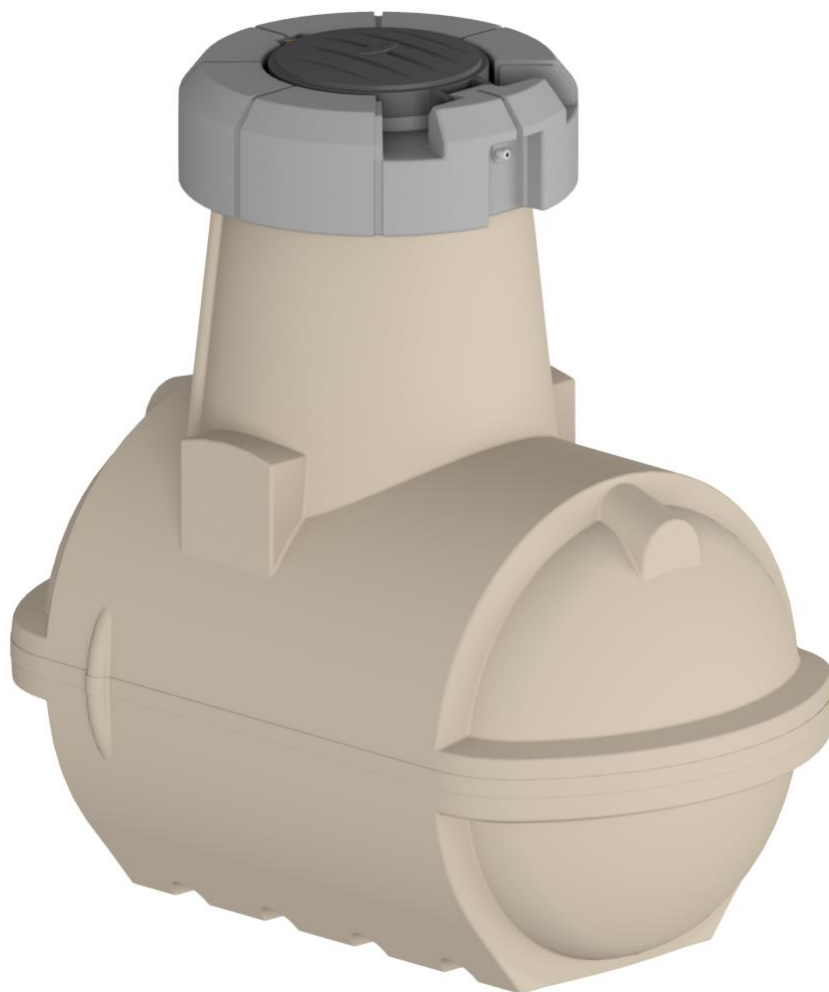


Harlequin®

MANUFACTURING FOR TOMORROW

DOUBLE SKIN UNDERGROUND FUEL OIL TANKS

Installation and Operating Instructions



HARLEQUIN UNDERGROUND FUEL SINGLE SKIN INSTALLATION INSTRUCTIONS

Introduction:

It is strongly recommended that you read all sections of this guide before installing your new Harlequin Underground Fuel Tank. Before installing, using the following guidelines, the suitability of your site should be checked for underground storage of fuel oil. It is the end users responsibility to ensure the tank application will meet any legislative requirements that may apply to their particular installation. The information is for guidance only and can form no part of any contractual agreement either with Harlequin Manufacturing Ltd or any other third parties. Harlequin Manufacturing can accept no responsibility for any assumptions or agreements made as a result of this information. Failure to follow these installation guidelines will render any warranty null and void.

Product details:

This range of tanks has been specifically designed to hold fuel oils (classes of oil - A2, C1, C2 and D, as defined in BS2869 Part 2: 1988):

The fill points, contents gauge and tank ventilation are located in a basin in the tank turret section.

Location of tank:

All underground tanks **MUST** be buried in concrete as described below. Superimposed loads, such as vehicles, should **NOT** be allowed within the protection area shown in the following illustration (minimum 2m from the outer edge of the tank). The area should be fenced or clearly marked to restrict access.

If this cannot be followed, a reinforced concrete slab must be designed/installed by a qualified civil/ structural engineer so that no loads are transmitted directly on to the tank.

The standard installation depth of approx. 650mm, from the top of the main tank body to the ground level mark on the tank lid, **MUST NOT** be exceeded. This is to prevent water ingress into the tank in the case of flooding.

