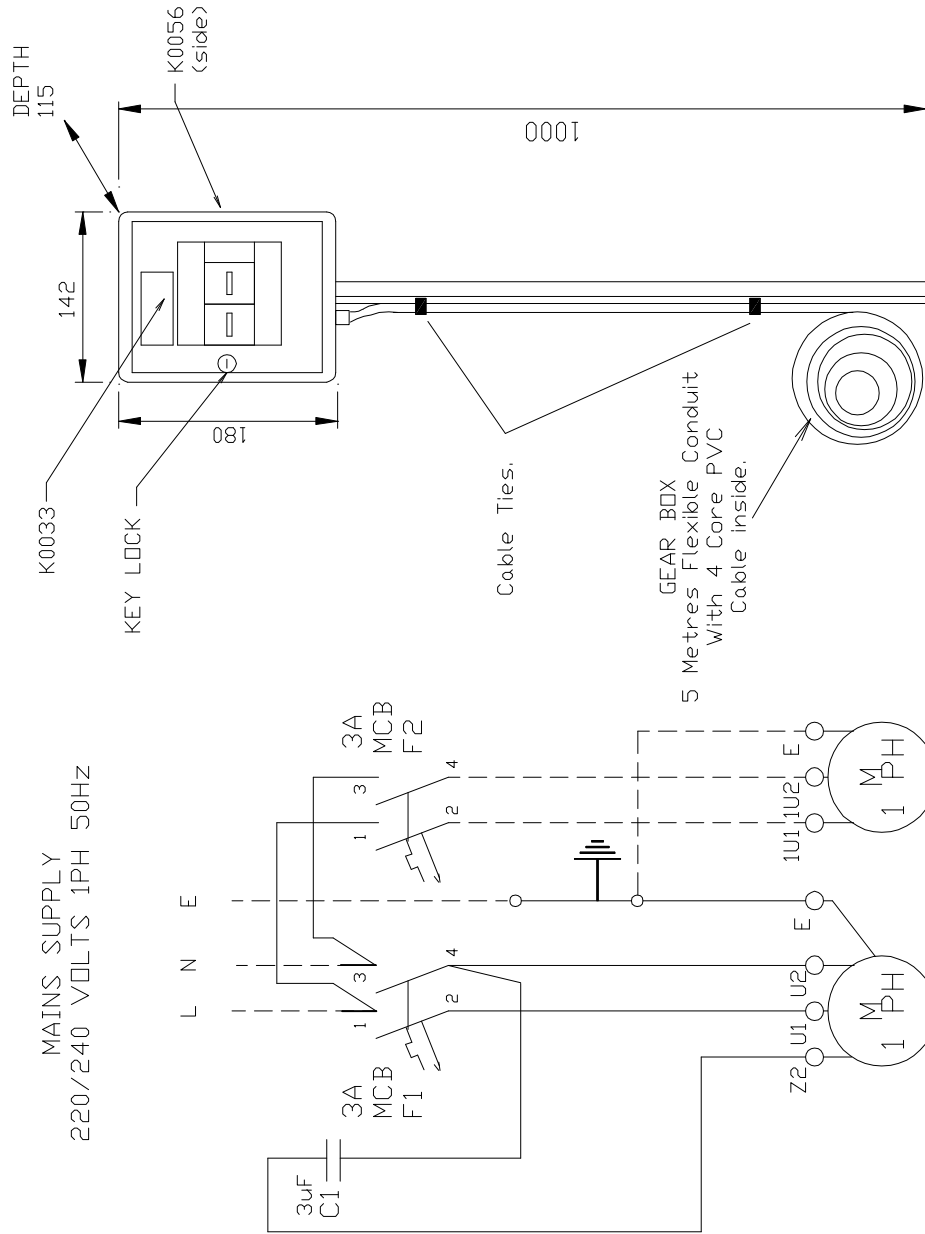


ISSUE	DATE	DRAWN	MODIFICATION
3	02.06.03	A.L.	BORDER UPDATE
2	01.10.01	A.L.	COMPONENT MODIFICATION
1	01.07.01	M.P.C.	INITIAL ISSUE

