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**INSTALLATION, OPERATING & MAINTENANCE
GUIDELINES FOR CLASS 1 AND CLASS 2 BYPASS
SEPARATORS**

**This manual covers the following equipment
NSB 24 – NSB 130**



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HEALTH & 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 be acquainted with the functioning of the equipment and the relevant warnings.

Installation should only be carried out by a suitably experienced contractor, following these guidelines.

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

Electrical work should be carried out by a qualified electrician.

Contaminated surface water can contain substances 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.

Access covers should be selected with reference to the location of the unit and traffic loads to be accommodated. These are not (normally) part of the Separator supply.

When covers are removed precautions must be taken against personnel falling into the unit.

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

Ensure that you are familiar with the safe working areas and accesses. Ensure that the working area is adequately lit.

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.

OIL ALARM SYSTEMS

PPG3 recommends that the oil level alarm be fitted, tested and commissioned by a competent Installer. This is to ensure that the excessive oil probe is calibrated correctly, raising an alarm when 90% of the maximum recommended oil storage volume is reached. Should the oil level alarm fail to provide an early warning, excessive oil could pass through the separator, thus polluting the environment. This could result in substantial cleanup costs and legal action being taken under the water resources act 1991.

MAINTENANCE

The correct ongoing maintenance is essential for the proper operation of the equipment. Operators who rely on oil level alarms to prompt them to service separators between maintenance intervals run the risk of polluting should the alarms not work, hence the ongoing functional assessment of the oil alarm systems is fundamental if pollution incidents are to be avoided.

The removal of sediment and retained oil/grease should be carried out by a contractor holding the relevant permits to transport and dispose of such waste. The contractor must refer to the guidelines in this document.

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Separator Maintenance Log

Drawings	NSB 24-36	DS0614
	NSB 55-130	DS0615
Extension Handle & Neck Fitting Detail		DS0616
Oil Probe Fitting Detail		PD0323
Normal & Bypass Flow Routes		

1.0 Introduction

These Guidelines represent Best Practice for the installation of the above Klargestor Separator Units. Many years of specialist experience has led to the successful installation of thousands of separator 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 Klargestor regarding the design of an installation must be verified by a qualified specialist (e.g. Civil engineering consultant).

For guidance of Separator selection and application, please refer to the most recent issue of Environment Agency Guidelines pollution prevention guideline No.3 (PPG3). A range of our units has been independently tested by the British Standard Institute and certified as meeting the PPG3 guidelines.

2.0 Handling & Storage

- 2.1. Care must be taken to ensure that units are not damaged during delivery and handling on site. Please take care and place unit so that it cannot fall and become damaged
- 2.2. The design requirements of Klargestor 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. Rainwater may also collect inside units, particularly if they have been stored on site prior to installation, adding weight and increasing instability. Check units before lifting and pump out any excess water.
- 2.3. When lifting units, use webbing slings of a suitable specification. Do not use chains.
- 2.4. A suitable spreader bar should be used to ensure that units are stable and that loads are evenly distributed during lifting. When lifting separators, a spreader bar should be used where the slings would otherwise be at an angle > 30 degrees to the vertical.
- 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. Klargestor Environmental Limited accept no responsibility for the selection of lifting equipment.
- 2.7. Whenever Klargestor 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 units must be placed on ground which is flat and level and the unit orientated onto its side with even support. Do not roll separators.

3.0 Site Planning

- 3.1. The following points should be considered before installation of the equipment:
- 3.2. The discharge must have the consent of the relevant Environmental Regulator.
- 3.3. The installation should have Planning and Building Control approval.
- 3.4. Consider installing flow cut-off valves to isolate the separator in an emergency or during site cleaning operations. See Environment Agency Guidelines PPG3.
- 3.5. Consider venting of the unit. Comply with local regulations. In the UK, comply with the following regulations. For Petrol Stations: Health and Safety Guidance Note 41 (HS(G)41). For other applications: BS8301: 1985 (obsolescent) BS EN 752 Building Drainage. Adequate ventilation should be provided to the separator. The ventilation pipe should be as short as is practicable and be terminated not less than 2.5m above paving nor less than 1m above the head of an openable window or other opening into a building within a horizontal distance of 3m.
- 3.6. Consider installation of a sampling point downstream of the separator. There is no suitable facility to effectively sample the waste water from inside the unit. EN 858 Pt 1.
- 3.7. Uncontaminated run off such as roof water should be excluded from separators. (EA Guidelines PPG3.)
- 3.8. Ground conditions and water table level should be assessed. If the water table will be above the base of the units at any time of the year, adequate concrete backfill 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 backfill, and an appropriate installation method devised to avoid this.
- 3.9. If the discharge is to a soakaway, a porosity test should be carried out as part of the assessment of suitability for sub-soil drainage. The water table must be below the discharge outlet.
- 3.10. The separator must be installed at a level which will allow connection to the incoming drain and a free discharge at the system outlet.
- 3.11. Do not install the unit deeper than necessary, ensure that you purchase extension shafts and handles. The minimum invert depth of the unit is shown on the customer drawing.
- 3.12. Adequate access must be provided for routine maintenance. Vehicles should not be permitted within a distance equal to the depth of the unit, unless suitable structural protection is provided to the installation.
- 3.13. There must be at least 1 metre of clear, level ground all around the access covers to allow for routine maintenance.
- 3.14. It is essential that a mains water supply is accessible for routine cleansing and refilling after removal of waste material and liquid.
- 3.15. Provide electrical supply for alarm system. (If required)
- 3.16. Installation should only be carried out by suitably qualified and experienced contractors in accordance with current Health and Safety Regulations. 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. For separators with burial depths greater than 1000mm from cover level to the top of the supplied unit, specific site conditions should be taken into consideration and the backfill designed to bear any loads which may be applied during and after installation to prevent the tank being subjected to these loads.
- 4.3. The excavation must be deep enough to provide bedding and cover depth as determined by the type of surface pavement and loading. Asphalt and concrete pads should extend a minimum of 300mm horizontally beyond the unit in all directions.
- 4.4. In situations where the excavation will not maintain a vertical wall, it will be necessary to shore up the side walls of the excavation 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 the backfilling is complete, but before the concrete fully hardens.
- 4.5. 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 dewatered using suitable pumping equipment and this should continue until the installation is complete.

