

ENDURAMAXX TANKS

OPERATING & MAINTENANCE MANUAL



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FLUID MANAGEMENT INNOVATION

www.enduramaxx.co.uk
sales@enduramaxx.co.uk

Operating & Maintenance Manual INTRODUCTION

THESE OPERATING & MAINTENANCE INSTRUCTIONS ARE INTENDED TO GIVE GENERAL INFORMATION ONLY.

This manual contains information which must be observed during installation of the tank(s) or vessel(s) and therefore must also be read by the Installation Engineer/Supervisor. The location of this manual must always be known by all of those working on the plant at which the tank is installed. In these instructions the word "tank" should be taken to apply to similar items supplied by Enduramaxx.

The tank should only be used for the duty it has been designed for. You must contact Enduramaxx prior to changing the duty of the tank.

- Enduramaxx, Outgang Road, Baston, PE6 9PR
- 01778 562810
- Sales@enduramaxx.co.uk

COMMISSIONING & OPERATING

It is recommended that tanks should be water tested for a minimum of 12 hours once positioned on site.

Refer to job-specific drawing(s) for testing recommendations.

Before filling the tank

Prior to filling the vessel ensure that:

- The installation has been fully completed as per the Offloading and Installation instructions.
- Any valves on liquid inlet(s) or outlet(s) are fully closed and isolated (excluding overflow).
- Any spare nozzles are securely blanked.
- The tank is effectively vented to prevent overpressure during filling and creating a vacuum during emptying. Rapid drain down through large diameter base nozzles can create a vacuum if the vent is not correctly sized.

The tank water test can be combined with a simulation of the delivery procedure using water, this will be dependent upon whether there is a suitable available water supply which can be coupled with the fill connection. Testing of any instrumentation such as level switches should also be completed during water testing.

If the bund is subjected to a water test, the tank must be filled initially to prevent floatation of the tank. The bund must be fully drained down prior to the tank being emptied.

In the event of any leaks please contact Enduramaxx.

Check and re-tighten bolts if needed.



CLEANING

Although cleaned and sealed at our works it must NOT be assumed the tank is clean.

Always flush the tank through.

Prior to use, the tank must be filled to its maximum design liquid level with water and left to stagnate for a minimum of 24 hours.

Drain down, flush through again with water. Test in accordance to your acceptance protocol. The tank is now ready for use.

OPERATIONAL CHECKS

The units should require very little attention during normal operation; however, the following checks should be made on a regular basis (dependant on operation):

- Check for leakage anywhere on the vessel or nearby flanged connections (look for wet patches on concrete, corrosion to metal parts, etc.)
- Check level transmitters (where applicable) are readings as expected.

MAINTENANCE & INSPECTION

It is recommended that all aspects of a tanks service history should be recorded and maintained.

Information to be included:

- Manufacturer's design information, such as any relevant Data books, certification, design calculations and information on construction materials and methods.
- Drawings
- Installation information
- Regular inspection reports
- Any modifications carried out
- Records of any maintenance and repairs completed
- Operational history, such as change of duty (contents, temperature, etc.), re-siting of the tank, incidents that have occurred (overfilling, mechanical damage), decommissioning.

The materials of construction of the tank have been selected for the specified application and are essentially maintenance free. No painting is required and, provided that the units remain free of physical damage, the structure of the tank will require no attention.

Care should be taken, both at the time of installation and in service, to ensure that pipework and valves connected to the unit are adequately supported so that it does not impose any loads on the tank nozzles.

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TANK INSPECTIONS

The purpose of regular inspection is to ensure the tank is still fit for purpose and any defects can be rectified in a timely manner. Periodic external inspections should be made to ensure that the tank is free of physical damage and that pipework connections are secure and leak free. In the event of damage occurring to the system, Enduramaxx should be consulted to provide advice or repair services.

It is the responsibility of the end user to establish an appropriate inspection schedule and maintain adequate records of maintenance and inspection. Enduramaxx recommend that all polyethylene tanks are regularly inspected, and details recorded in a database of records over the lifetime of the tank.

When carrying out a visual inspection, the main areas to review are; all welds on the tank, look out for signs of tank swelling, chemical attack, blistering, indication of weathering and cracking.

The frequency of inspection should primarily be determined by the tank age and the nature of its contents. The main areas to inspect are as follows; tank bases and supports, tank shell/body, tank bottom and roof and connections and nozzles. This list is not exhaustive. If you require further advice or information on inspection, please contact Enduramaxx.

In addition to external inspections, Enduramaxx recommend that periodically the tank should be completely drained for an internal inspection. It is recommended this is done every 2 years, although this may not be possible due to operational requirements. Once a tank has been in use for over 10 years it is recommended that internal inspections are scheduled more frequently. If it is not possible to carry out internal inspections, there is an increased importance on completing more regular external inspections.

In the event any concerns during these inspections, Enduramaxx should be consulted to provide advice or repair services

SAFE ACCESS

Users must consider all potential hazards prior to inspection and ensure they have the relevant permit-to-work systems in place. If you are entering the tank, you must follow procedures for confined space entry and gas freeing. This must be undertaken by an approved person.

Accessing the Tank

Ensure the tank is fully drained and any remaining liquid removed, if hazardous, by specialist personnel. These liquids are to be either transferred to alternative storage or removed from site and treated to make safe, if necessary.

The atmosphere internally to be purged if necessary. Prior to entry, internal atmosphere

must be certified as safe. Isolate and lockout all tank inlets by ensuring valves in inlet pipework are fully closed and locked. Any pump feeding the tank should be electrically isolated and locked out following site-specific procedures.

Enter and exit through the tank manway.

Once maintenance is complete, replace the manway cover, ensuring the gasket is correctly fitted and cover is secured.

The tank can then be refilled.



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