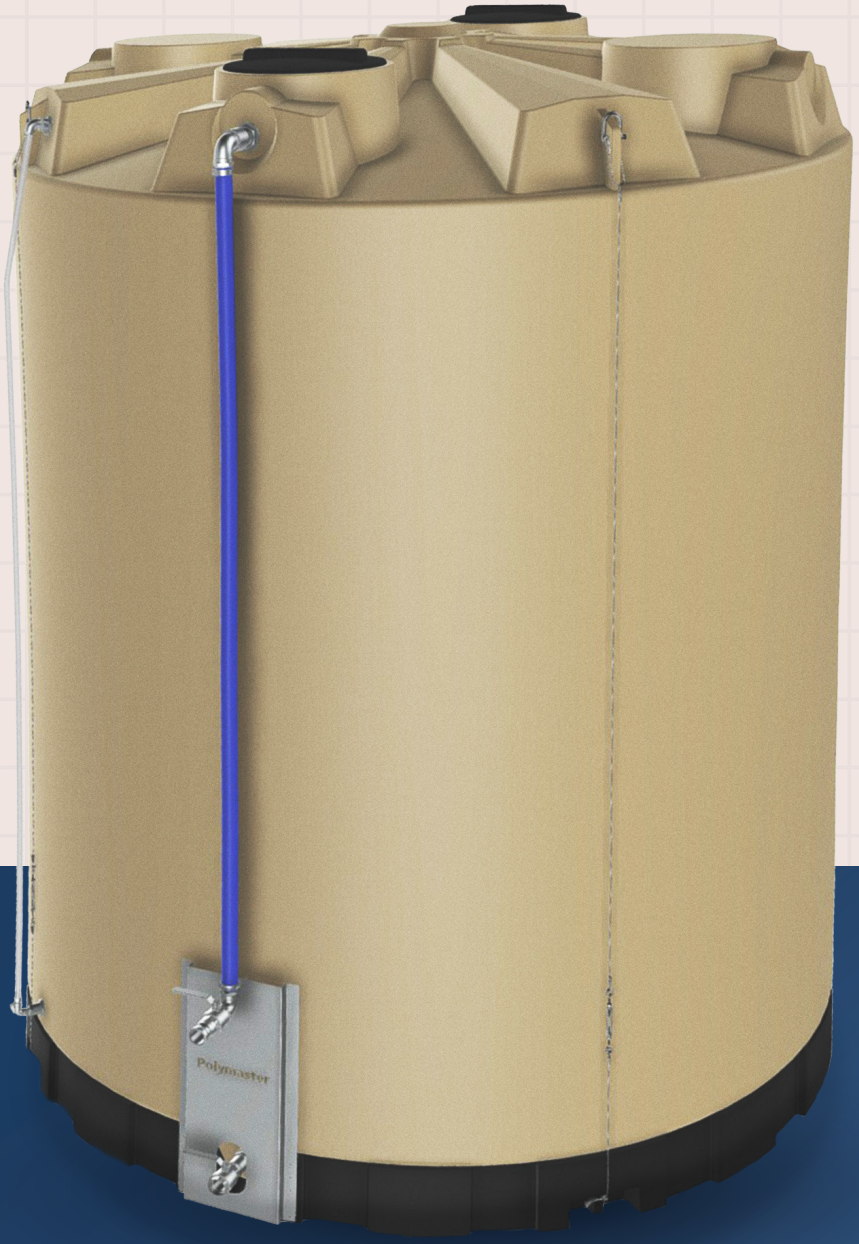
Self Draining Tanks

Installation, Operation & Maintenance Manual



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Polymaster

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APPLICATION NOTES

- Tanks are suitable for the storage of liquids up to and including 1.5 SG.
- Compatibility with fittings must be checked by user prior to filling tank.
- Stability notes to be considered (see anchorage section).
- Drawings are available and may contain information relating to freight and handling.
- Note: A specific lifting guide exists as a separate document. Please refer to this as part of planning your lift, or contact Polymaster for a copy.