- 4.6. During installation care must be taken to ensure that the body of the unit is uniformly supported so that point loads through the unit are avoided.
- 4.7. Concrete Specification SK296 is a *general* specification. It is not a site specific installation design.

CONCRETE SPECIFICATION SK296 IN ACCORDANCE WITH BS 5328 PARTS 1,2,3 AND 4	
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:	REINFORCED & ABOVE GROUND WITH HOLDING DOWN BOLTS
C30 (30 N/mm ²)	REINFORCED (EG. FOR HIGH WATER TABLE)
C30 (30 N/mm ²)	UNREINFORCED (NORMAL CONDITIONS)
C20 (20 N/mm ²)	
MINIMUM CEMENT CONTENT	
C30	270 - 280 Kg/M ³
C20	220 - 230 Kg/M ³
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
NOTE: STANDARD MIXES SHOULD NOT BE USED WHERE SULPHATES OR OTHER AGGRESSIVE CHEMICALS EXIST IN GROUND WATER	

5.0 Separator Installation

- 5.1 Excavate a hole of sufficient length and width to accommodate the tank and a minimum 225mm concrete surround and to a depth which allows for the burial depth of the unit plus concrete base slab and haunch.
- 5.2 Construct a suitable concrete base slab appropriate to site conditions. Ensure that the slab is flat and level.
- 5.3 When the concrete base slab has set enough to support the installed load, add a concrete haunch so as to provide even support, then lower the unit onto the haunch using suitable webbing slings and lifting equipment.

5.4 Pour no more than 300 mm depth of clean water into the unit, avoiding shock loads. For units with more than one chamber, add water to each chamber simultaneously. DO NOT OVERFILL, the unit is not designed to hold water whilst unsupported.

5.5 Place concrete backfill to approximately 300mm depth under and to the sides of the tank ensuring good compaction to remove voids. DO NOT use vibrating pokers. Continue adding concrete backfill, simultaneously keeping the internal water level no more than 200 mm above the backfill level at all times, until the backfill is just below the underside of the outlet drain, giving sufficient room to connect the inlet and outlet pipework.

- 5.6 Connect inlet and outlet drains and vent pipes when safe access to the backfill can be gained.

PIPEWORK CONNECTIONS

In all cases, ensure that the outlet pipework level is maintained for correct operation. (Unless specified on the order, the fall across the unit will be as per the customer drawings).

Small units are generally fitted with **PVCu spigots** to both the outlet and the inlet.

Connect using the same size PVCu socket or a suitable reducer.

Larger units are generally fitted with **Klargester GRP** manufactured sockets.

The connecting pipework should be pushed into the socket and a joint made to fill in the gap using rope/hemp with a cement mortar or bonding mix. Ensure that the seal is secure and watertight before backfilling the pipe.

Alternatively, proprietary **flex seal couplings** can be obtained to fit over the outside of the site pipework and the outside of the GRP socket. When using this connection method, please be aware that the outside GRP laminate is not perfectly regular and that you may need to use a sealant on the outside

diameter of the GRP. Take care not to over tighten the coupling when connecting to the GRP and ensure that the seal is secure before backfilling the pipe. Drawing DS0185 provides the ID of our GRP sockets. The OD is variable, as the wall thickness can be up to 15-20 mm. If purchasing a flexseal coupling for use with clay/concrete, we suggest that a size 110 mm larger than the ID is selected. Large units are provided with a separate inlet connector which must be fitted using the mastic seal, & fittings provided. Bolt evenly to ensure a good seal.

- 5.7 Oil level Alarm Probe tube When requested at the time of purchase, Klargester will fit a tube to receive the alarm probe. This tube provides protection and ensures that the probe is positioned at the correct level to sense the oil build up. The tube design and probe level setting assumes the use of Klargester standard oil alarm system and may not be suitable for other alarm suppliers equipment.

The probe tube may be fitted either within the neck or within the body of the unit. It should be extended to ground level when fitted in the body of the tank and you should make provision to extend the tube to the required height before backfilling. Consult the alarm suppliers instructions for their detailed fitting installation instructions.

See alarm supplier information and ensure that the probe is placed within the tube and can be accessed from ground level.

- 5.8 Continue backfilling with concrete over the tank body to the required level. Build up a shell of concrete, minimum 225mm thick, around the access shaft(s). Temporarily strut the access shaft to avoid distortion.
- 5.9 Where Klargester supply an extension shaft to meet a deeper invert requirement, a coalescer extension handle is also provided with the shaft for Class 1 units. Remove the coalescer from the unit before adding the extension shaft. Remove the pre-fitted handle, add the extension piece and replace the handle, bolting it securely in place. Replace the handle so that it can be bolted near to the top of the extension neck. When refitting, ensure that the coalescer tube is correctly pushed onto the base fitting. Class 2 units do not require an extension handle.
- 5.10 It is advisable to seal the joints on the extension shafts (particularly on sites with high ground water) with proprietary sealant or by GRP lamination. Temporarily strut the extension neck(s) to avoid distortion during back filling. Where more than one neck section is required to suit a deep invert, consider back-filling section by section. If the extension neck is too long, it can be trimmed using a fine-toothed saw. The original fixing hole bolting the coalsecer in place to the neck should be sealed.
- 5.11 Ensure that the vent socket if cut out, is replaced elsewhere. The maximum recommended inlet invert is 2000mm (using 500mm long extension sections). If you are installing a unit deeper than this then you must make your own arrangements for removing and replacing the coalescer. Consideration must be given to the depth of lift involved. Continue back-filling, ensuring minimum 225mm concrete thickness around the access shaft/ extension neck and alarm access tube (as applicable).
- 5.12 Mains powered Alarm Systems. See alarm suppliers installation instructions. Lay appropriate or 82mm diameter PVCu underground ducting between the alarm panel location and the alarm probe position. The ducting should be 500mm below ground level and fitted with a drawstring for later cable insertion. Any changes of direction should be by long radius bend. If necessary, drill a suitable hole in the access shaft adjacent to the alarm probe terminal box, to accept the ducting. Seal.
- 5.13 In traffic areas a suitable top slab must be constructed. The top slab should bear on a suitable foundation to prevent superimposed loads being transmitted to the unit and access shafts. Loads applied to covers and frames must bear on the top slab, not the access shaft.
- 5.14 The unit should be filled with clean water up to the invert level of the outlet pipe. Ensure that the unit type /model identification is affixed in neck. The unit is now ready for use.