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THIRD ANGLE PROJECTION

SPECIFICATION	PART No.	REF
* ENCLOSURE	80200011	
* KEY LOCK	80200041	
* 2 - MCB 3A 2 POLE	32100121	F1-F2
* 5 MTRS 20mm FLEXIBLE CONDUIT	70300001	
* 2 - GLAND FOR FLEXIBLE CONDUIT	70300011	
* 2 - 20mm LOCKNUTS	70300021	
* 2 - 20mm WASHERS	70300031	
* 1 METRE GALVANIZED ANGLE IRON	92200001	
* 5.25 MTRS 4 CORE 1mm FLEX CABLE	72300001	
* CAPACITOR 3 uF	02400001	C1
* VINYL LABEL 'KLARGESTER'	K0033	
* VINYL LABEL 'DO NOT WALK ON COVER'	K0056	
* VINYL LABEL '230 VOLTS WARNING'	K0043	
* 2 - CABLE TIES	70500001	



PART No. E0194

ALL DIMENSIONS ARE IN MILLIMETRES - DO NOT SCALE	
TITLE	BA/BB BIODISC WITH INTEGRAL PUMP 1 PHASE CONTROL PANEL
SCALE	1:1
SHEET SIZE	A4
DRAWING No.	510102
ISSUE	3

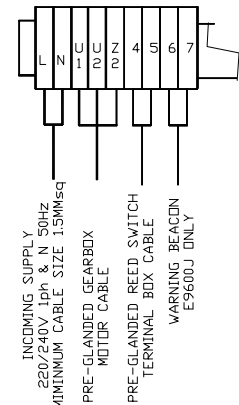
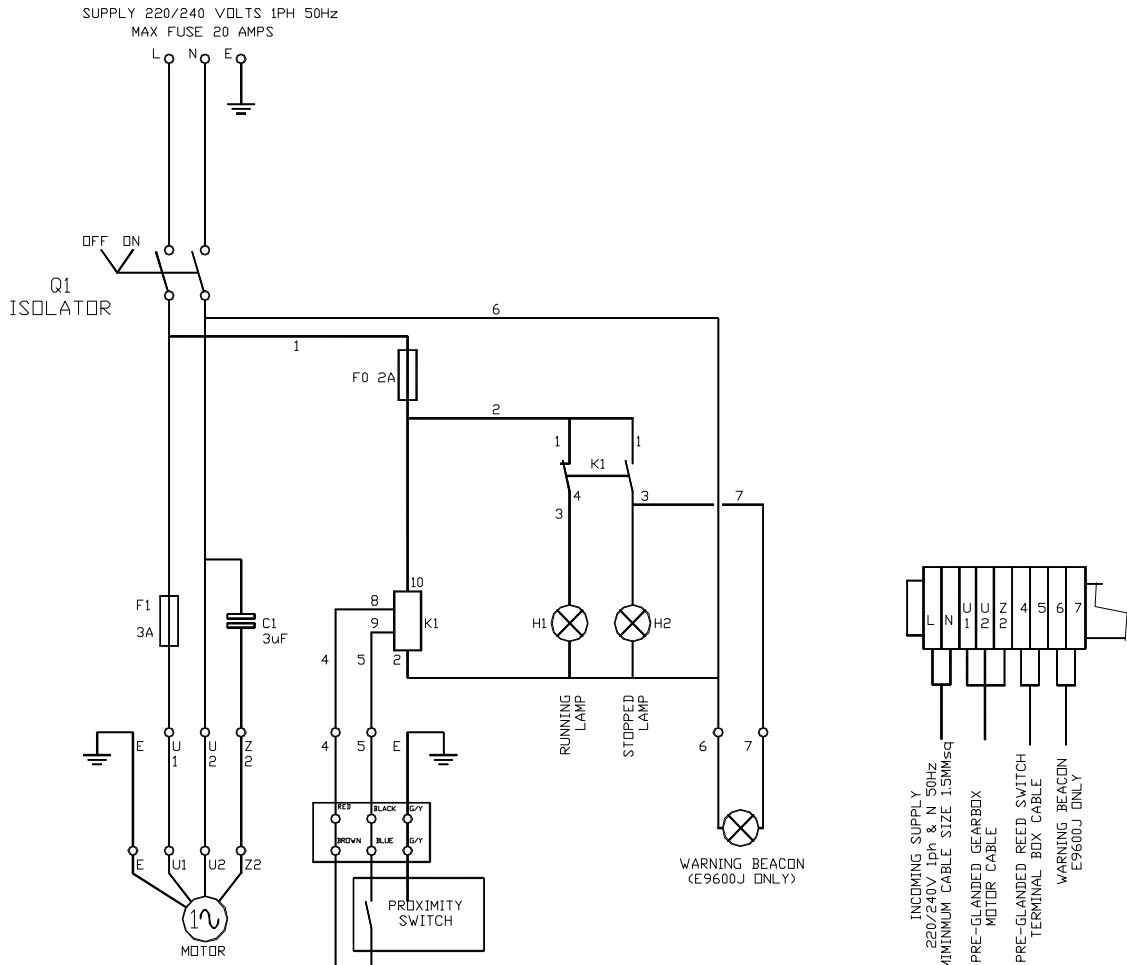
**Klargester**  
Treatment Systems

