

INSTALLATION GUIDE

Vertical & Above Ground
Storage Tanks

REWATEC[®] CALONA[®]



Installation Guide

Vertical & Above Ground Tanks

Manual Version OM0045 Rev 4ATG 02

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**Installers: To Safeguard Warranty Please
Ensure You Are Using The Latest Installation Guide
PT-WaterEnvironment.co.uk**

General Notes

1. These guidance notes refer only to the installation of above ground vertical tanks.
2. These guidance notes do not provide specific, site-related installation instructions.
3. If in any doubt whatsoever about any aspect of the installation please contact your Premier Tech point of contact.

Transportation, Unloading & Storage of Tanks

1. Tanks must be held down during transportation using nylon straps, do not use cables or chains to hold tanks.
2. Do not over tighten straps to cause deformation of the tank shell.
3. Tanks must be lifted by crane. When lifting lugs or trunnions are not provided, the vessel should only be lifted using webbing lifting straps passed round the girth of the vessel – do not use chains or wire rope in contact with the tank. When lifting, care should be taken not to apply shock loads to the tank or any connections.
4. Connections / nozzles must not under any circumstances be used as lifting positions
5. Premier Tech recommends the use of a lifting beam for tanks longer than 8 meters.
6. Move tanks only by lifting and setting, do not drag or roll.
7. Do not drop or roll tanks from the delivery vehicle.
8. Place tanks carefully onto a smooth level even surface, free from rocks, large stones or other debris that could cause point loads.
9. Chock tanks using tires, sandbags or similar to prevent rolling.
10. In high wind conditions, consideration should be given to strapping down the tanks to prevent damage.

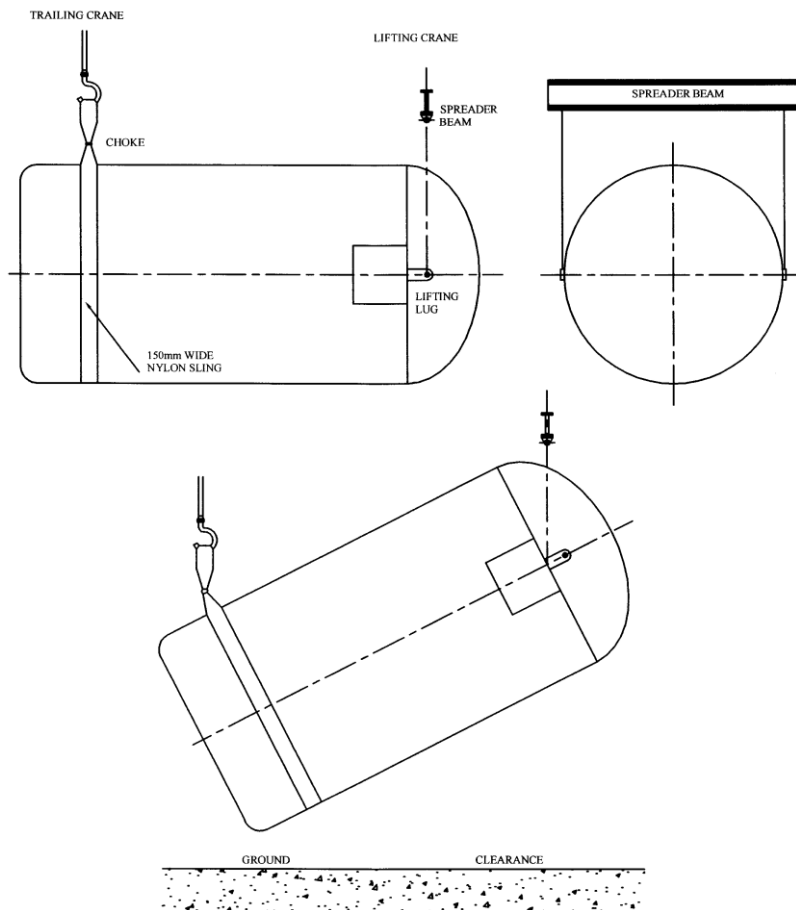
Pre-Installation Inspection

1. Tanks should be subject to a visual inspection prior to installation.
2. Any damage should be notified to the delivery driver and to Premier Tech.
3. Do not attempt to carry out any unauthorised repairs, as this will invalidate the warranty on the tank.
4. Check for, fractures to the shell, delamination's, scratches or abrasions deeper than 1.5mm, stress cracks or star crazing.

If the tank is installed outside these parameters it may suffer irreparable damage. The details of these guidance notes should be strictly adhered to in all respects.

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Horizontal to Vertical Offloading



Support For Vertical Vessels

1. Continuous support shall be provided over the whole area of a flat bottom tank.
2. The recommended support for vertical vessels are either:
 - a. A float finished concrete plinth
 - b. A steel plate supported on an adequate grillage and of sufficient thickness to ensure that local strains in the flat bottom of the tank are not greater than the design strain
3. Leveled off earth bases whether or not in-filled with sand or other granular material, are not adequate supports and should not be used.
4. Where a concrete base is specified departure from nominal level should not exceed $\pm 1\text{mm}$.
5. Before bedding the tank, the base should be covered with bitumen sand to a thickness of 25mm. Loose sand should not be used to bed flat bottom Vessels.

A suitable bitumen sand can be produced by mixing in the following proportions by mass:

9% \pm 0.5% Non-toxic cut back bitumen (i.e. fluxed with kerosene and not creosote)

10% \pm 1% Filler : Either limestone dust passing a sieve of nominal aperture (size 75 μm in accordance with BS 410) or Portland cement.