6.0 Alarm Installation

- 6.1 Install the alarm probe and control panel, as per the Suppliers Alarm Installation Guidelines. Ensure that the probe is positioned correctly for the required storage of oil. The table below indicates the volume of oil stored and the depth of floating oil expected in the separation chamber.

Unit	Recommended Maximum Oil Storage volume LITRES	Max. (100%) Depth of floating oil (Static) mm
NSB 24	360	185
NSB 30	450	170
NSB 36	540	175

NSB 55	825	140
NSB 72	1080	140
NSB 84	1260	150
NSB 96	1440	155
NSB 110	1650	150
NSB 130	1950	150

7.0 Operation

The unit is sized on treating a defined rainfall rate of 5 mm/hour and using the factor provided in the Environment agency guidelines PPG3. The unit will treat the entire flow i.e. NSB 24 will treat a flow of 24 litres per second. If the flow is greater than this then the excess flow will bypass the main treatment chamber. A NSB 24 unit will work in bypass mode over 24 and up to 240 litres per second. Flows in excess of this will back up on to the site. During a storm, the rain falls and flushes any surface debris, silt or oil into the tank. This first flush, up to the maximum rated flow is fully treated. As the severity of the storm increases, so does the rate of flow increase. The liquid entering the separator after the first flush tends to be cleaner and so, in less risky permitted applications is allowed to bypass the oil separation chamber for directly discharge.

- 7.1 The bypass unit has three chambers. The entire flow up to the units listed flow rating is fully treated and passes through all chambers. (E.g. NSB 24 treats 24 litres per second.)
- 7.2 Flows in excess of this rating will bypass the separation chamber and the liquid passes untreated to the outlet chamber.
- 7.3 The first chamber will accumulate silt and grit. The maximum volume that can be retained is the rating x 100 e.g. a NSB 24 is capable of holding 2400 litres of silt.
- 7.4 The second / separating chamber is sized to separate oil at the rated flow rate and to accumulate the required oil storage volume. A NSB 24 maximum oil storage volume is 360 litres. An oil probe can be positioned which will detect the accumulation of oil when there is no or low flow conditions. The probe should be positioned so that the alarm operates at 90% of the maximum rated oil storage volume.
- 7.5 In bypass flow conditions, the flow moves directly from the inlet to the outlet chamber avoiding the separating chamber. See section 8.
- 7.6 Separators can be purchased either as Class 2, or as Class 1. A Class 1 Bypass Separator is fitted with a removable coalescer which also includes media to further improve the discharge quality. The coalescer media requires maintenance.
- 7.7 Bypass Class 1 & Class 2 Separators are not effective for the removal of soluble or emulsified pollutants such as oil/detergent mixes found in vehicle wash effluents. With permission such discharges may be drained to the foul sewer. Consult Klargesters technical department for Separator equipment to meet these applications.
- 7.8 See drawings, which indicate the flow route of normal and bypass flow conditions.

8.0 Maintenance

Waste Removal and Servicing

- 8.1. Separated light liquid **must** be removed from separator when the oil capacity has been reached.
- 8.2. An oil level alarm system is available for purchase and installation, which gives warning when the separated light liquid/water interface level reaches 90% of the oil storage volume.
- 8.3. Separators should be inspected at least every six months or more frequently if experience dictates. A log should be maintained detailing the depth of oil found, any oil volume removed and any silt removal or cleaning carried out. A specimen maintenance log is included in the appendices.
- 8.4. Every site is different, in respect to the amount and type of silt generated by the drain design and installation. Frequently, the construction programme itself generates large and perhaps unusual quantities of silt and grit. We do recommend that following the initial installation, an inspection of the separator contents be made to check that building rubble has not entered the unit. Further inspections at 3 and 6 months should be made so as to be able to assess the volumes of silt and oil accumulated. The inspection and emptying programme can then be defined following the first 6 months site experience. We recommend leaving a maximum interval between inspections of 6 months.

- 8.5. Alarm probes should be removed and cleaned whenever waste material is removed from the separator. Please note the alarm may alert until the liquid level is replaced.
- 8.6. **Separator waste is a “special waste” under the terms of The Waste Management Code of Practice. The Code imposes a duty of care on the waste producer to ensure that the Cleansing contractor is registered with the Environment Agency and that the final disposal of the waste is to a licensed facility.**
- 8.7. You should consider the purchase of a maintenance service, which includes bi-annual inspections, removal of oil and silt, cleaning of the alarm probe and cleaning or replacement of the coalescer (where appropriate).

Waste Removal Procedure – Oil & Silt

Oil can only be removed when there is no flow entering the unit. Isolate the unit and prevent flow from entering. Always remove the oil before attempting to remove the coalescer. If this is not done, when the coalescer is withdrawn the oil can coat the media surface and when replaced the oil may be forced through the media, contaminating the effluent.

- 8.8. Remove the access cover and lower the desludging hose in to the separation chamber. Draw off the surface oil.
- 8.9. Lower the desludging hose to the base of the tank and withdraw any grit or sludge that may be present. Do not remove more water than is necessary. Ensure that you access and clean both compartments.
- 8.10. Remove the alarm probe, if fitted, clean with water and replace.
- 8.11. Consider the period of time that the coalescer has been installed and consider removing and inspecting (cleaning or replacing) the coalescer media. If removed, ensure that it is correctly replaced and secured into position. Replace the access covers.
- 8.12. Re-fill the separator with clean water up to the outlet level. If an alarm is fitted, it will display an alarm condition until the separator is re-filled. Check alarm operation when unit full.