ABOUT THIS PRODUCT

Polymaster Self Draining Tanks provide complete drainage of chemicals and process liquids up to 1.5 SG, suiting a wide range of industrial and water treatment applications. A sloping base directs stored liquid to a centre channel, leaving virtually no residual liquid in the tank between batches or chemical changeovers.

Available in 23,000L, 28,000L and 33,000L capacities, tanks can be fitted with the full range of chemical tank fittings and nozzles, and connected to a Polymaster stand-alone dosing system housed within a double-door cabinet. Tanks are Australian made and manufactured to AS/NZS 4766:2006.

By following the installation requirements in this manual, this product will give you many years of trouble-free service.

KEY FEATURES:

- Sloping base directs liquid to a centre channel for complete self-drainage — virtually no residual liquid left in the tank
- Outlet drain available in 2" (50mm) or 3" (75mm) to suit the application
- Available in 23,000L, 28,000L and 33,000L capacities
- Engineered to suit chemicals and liquids up to 1.5 SG
- Can be custom fitted with telemetry and connected to a Polymaster stand-alone dosing system housed within a double-door cabinet
- Designed to operate at atmospheric pressure only, with proper venting — tanks must not be pressurised
- Manufactured to AS/NZS 4766:2006

MATERIALS USED IN CONSTRUCTION:

- PE – Polyethylene resin, specially engineered for the rotational moulding of chemical and process tanks
- Made from premium polyethylene resin that meets the material requirements of AS/NZS 4766, with UV and antioxidant stabiliser rated to a minimum UV12 for harsh Australian outdoor conditions
- Maximum continuous liquid temperature of 40°C
- Tanks are designed using engineering methods including finite element analysis (FEA) to ensure structural integrity

AUSTRALIAN STANDARDS

- Polymaster is certified to ISO 9001:2015 International Standards and undertakes regular audits from third-party auditors.
- Polymaster Self Draining Tanks are manufactured to AS/NZS 4766:2006 — BSI Benchmark certified (Licence BMP 657671).
- Every tank is labelled with full manufacturing details, including a serial number, for complete traceability.

CERTIFIED ISO 9001

PRODUCT CERTIFICATION

BSI Certified Product

AS/NZS 4766:2006 Lic:BMP No 657671
Australian/New Zealand Standards

GENERAL HEALTH & SAFETY

- Installation and use of this product should only be carried out by properly trained and approved personnel.
- This manual contains important information concerning the safe installation and use of this product. Read the manual carefully before installation and use, paying attention to all safety warnings.
- Users of this product are responsible for the safe and correct use of this product.
- Any changes to this product made without consulting the manufacturer will invalidate all warranties and guarantees.
- The manufacturer will not be responsible for any accidents or damages caused by incorrect installation or use of this product.
- Polymaster recommends that customers assess the suitability of chemicals being stored with the materials used in the construction of this product.
- The components must not be altered or tampered with due to potential risks to personnel.
- It is the responsibility of the end user/ customer to ensure appropriate PPE, health and safety measures, and safe work practices are employed in conjunction with the use of this product.
- If present, control boards are not suited for use in areas where there may be a risk of explosion.

CHEMICAL RESISTANCE

A chemical resistance chart may be found on our website www.polymaster.com.au. It is recommended that you discuss your specific chemical storage requirements with a Polymaster consultant or study the comprehensive chemical chart to ensure compatibility. A more comprehensive list is also available on request.

TEMPERATURE & SG RATINGS

The temperature of the chemical/liquid stored has different effects on the polyethylene and can produce different effects within the same chemical range. Contact a Polymaster consultant if you are unsure about your application. A continuous liquid temperature above 40 degrees Celsius is not recommended for these tanks. Tanks are designed to a maximum Specific Gravity (SG) rating to suit the application and must not be exceeded.

VENTING

These tanks cannot be pressurised and are designed to operate at atmospheric pressure. Proper venting stops pressure or vacuum developing as the tank is topped or emptied. It is recommended that the vent should always exceed the size of the largest fill or discharge. Check that the chemical you are using is able to be vented to atmosphere without prior treatment.