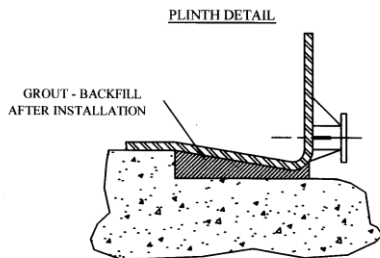
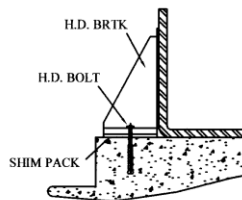
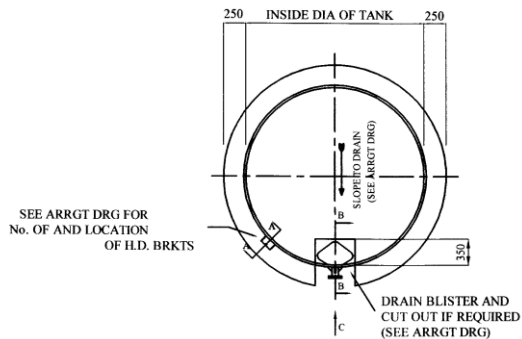
81% \pm 1.5% Clean dry washed sand in accordance with table 2 of BS 882 : 1983.

Installation Of Vertical Vessels

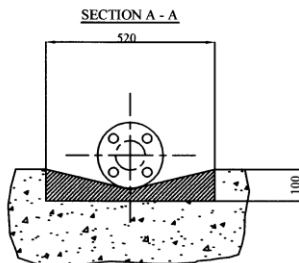
1. Ensure the plinth surface is free from nuts, bolts, pebbles, stones or any other debris.
2. Set the vessel down centrally and at the correct orientation on the plinth in accordance with the handling instructions detailed in these guidance notes.
3. Ensure that all the holding down brackets are clear of the plinth surface.
4. Fit the holding down bolts and tighten, finger-tight only.
5. Fill the vessel with either the design contents or clean water at a minimum of 7°C.
6. Grout in around the drain blister if fitted.
7. Measure the gaps between the plinth surface and the base of the holding down bracket.
8. Prepare and fit slotted shims, of the correct thickness, at each holding down bracket.
9. Tighten down holding bolts to the manufacturers recommended torque. (150Nm for M16).
10. When bedding down on sand bitumen, lift the tank after first seating to ensure there are no unsupported areas.

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Vertical Tank Installation



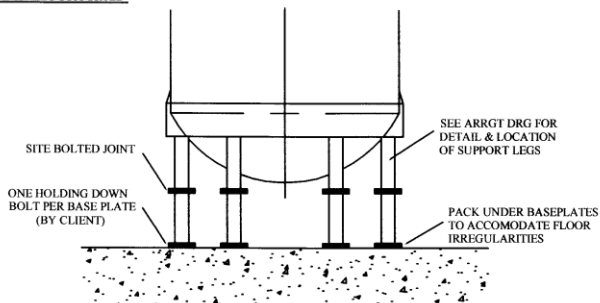
SECTION B - B



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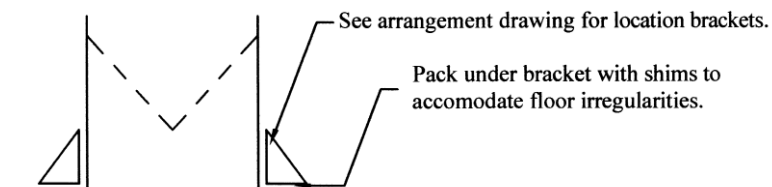
Supported Tank Installation

VERTICAL TANK - LEG SUPPORTED



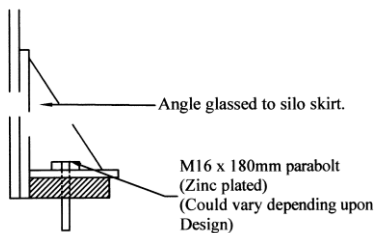
HORIZONTAL TANK - CRADLE SUPPORTED

Silo Supported On Skirt Installation



Typical Detail

N.B. No. of brackets for silo varies depending upon design of silo.



Installation Method

1. The silo is placed in position.
2. Holes are drilled into the concrete base using holes in brackets provided.
3. Bolts should be installed with nuts applied finger tight.
4. Once the silo is filled, shims should be packed under the brackets and the bolts should be tightened to the required torque.

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Mechanical Damage

1. Great care should be taken to ensure that the vessel is not subject to any form of mechanical damage.
2. Do not drop or abrade the tank.
3. Personnel should wear soft soled shoes when working in or on the tank.
4. Tools etc. should not be dropped onto the tank and should be suitably padded to prevent scratching.

Tank Connections / Nozzles

1. All flanged joints should be drawn up gradually and evenly.
2. Gaskets should be of soft rubber, (shore hardness 40 – 70).
3. The maximum torque applied must not exceed the figures shown in the table below
4. All pipework and valves etc. are to be independently supported so that no loads are applied to the tank connections / nozzles.

Flanged Joints Bolt Torque

Nozzle Size	Bolt Torque
40mm (1.5")	2.76kg.m (20lbs.ft)
50mm (2")	3.45kg.m (25lbs.ft)
80mm (3") 4 Hole	4.00kg.m (29lbs.ft)
80mm (3") 8 Hole	2.00kg.m (15lbs.ft)
100mm (4")	2.35kg.m (17lbs.ft)
150mm (6")	3.45kg.m (25lbs.ft)
200mm (8")	4.84kg.m (35lbs.ft)
250mm (10")	5.53kg.m (40lbs.ft)
300mm (12")	6.22kg.m (45lbs.ft)
500mm (20")	4.84kg.m (35lbs.ft)
600mm (24")	6.22kg.m (45lbs.ft)