Checking the Coalescer Assembly

- 8.13. Coalescers, where fitted, may be cleaned periodically to maintain efficiency. Coalescers should be checked following a major incident and replaced if necessary. Please contact Klargestar if you wish to purchase coalescer media. Replacement media is available for purchase. It is best to lower the water level to aid refitting the coalescer assembly.
- 8.14. Identify the type and size of separator (shown on labels inside the access neck).
- 8.15. Assemblies weighing less than 25 Kg may be removed by hand. Heavier assemblies should be lifted by mechanical means. Any lifting device employed must be capable of lifting:
 - In excess of the maximum assembly weight.
 - The assembly completely out of the access shaft.
 - Giving a smooth and controlled lift.
 - Swinging the assembly to one side clear of the access shaft.

Unit	Kg Weight of Core Tube & Closure Device (exc. extra handles)	Kg Weight of Core Tube, Closure Device & Media	Kg Max. Possible Silted weight of Assembly	No. of Assemblies within unit	Replacement Media. Part No.
	DRY /WET	DRY / WET		Class 1 units	
NSB 24	18 / 83	20 / 128	230	1	600138
NSB 30				1	
NSB 36				1	
NSB 55	20 / 85	22 / 130	260	1	600135
NSB 72				2	
NSB 84				2	
NSB 96				2	
NSB 110				3	
NSB 130				3	

- 8.16. Ensure that the area around the access shaft is clear and that there is space to place the assembly once removed. If space is not available it will be necessary to support the assembly over the access shaft. e.g. by scaffold poles and platform. Only remove the access cover when necessary to remove the assembly. Do not leave the access shaft uncovered and unattended.

Removing the coalescer assembly.

- 8.17. Undo and remove the nut and washer, which secures the lifting handle to the access shaft.
- 8.18. Lift the assembly with a smooth and steady motion. Class 1 coalescers will become lighter as water drains from the exposed media. Allow the water to drain completely. Assemblies blocked with fine silt may be very heavy. Fully extract the assembly and set it down adjacent to the access shaft.

Cleaning the coalescer assembly/ Media Replacement.

- 8.19. Hose down the assembly using clean water at normal pressure. (You may be able to return the cleaning water into the separator, if there is sufficient capacity.) If the media is heavily contaminated with oil and silt it may not be possible to clean effectively by hosing. Do not allow untreated cleaning water to pass out of the unit. Continue hosing until the water runs clear.
- 8.16. Undo the banding. Slide media onto core tube. Ensure apertures are covered by the media. Re-secure banding. Consider replacing media every two years.

Replacing the coalescer assembly.

- 8.20. Position it over the access shaft. Remove any safety coverings.
- 8.21. Lower the assembly steadily into the access shaft until it is nearly submerged.
- 8.22. Rotate and position the assembly so that the bracket on the handle is aligned with the bolt protruding from the access shaft. and approximately 250mm above it. Lower the assembly until the bracket hole is lined up with the bolt, and the base of the coalescer is positively located. Secure the handle to the access shaft.
- 8.23. Replace the access cover.

9.0 Emergencies

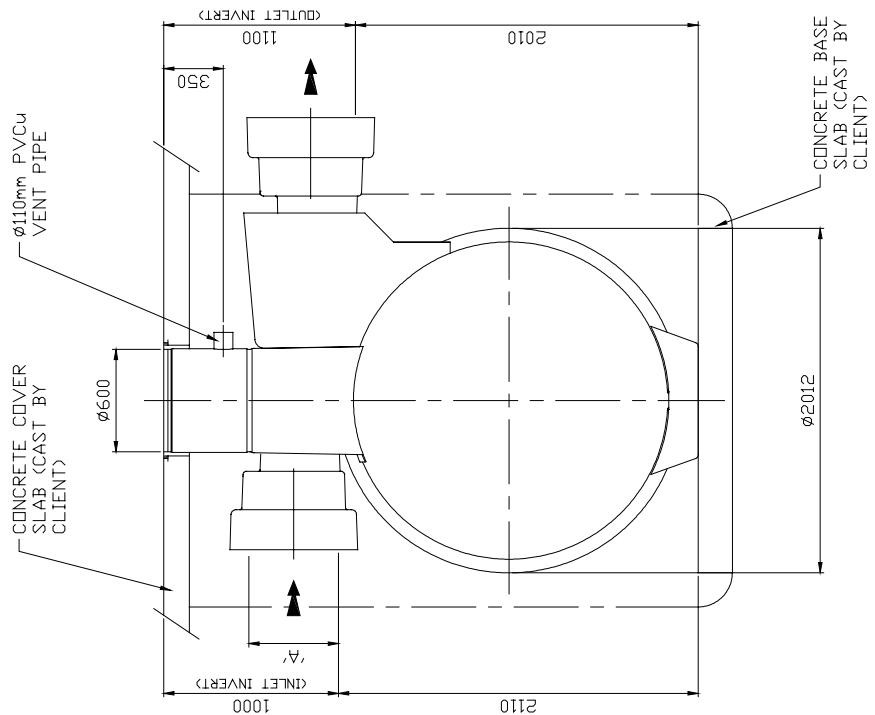
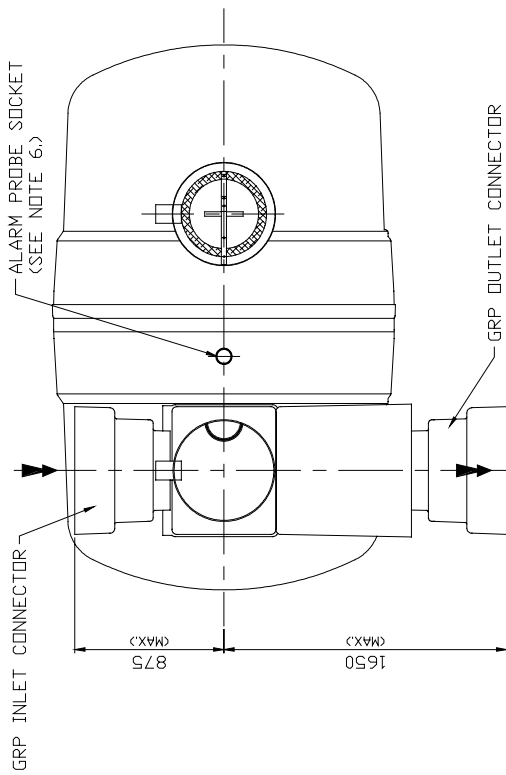
At sites where there is a high risk of spillage, spill kits containing drain seals, absorbent materials, disposal containers and other appropriate equipment should be held. In the event of a spillage on site, the material should be contained, (if a spill kit is not available, sand or soil may be used) and the Environment Agency notified immediately using the appropriate emergency hotline number listed in the Agency Guideline PPG3. Year 2001 phone number is **0800 80 70 60**