Klargester Environmental Ltd.  
College Road North, Aston Clinton,  
Aylesbury, Bucks. HP22 5EW.  
Tel:- 01296 633000  
www.klargester.co.uk

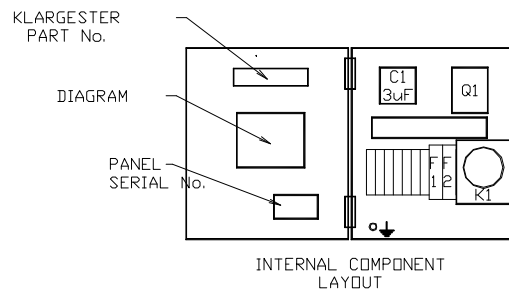
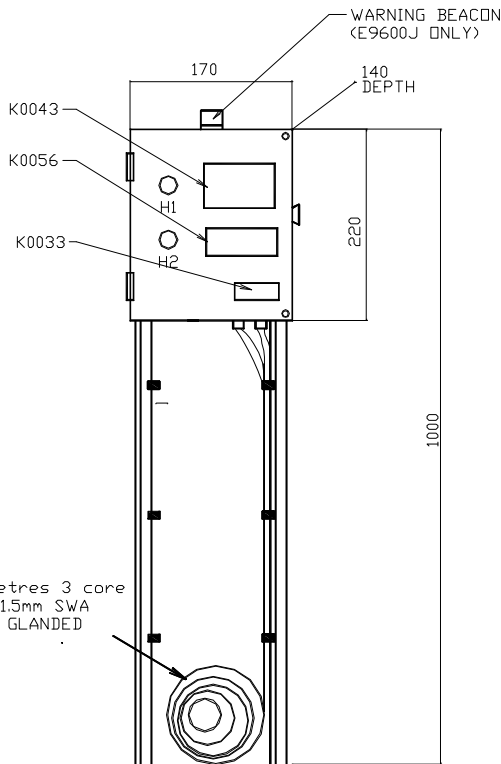
ISSUE	DATE	DRAWN	MODIFICATION
3	02.06.03	A.L.	BORDER UPDATE
2	01.10.01	A.L.	COMPONENT MODIFICATION
1	01.07.01	M.P.C.	INITIAL ISSUE

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THIRD ANGLE PROJECTION



TERMINAL RAIL AND CONNECTION DETAIL



INTERNAL COMPONENT LAYOUT

MODEL	PANEL NUMBER		FUSE F1 RATING
	OPTION 'L' WITHOUT BEACON	OPTION 'M' WITH BEACON	
BA/BB	E9600F	E9600J	3A

ALL DIMENSIONS ARE IN MILLIMETRES – DO NOT SCALE

ISSUE	DATE	DRAWN	MODIFICATION
4	03.06.03	A.L.	BORDER UPDATE
3	01.10.01	A.L.	COMPONENT MODIFICATION
2	01.11.97	J.A.H.	BORDER UPDATED
1	01.11.97	W.B.	INITIAL ISSUE

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TITLE	
BA/BB BIODISC 1 PHASE CONTROL PANEL (OPTION L/M)	
SCALE	1:1
SHEET SIZE	A4
DRAWING No.	510001
ISSUE	4