	Brimful Capacity	Nominal Capacity	Weight	Length	Width	Height
UGD1400 UNDERGROUND DOUBLE SKIN	1465 Ltrs	1390 Ltrs	220 kg	2105 mm	1255 mm	2100 mm
UGD2500 UNDERGROUND DOUBLE SKIN	2655 Ltrs	2520 Ltrs	300 kg	2450 mm	1400 mm	2270 mm

Figure 1: Underground Fuel Tank Dimensions

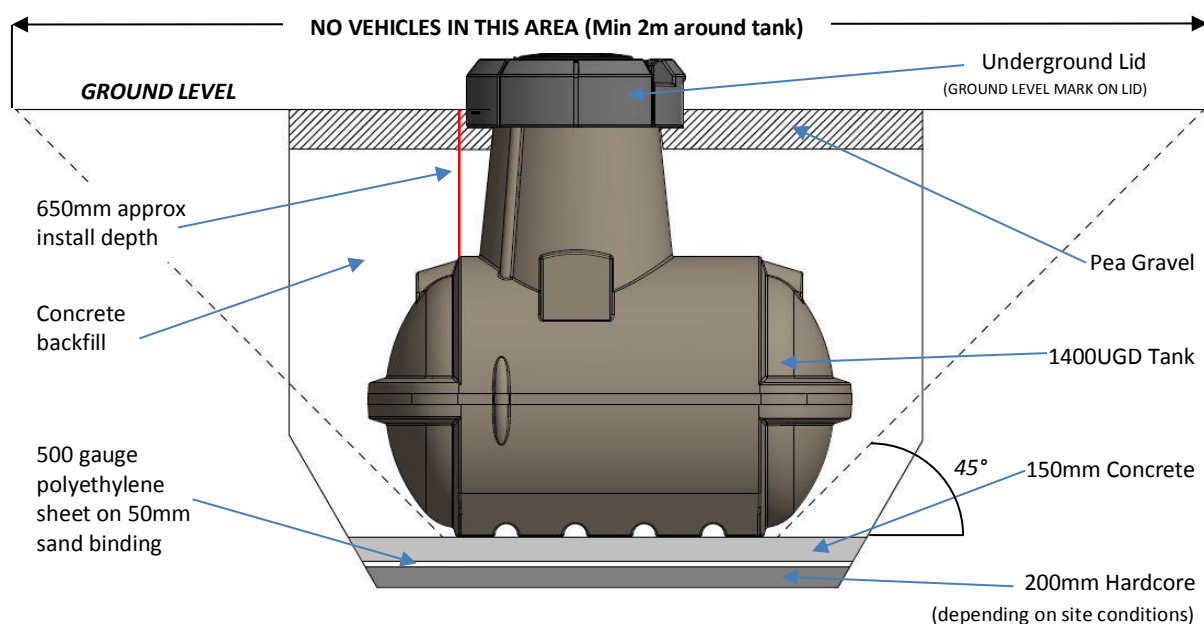


Figure 2: Underground Fuel Tank Installation Image

Installation Guidelines for all Ground Conditions

It is recommended that a full risk assessment be completed on the site, installation process and all parts prior to installation.

None of these tanks can be installed in wet ground conditions (where at any time the ground water may rise above the base of the tank).

- The excavation should allow for a minimum of 250mm all around the tank and approximately 400mm below the tank for hard core and concrete.
- Allow for suitable pumps to keep the excavation dry until the installation is complete.
- Fit suitable planking and strutting as necessary

Lay:

- a. 200mm thick hard core (or as necessary for site conditions)
- b. 50mm sand blinding
- c. 500 gauge polythene sheet over the base of the excavation
- If necessary set temporary shuttering to contain the concrete surround

- Lay a wet bed of concrete 150mm thick (strength 20N/mm², slump test 50mm)
- Lower tank carefully onto the concrete. Check that the tank is true and level
- Haunch concrete 300mm up around base of tank

Back filling: Back fill evenly all around the tank with concrete (minimum 15 N/mm²) proceeding in 150mm layers. It is vital to ensure that the tank is filled with fuel 300-500mm ahead of the concrete back fill.

Alternatively the concrete can be placed around an empty tank in four progressive lifts with a 12 hour delay between each lift to limit the concrete pressure. The tank will have to be carefully restrained by temporary strutting to prevent any chance of flotation during this process.

- Ensure that there are no voids or areas of differing pressure around the tank.
- **Do NOT use a vibrating poker.**
- Complete concrete backfill to 200mm below tank lid
- Finish to ground level with 12-15mm gravel or earth

Tank Connections and Ancillaries:

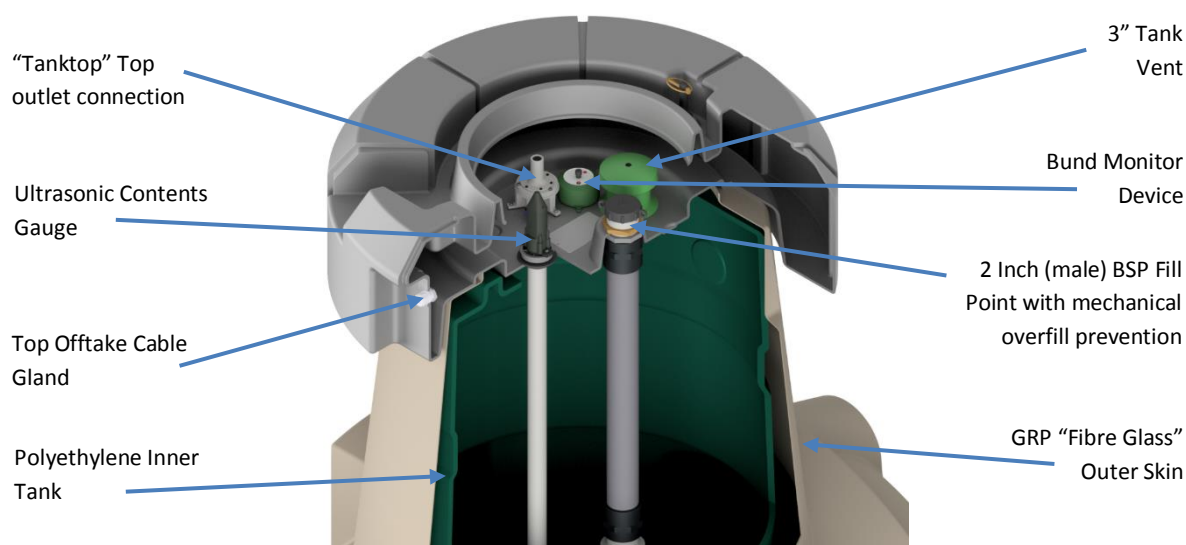


Figure 2: Cutaway View of Tank: (with hinged lid removed)

- The tank comes fitted with a TANKTOP top offtake fitting which comes with a combined filter, anti-siphon valve and non-return valve.
- The installer can connect inside the unit directly to the TANKTOP (bring pipe in through cable gland) or use the supplied flexible pipe to connect outside the lid.
- This is not recommended for supplying multiple appliances.
- This tank is not suitable for vaporising appliances (such as an AGA burner), without use of a separate oil lifter.
- For guidance on Oil Pipe supply size, refer to Table 1: Do NOT oversize supply pipe.
- The installer should minimise the number of joints in the supply line and bend the supply pipe, as opposed to fitting connections, where possible.
- Any joints/connections in the supply line must be completely air-tight.
- Use a hand pump/vacuum pump to prime the supply to the boiler.

HARLEQUIN UNDERGROUND FUEL SINGLE SKIN INSTALLATION INSTRUCTIONS

- The 2" Fill point comes fitted with Mechanical Overfill Prevention Device which shuts off the fuel flow once the level reaches the top of the main body of the tank.
- Fill Point is suitable for fuel delivery flow rates from 50lpm to 400lpm.
- The tank comes pre-fitted with an electronic Ultrasonic Contents gauge, specifically designed for this type of Underground Tank.
- The tank also comes fitted with a leak detection monitor to determine if any liquid has entered into the gap between the inner and outer tank skins and a supply hose to remove any liquid that gets into the bund gap
- It is recommended to fit (supplied with tank) a De-Aerator (TIGERLOOP) device close to the heating appliance as per manufacturer's instructions.
- An Oil filter as well as a Fire valve (Not supplied) should be fitted to the supply line as per standard fire regulations.

TOTAL PIPE LENGTH (M)	TOTAL SUCTION HEAD - METERS										
	0	0.5	1	1.5	2	2.5	3	3.5	4	4.5	
5	6	6	6	6	6	6	6	6	8	10	
10	6	6	6	6	6	6	6	6	10	10	
15	6	6	6	6	6	6	6	8	10	-	
20	6	6	6	6	6	6	8	8	10	-	
25	6	6	6	6	6	6	8	8	10	-	
30	6	6	6	6	6	6	8	8	10	-	
40	6	6	6	6	6	8	8	8	10	-	
50	6	6	6	6	8	8	8	10	10	-	
60	6	6	6	8	8	8	8	10	10	-	
70	6	6	8	8	8	8	8	10	-	-	
80	6	8	8	8	8	8	8	10	-	-	
90	8	8	8	8	8	8	10	10	-	-	
100	8	8	8	8	8	8	10	10	-	-	

"Total Pipe Length" is the total length of oil supply pipe required to run from the fuel in the bottom of the tank to the de-aerator

"Total Suction Head" is calculated as the total length of pipe in which the oil rises vertically, including internally and externally of the tank

Table 1: Supply Pipe Sizes for Appliances up to 30Kw output (Ref: OFTEC Book 3)

Warranty and Maintenance:

The Tank and Ancillary equipment are guaranteed for 1 year against faulty parts or manufacturing defects provided:

- The tank has been installed in line with the instructions listed in this document by a competent person in accordance with prevailing statutory requirements
- The tank has only been used to store the fuels listed in the "Product Details" section above
- You can register your tank for Warranty purposes at www.harlequinplastics.co.uk/warranty
- The serial and model number of the tank can be found underneath the manhole lid of the tank on the Tank Serial Plate

The Warranty does not cover (and we will not accept responsibility for any consumable items, any component which has not been manufactured by us (please refer to the manufacturer's warranty supplied with the relevant component, fair wear and tear, or any fault:

- in respect of any component not forming part of your product; or
- arising from any cause other than defect in original workmanship or materials; or
- caused by improper installation, maintenance, neglect, misuse or wilful or accidental damage; or
- caused by alteration or repair by you or by a third party who is not one of our authorised repairers; or
- caused by non-observance of either any applicable statutory requirement or any of the instructions contained in the installation and operating instructions appropriate to your product