DIMENSION TABLE

UNIT REF.	UNIT CLASS	FLOW RATE NOM. (L/S)	APPROX. EMPTY WEIGHT (Kg)	MIN PIPE Ø 'A'	MIN PIPE Ø 'A'	D/A LENGTH 'L'
NSB24	1	24	740	375	3200	
	2					
NSB30	1	30	820	450	3915	
	2					
NSB36	1	36	900	525	4625	
	2					

NOTES

- 1.) CONNECTORS ARE SUPPLIED IN GRP UNLESS OTHERWISE ORDERED.
- 2.) EXTENSION NECKS FOR DEEPER INVERTS CAN BE PROVIDED IN 0.5m INCREMENTS FOR ON SITE ASSEMBLY. MAX 2.0m INVERT RECOMMENDED.
- 3.) ALL UNITS REQUIRE APPROPRIATE COVER & FRAME TO SUIT APPLIED LOADINGS.
- 4.) THIS DRAWING SHOULD BE USED FOR DIMENSIONAL INFORMATION ONLY. IT IS ESSENTIAL THAT THIS DRAWING IS READ IN CONJUNCTION WITH INSTALLATION GUIDELINES PD0314 (SUPPLIED WITH UNIT).
- 5.) STANDARD PIPE ORIENTATION SHOWN. FOR OTHER AVAILABLE OPTIONS SEE DOCUMENT TDS0033.
- 6.) AN Ø82mm SOCKET CAN BE SUPPLIED AS AN OPTIONAL EXTRA TO HOUSE AN OIL ALARM PROBE. SEE DRAWINGS DS0591 & PD0323 FOR FURTHER DETAILS.



ALL DIMENSIONS ARE IN MILLIMETRES — DO NOT SCALE

TITLE
NSB24-NSB36
CLASS 1 & 2
BYPASS
SEPARATORS

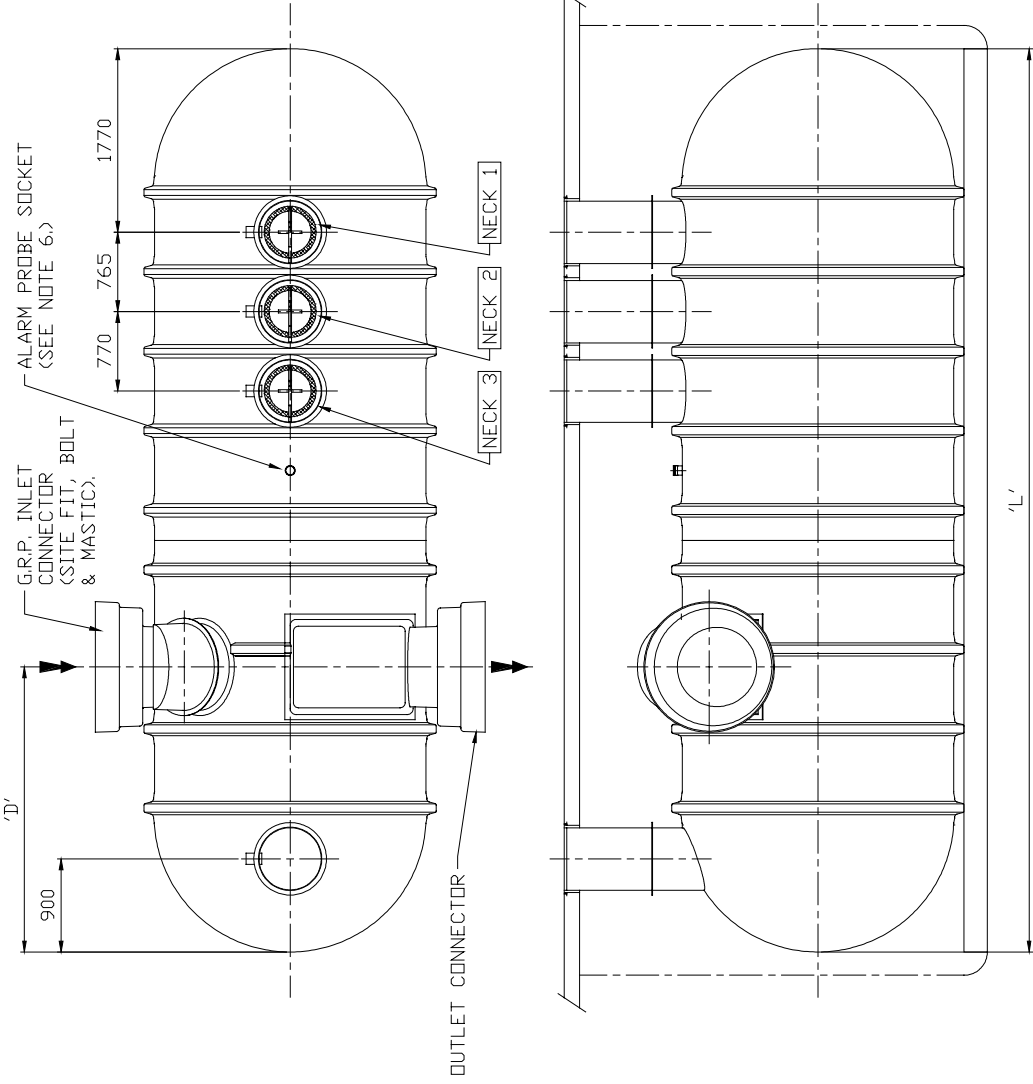
SCALE 1:15 SHEET SIZE A1
DRAWING NO. DS0614 ISSUE 2

Klargester
Klargester Environmental Ltd.
College Road, Aston Clinton,
Aylesbury, Bucks. HP22 5EW.
Tel: 01296 633000