REGULATIONS

There may be local, state or national regulations that apply to your proposed tank installation. Check with the relevant authorities concerned to ensure all requirements are complied with. A thorough evaluation of the proposed site is recommended prior to any placement or installation works being carried out.

Service access and safe egress paths away and around the tank in line with Australian and local authority requirements to suit the specific chemical being stored is the responsibility of the installer and user of the tank. Do not block any service access or egress paths.

Position the tank to allow for ease of regular inspection and maintenance. It is recommended that tanks are not installed adjacent to equipment or buildings that will impact cost effective removal and/or replacement of the tank in the future. Use guards and physical restraints to prevent tank fittings and piping from impact damage and protect personnel from potential chemical leakage.

GENERAL LOCATION

There are many aspects to consider when selecting the best location for your tank. Some points to consider:

- Excessive wind or seismic forces
- Area subject to flooding
- Safe distance from any source / equipment generating heat or flames

Generally accessible location to ensure safe operation, maintenance and distance from other chemical storage in line with authority requirements.

For further advice, contact Polymaster on 1800 062 064.

TRANSPORT, HANDLING & STORAGE

These instructions should be read in their entirety before commencing installation of the tank.

- DO NOT TRANSPORT WITH LIQUID OR DRY MATTER INSIDE.
- The tank must be protected against mechanical damage during transport and storage.
- Loading and off-loading must be carried out using only professional equipment. For example, a crane rated to the tank weight. Craneage at site is the responsibility of the customer/end user to suit the installation location. Fittings, covers, sockets or other protruding elements which are not designed for lifting or moving the tank must not be used to lift or move the tank.
- The tank must never be pushed, pulled, dragged, or rolled.
- Loading and transport areas must be smooth and free of sharp edges. During transportation, the tank must be secured to prevent movement.
- Storage time of the chemical being stored is to follow the handling requirements specific to that material and is the responsibility of the customer/end user. Consult with the chemical supplier for information.
- Tanks are not suitable for live loads — please discuss specific access requirements with Polymaster.
- For all tank installation and maintenance, please take into consideration Health & Safety and Local Building Regulations.

TANK LIFTING POINTS

Note: Specific lift plans exist as a separate document. Please refer to this as part of planning your lift, or contact Polymaster for a copy of the document.

In the event of tank relocation, the tank must be empty. A suitably equipped forklift may be used, otherwise the tank lift should be performed using the moulded lifting lugs. Do not lift the tank using any of the installed fittings. Care must be taken to ensure the wire-rope assembles are only bearing the weight of the base. Please contact Polymaster for appropriate lifting plans for your tank type.

INSTALLATION

These instructions should be read in their entirety before commencing installation of the tank.

- A solid flat and level plinth suitable for the anchorage requirement of the tank is required. This plinth is to be engineered by the user and is to be compatible with the anchorage requirements detailed in the Anchorage section below. Engineering of any restraint or tethering system to suit specific local or chemical-specific storage requirements is the responsibility of the customer/end user.
- Prior to installing, inspect for damage. If damaged, do not install.
- In no cases should any modifications such as holes being drilled, or additional fittings installed into the tank wall in addition to those provided on the tank as supplied by Polymaster.
- The tank must be adequately restrained to ensure stability whether full or empty.
- Immediately upon discovery of any defect in the tank, the tank must be safely drained immediately and taken out of service in line with that chemical's safe handling procedures. We recommend contacting the chemical supplier as part of this process.
- After installation, ensure this manual is left with the end user for future reference.
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ANCHORAGE

It is imperative to maintain stability of the tank in high wind load conditions on a near empty chemical tank. The minimum fill levels from the invert of the tank (under the outlet) are identified in the table below. The only exception is when the chemical tank is being emptied — the maximum time span for an empty chemical tank is recommended to be 48 hours as weather permits. If this length of time needs to be exceeded, appropriately designed temporary tethers shall be installed from the lifting lugs at the top of the chemical tank down to the supporting reinforced concrete slab.

SG of Contents	Min Fill Level (mm)
1.0	778
1.5	588

PIPING, VALVES & FLEXIBLE CONNECTIONS

INSTALL FLEXIBLE CONNECTION IN ACCORDANCE WITH THE SPECIFIC MANUFACTURER'S INSTALLATION GUIDELINES.