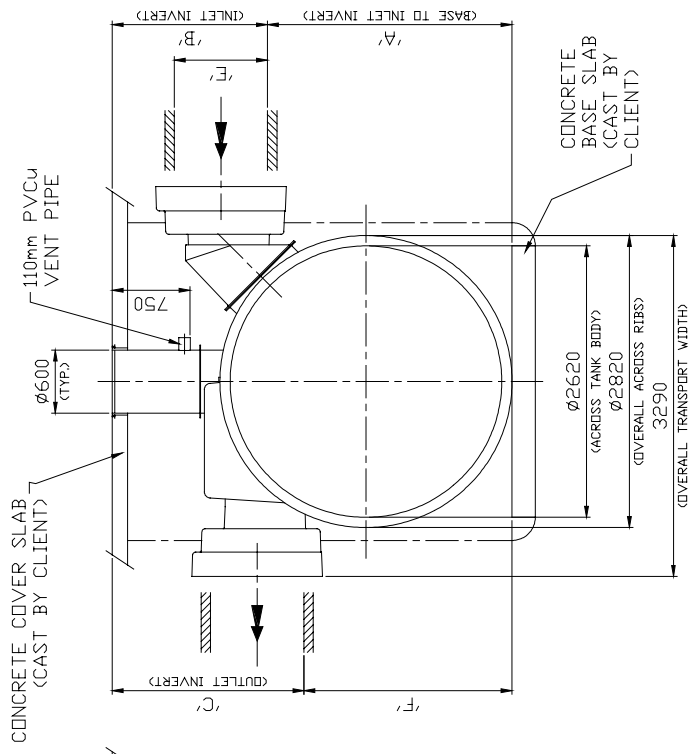
ISSUE	DATE	DRAWN	J.A.H.	INITIAL ISSUE	MODIFICATION
2	15.11.01	J.A.H.			EMPTY WEIGHTS ADDED
1	11.6.01	J.A.H.			

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THIRD ANGLE PROJECTION



- NOTES**
- PLEASE REFER TO TABLE FOR RECOMMENDED MINIMUM PIPE SIZES. CONNECTORS ARE SUPPLIED IN GRP UNLESS OTHERWISE ORDERED.
 - EXTENSION NECKS FOR DEEPER INVERTS CAN BE PROVIDED IN 0.5m INCREMENTS FOR ON SITE ASSEMBLY. MAX 2.0m INVERT RECOMMENDED.
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DIMENSIONS

UNIT REF.	UNIT CLASS	NOMINAL FLOW RATE (L/S)	NOM. SEPARATION CAPACITY (L)	APPROX. EMPTY WEIGHT (KG)	'L' INVERT LENGTH	'A' INVERT	'B' INVERT	'C' INVERT	'D' INVERT OFFSET	'E' INVERT DIAMETER	'F' INVERT	FALL INVERT	TYPE PIPE MATERIAL	NECK 1 FITTED	NECK 2 FITTED	NECK 3 FITTED	No. OF ESCAPERS
NSB55	1	55	9075	1575	5085	2310	1000	1250	1985	600	2060	250	GRP	✓	✓	✓	1
NSB72	2	72	11880	1850	5820	2310	1500	1750	1985	675	2060	250	GRP	✓	✓	✓	0
NSB84	1	84	13860	1970	6200	2310	1500	1800	1985	750	2010	300	GRP	✓	✓	✓	0
NSB96	2	96	15840	2200	7375	2310	1500	1800	2755	825	2010	300	GRP	✓	✓	✓	2
NSB110	1	110	18150	2450	7925	2360	1500	1850	2755	825	2010	350	GRP	✓	✓	✓	3
NSB130	2	130	21450	2620	8725	2360	1500	1850	2755	900	2010	350	GRP	✓	✓	✓	3

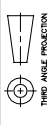
ISSUE	DATE	DRAWN	MODIFICATION
4	22.3.02	J.A.H.	TABLE DATA REVISED NSB55 RANGE
3	28.01.02	A.L.	TABLE DATA REVISED NSB55 RANGE
2	15.11.01	J.A.H.	EMPTY WEIGHT ADDED
1	1.6.01	J.A.H.	INITIAL ISSUE

ALL DIMENSIONS ARE IN MILLIMETRES - DO NOT SCALE

Klargester
Klargester Environmental Ltd.
College Road, Aston Clinton,
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Tel: 01296 633000

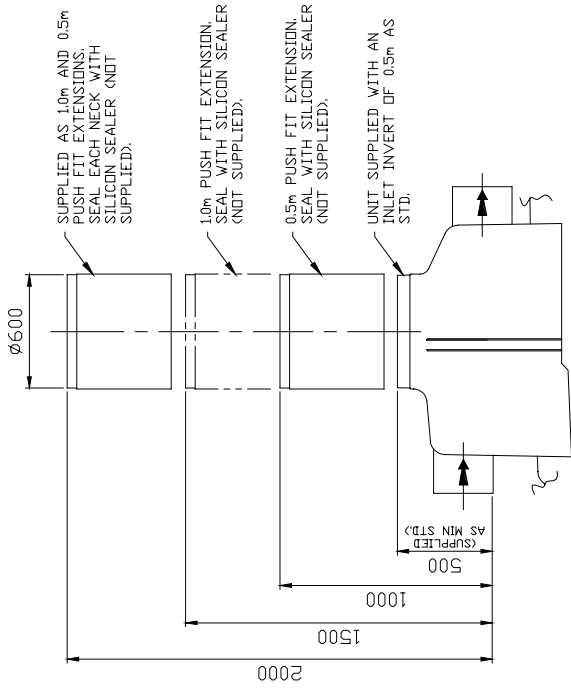
NSB55-NSB130
CLASS 1 & 2
BYPASS
SEPARATORS

SCALE 1:25 SHEET SIZE A1
DRAWING No. DS0615
ISSUE 4

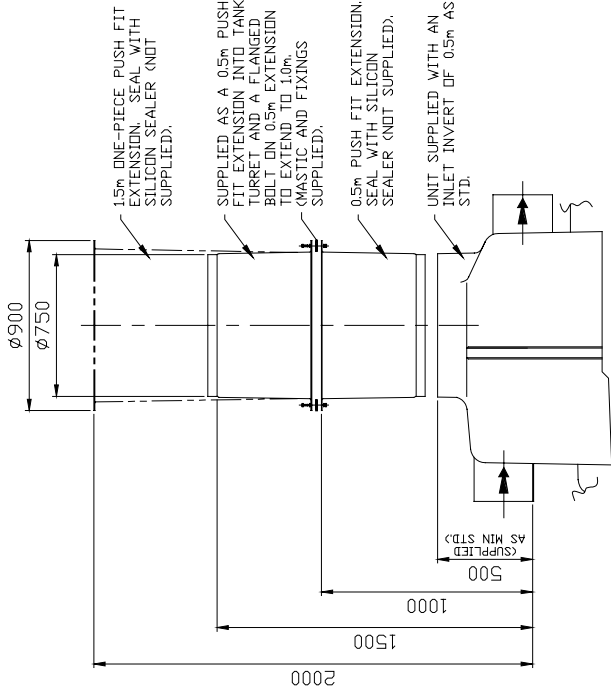


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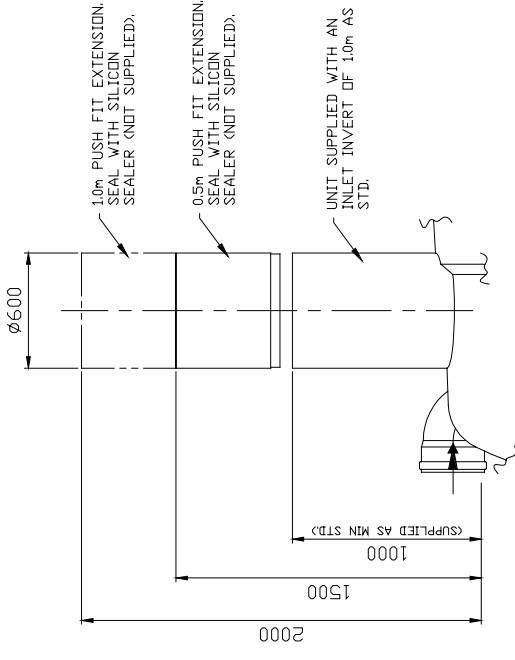
**NSB003-NSB004 (CLASS 1)
NSB003-NSB015 (CLASS 2)**



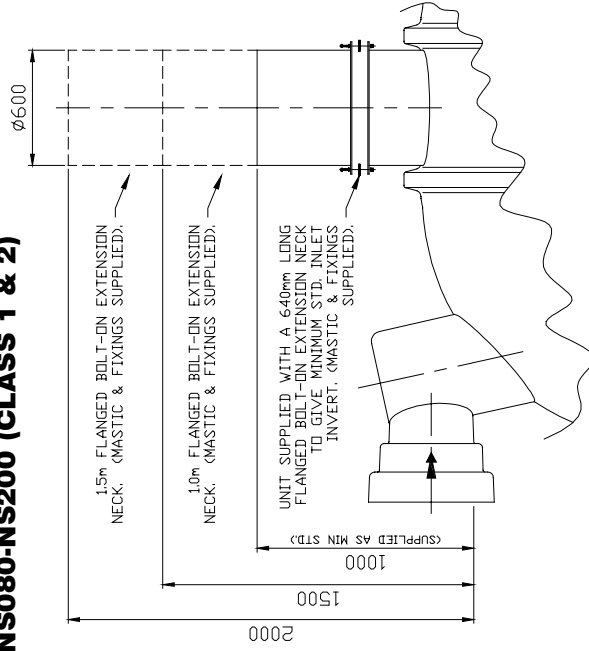
NSB006-NSB015 (CLASS 1)



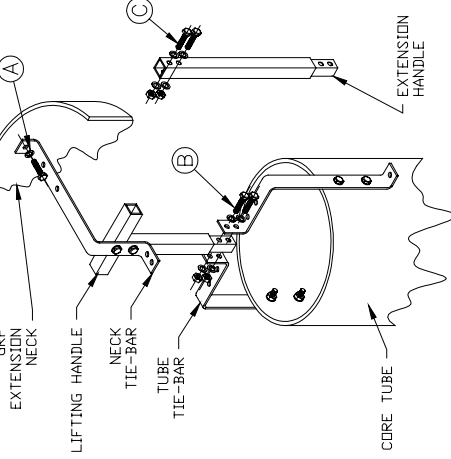
**NSB018-NSB036 (CLASS 1 & 2)
NS020-NS065 (CLASS 1 & 2)**



**NSB055-NSB130 (CLASS 1 & 2)
NS080-NS200 (CLASS 1 & 2)**



NOTES:-



- SOME UNITS MAY BE SUPPLIED WITH HANDLES FITTED TO WITHDRAW THE CORE TUBE. TO EXTEND THE LIFTING HANDLE FOLLOW INSTRUCTIONS BELOW BEFORE ADDING EXTENSION NECKS TO TANK.
- 1.) REMOVE NUT & BOLT (A) SECURING NECK TIE-BAR TO GRP EXTENSION NECK.
 - 2.) REMOVE NUTS & BOLTS (B) SECURING LIFTING HANDLE TO TUBE TIE-BARS AND REMOVE FROM UNIT.
 - 3.) USING FIXINGS SUPPLIED WITH EXTENSION HANDLE (C) SECURE TO LIFTING HANDLE.
 - 4.) REFIT EXTENDED LIFTING HANDLE TO TUBE TIE-BARS USING ORIGINAL FIXINGS (B).
 - 5.) REFIT NECK TIE-BAR TO EXTENDED GRP NECK USING ORIGINAL FIXINGS (A).