Flexible connections are required to protect the tank and fitting from the normal movements during its service use and life, and to isolate them from external loads and vibrations coming from the attached piping systems.

- Flexible connections are not to be used for correcting piping misalignment. The flexible connection and mating flanges must be installed in a centred, aligned and mated position.
- Attach only FULL-FACE flanges to the flexible connection. They are not designed to attach directly to the tank wall.
- Ensure adequate clearance between bolt ends for full use of flexible connections.
- Provide pipe support adjacent to the flexible connection.

RECOMMENDED MINIMUM SPECIFICATIONS

- Axial Compression ≥ 38mm
- Axial Extension ≥ 15mm
- Lateral Deflection ≥ 19mm
- Angular Deflection ≥ 14°

INSTALLATION OF FLEXIBLE HOSE CONNECTIONS

- Check flexible hose is compatible with the chemical being stored and is of sufficient size.
- Support the flexible hose in such a manner that horizontal and vertical movement is not impeded. It is the responsibility of the tank installer/purchaser to install the appropriate flexible connections between the tank and pipework. Failure to comply with this will void Polymaster's warranty.

CARE & MAINTENANCE

Regular routine visual inspections of your tank are important to ensure the safety of personnel and preservation of stored chemical. Any sign of stress cracking, UV degradation and/or other signs of tank failure should be immediately reported and a full inspection carried out by authorised Polymaster personnel.

- Plan and initiate a maintenance regime for Plan and initiate a maintenance regime for the tank system. Aim to keep all system equipment in good working condition.
- Spare parts must comply with the requirements of the manufacturer and be of like for like type.
- Any faults or alarms should be reported to the users station manager/site manager or equivalent immediately.
- Protect against unauthorised access.
- Carry out a daily visual check of the tank and ancillary equipment. Any leaks are to be promptly recorded, reported and repaired by a qualified service engineer or technician. If liquid is detected by alarm or observed around the tank, promptly record, report and arrange for corrective action. Corrective action may include locating the source of the liquid, possibly caused by an overfill event or leak. If the liquid source is not the result of an overfill event, contact Polymaster for additional advice. Further action may include emptying and isolating the tank.
- Ensure that contamination not intended to be in the tank is prevented from entering at any time either by design or a managed maintenance regime. If the stored liquid or fumes are allowed to escape outside the tank, ensure you check local EPA, Australian Standard and local Authority guidelines and requirements for compliance.
- Metal items and control panels that could be affected by the fumes must be protected from corrosion by using good engineering practice. Additional corrosion protection to suit the chemical being stored is the responsibility of the customer/end user.

INTERNAL INSPECTION

It is recommended that an internal inspection is undertaken over regular intervals. Polymaster recommends this is done yearly. Empty the tank and neutralise any chemical remaining. All chemical handling must be safely performed in line with Australian Standards, EPA and local authority requirements for the specific chemical being stored. Where a confined space entry is possible, thoroughly clean the inside of the tank — a dirty tank will potentially mask faults. Examine the tank surface for any cracking or surface degradation. Pay particular attention around fittings and the base in the radius where the cone meets the wall.

If a confined space entry is not possible, clean inside as well as possible from the inspection cover and use a light to inspect the internals.

WARNING: Do not enter a tank without confined space entry training and relevant personnel and permits. Use adequate approved ventilation equipment when inspecting the internals of a tank as fumes and vapours may be present. Use necessary fall protection equipment to prevent against accidental falls relating to entry method or slippery conditions. Failure to comply with these warnings could result in injury or death.