ALL DIMENSIONS ARE IN MILLIMETRES - DO NOT SCALE

TITLE



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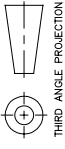
Klargester Environmental Ltd.
College Road, Aston Clinton,
Aylesbury, Bucks. HP22 5EW.
Tel- 01296 633000

NECK / HANDLE
EXTENSION DETAILS
CLASS 1 AND 2
NS/NSB SEPARATORS

SCALE	1:20	SHEET SIZE	A2
DRAWING No.	DS0616		ISSUE
			1

ISSUE	DATE	J.A.H.	INITIAL ISSUE	MODIFICATION
1	14.8.01	J.A.H.	INITIAL ISSUE	

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THIRD ANGLE PROJECTION

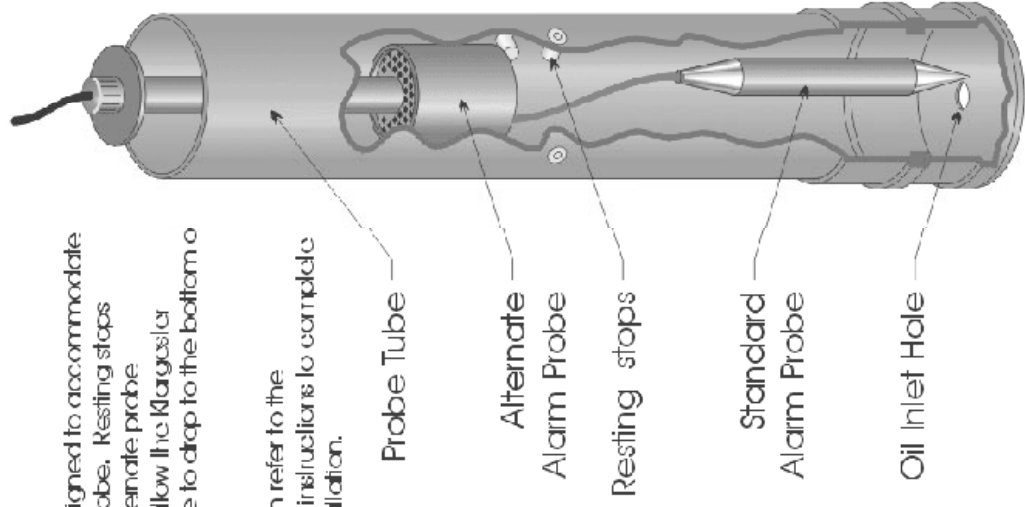
Alarm Probe Installation

The tube is suitable for Klargester standard oil alarm systems only. Do not use for other equipment suppliers.

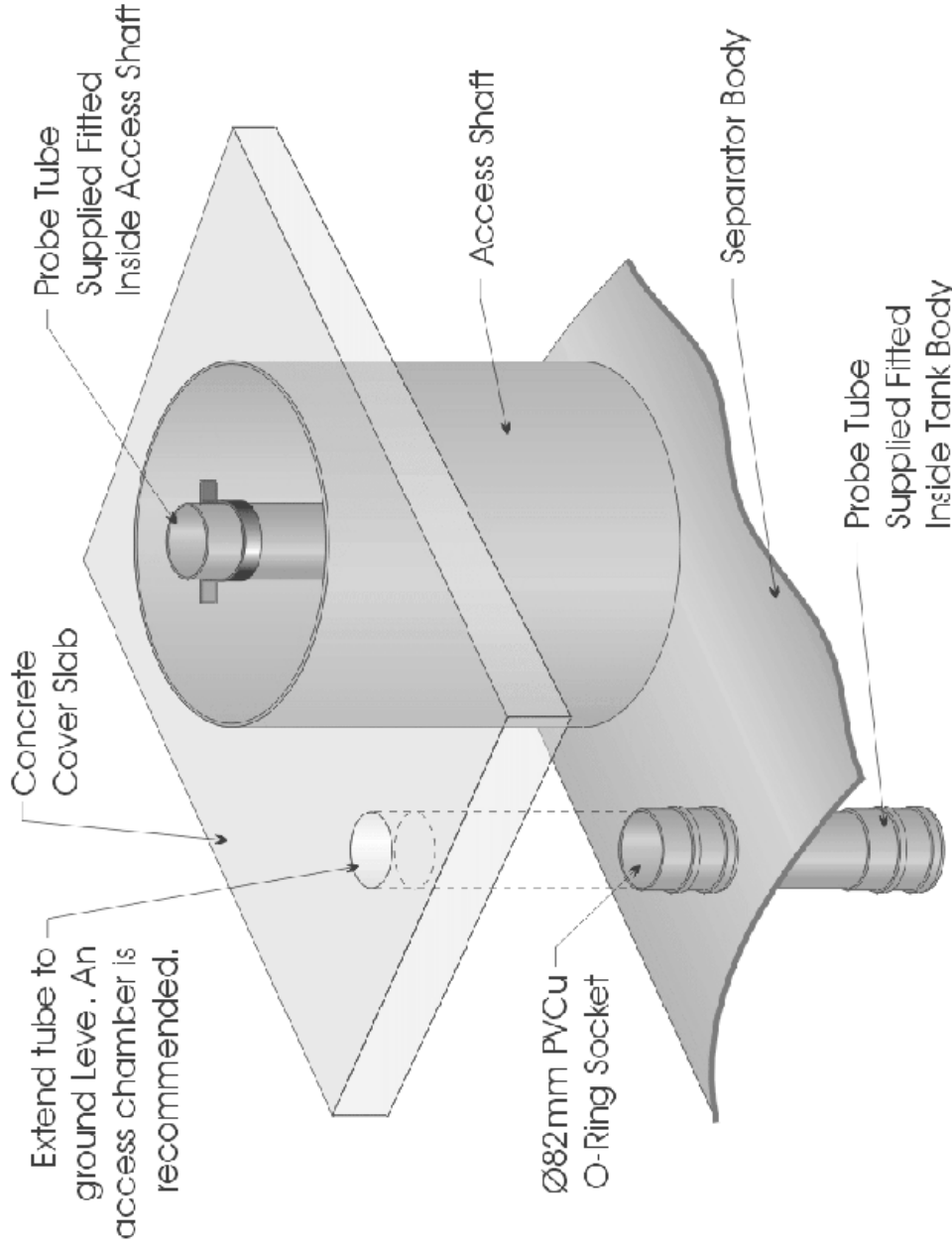
The probe should be lowered down the tube until it cannot be lowered any further.

The tube is designed to accommodate two types of probe. Resting stops position the alternate probe correctly, but allow the Klargester standard probe to drop to the bottom of the tube.

You should then refer to the manufacturer's instructions to complete the probe installation.



Alarm Probe Fitting Instructions for Light Liquid Separators



Extend tube to ground level. An access chamber is recommended.

Note:-

The oil probe may be fitted in the access shaft or body of the Separator. This position will depend on the model of Separator ordered.