RECOMMENDED CARE INSTRUCTIONS

ITEM/AREA OF INTEREST	ACTION RECOMMENDED	FREQUENCY
Visual Inspection	Visually inspect the entire unit for any changes in condition.	1 Month
Cleaning	Clean the unit regularly with soapy water and a cloth to remove any buildup of dust/dirt/chemical spillage.	3 Months
Location	Confirm that the installation environment matches that of the original installation. Review changes for any influence to the safe use of the tank such as wind or distance to people and traffic.	As Used / 12 Months
Tank Condition	Temperature & SG Ratings of the product. Review the product being stored in the tank and confirm that they match those intended for original tank use. Inspect abrasions or cuts on the tank. Assess tank for excessive weathering. Assess tank for any swelling, bulging or deformation of tank walls.	As Used / 3 Months
Chemical Degradation and Compatibility	Confirm the chemicals currently used are compliant with the original installation. Review any change with Polymaster and the Polymaster Chemical Compatibility Chart.	As Used / 12 Months
Valves	During normal operation, check the action of installed ball valve handles and/or Slide Gate.	As Used / 3 Months
Vent	Check and clean around the vent regularly to remove any buildup of dust/dirt. Check that there is nothing impeding the operation of the vent.	3 Months
Seals	When the unit is completely empty, undo and remove the PVC-U ball valves. Check the condition of the seals within the ball valve. Replace if the seals have deteriorated.	12 months
Gaskets	Visually inspect the condition of the flanges and connected fitting regularly for any changes or leaks. If any change is noted, completely drain the tank until empty then inspect and service the unit and replace gaskets as needed.	As Used / 3 Months
Screw Lids	Check that the screw lids are still tightly secured.	As Used / 12 months
Weld on Fittings	Investigate any degradation of weld and/or excessive stress marks. Check for any leakage or surface cracks developing. Check fitting distortion including vertical/horizontal alignment.	As Used / 12 months
Flexible Connections	Check positioning and alignment of flexible connections. Assess compatibility of connector to user's systems. Review for excessive axial or lateral compression.	As Used / 3 Months
Electrical / Sensors	Visually inspect the condition of the power box and associated components. Clean the power box with a damp cloth to remove any buildup of dust/dirt/chemical spillage.	3 Months
Foundation/Base	Check the condition of the tank foundation for any erosion, cracking or subsidence. Repair as required. Ensure any repair materials meet the Installation Guide requirements.	3 Months

RECOMMENDED CARE INSTRUCTIONS

ITEM/AREA OF INTEREST	ACTION RECOMMENDED	FREQUENCY
Moving	Refer to Installation Handling section for information on moving the tank.	
Tank Restraints	Review all restraints, tie down lugs and associated fasteners to ensure they are secure, meet “As Installed” condition and performance and are in good condition.	As Used / 3 Months
Moving	Refer to Installation Handling section for information on moving the tank.	
Tank Restraints	Review all restraints, tie down lugs and associated fasteners to ensure they are secure, meet “As Installed” condition and performance and are in good condition.	As Used / 3 Months

WARRANTY

Polymaster products are guaranteed against material or manufacturing defect. Warranty periods commence from the date of invoice:

Item	Warranty
Polyethylene tanks	5 years
Accessories / components	12 months
Hoses, nozzles, and sensors	3 months

WARRANTY CONDITIONS:

- Equipment is installed and commissioned in accordance with this manual.
- Equipment is installed and commissioned by a suitably qualified person.
- Equipment has not been subject to misuse, careless handling, faulty installation, or repairs by unauthorised personnel.
- Equipment has been purchased by the end user and is not for hire purposes.
- The tank is installed above ground.
- The tank is inspected every 3 months or to a total volume dispensed as required for that chemical or as specified by the dispensing/dosing system, whichever occurs first. This inspection is to be performed by a suitably qualified service engineer or technician.
- Immediately upon discovery of any defect in the tank, the tank must be safely drained and taken out of service. Contact Polymaster and allow a representative to inspect before any attempts are made to repair or move the tank.

WARRANTY EXCLUSIONS:

- Mechanical damage caused by the user, dealer, or improper maintenance.
- Faults, damage, or premature wear caused by improper use.
- Damage caused by third parties.
- Repairs carried out by unauthorised service personnel.
- Ancillary fittings such as contents measuring gauges or mechanical pumps (refer to respective manuals).

To make a warranty claim, you will need your serial number, proof of purchase, and a photo of the product clearly showing the issue.

Submit a claim at **polymaster.com.au/warranty.**

Questions?
Contact Polymaster

1800 062 064
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