



Installation, Operation &
Maintenance Manual

Chemical & Process Tanks

Polymaster

Contents

3	Introduction
3	Safety Guide
4	Company Profile
5	Quality Assurance & Certification
6	Product Specification
7	Selecting a Safe Location
8	Transport, Handling & Storage
9	Installation & Usage
10	Filling & Dispensing
11	Flexible Connections
12	Service & Maintenance
14	Recommended Care Instructions
16	Trouble Shooting
17	Warranty
18	Notes

Congratulations for purchasing one of Polymaster's quality Tanks. Ensure this product is correctly installed, operated and regularly maintained and it should give you trouble free service for years to come.

CORRECT TANK INSTALLATION IS THE SOLE RESPONSIBILITY OF THE PURCHASER.

READ OPERATION MANUAL IN DETAIL BEFORE USE & COMPLY WITH ALL INSTRUCTIONS HEREIN.

OPERATION MANUAL SHOULD BE KEPT WITH THE EQUIPMENT AT ALL TIMES.

The following content is a guide only. Any vehicle/machinery affected negatively or positively is not covered by the Tanks warranty.

- A. This manual contains important information concerning the safe installation and use of this product. Read the manual carefully before installation and use. Pay attention to all safety warnings.
- B. Installation and use of this product should only be carried out by properly trained and approved personnel.
- C. Users of this product are responsible for the safe and correct use of this product.
- D. Any changes to this product, which have been done without consulting the manufacturer, will invalidate all warranties and guarantees.
- E. The components must not be altered or tampered with, due to potential risks to personnel.
- F. The manufacturer will not be responsible for any accidents or damages caused by incorrect installation or use of this product.
- G. This product is only suitable for storage and dispensing of Polymaster approved chemicals.
- H. If present, the control board contains electrical devices which are not suited for use in areas where there may be risks of explosion.

Company Profile

ABOUT POLYMASTER

A proud Australian business since 1994, we've earned an industry leading reputation through reliable products and honest, trusted, dependable service. We listen to our clients, and we respond with quality solutions which will help them to thrive. Because at the end of the day, their business is our business.

Polymaster manufactures an extensive range of quality products for industrial, residential and agricultural applications. Over the last two decades, Polymaster has been at the forefront of industry endorsed, product certified designs that have advanced the life span and functional capabilities of process vessels, bulk storage, rainwater tanks and animal care products. As an Australian owned, quality assured company.

PRODUCT DEVELOPMENT

We continue to extend our manufacturing operations to achieve market diversification and operational longevity. Our Design & Mould team offers custom design solutions and continual scope for new product development, product improvements and modifications. Coupled with our ability to customize colours to specification and apply brand identities on request, Polymaster delivers on quality and quantity, on time and within budget.

LOGISTICS CAPABILITIES

Polymaster tanks can be delivered direct to any site. We arrange specific delivery times to suit your timetable and on-site requirements. Our logistics team are highly skilled at handling oversized freight – it's what they do every day.

Polymaster's distribution fleet is experienced in over dimensional loads, general freight and site handling that provides flexibility and capability to deliver every Polymaster Product.

PROJECT MANAGEMENT

Our dedicated project managers take full control of all our Engineered Solutions projects to ensure they stay on time and within budget, as well as providing you with the convenience of a single point of contact. At Polymaster our highly experienced project managers have an in-depth knowledge of all projects.

ENGINEERING

Working closely with your engineering team, our own highly skilled engineers are ready to assist with all mechanical, polymer and chemical related requirements. Drawings are provided ensuring we've met your construction brief so there are no surprises with the delivered project. CAD drawings are available to your design team to save them precious time, so they can incorporate them into your overall plant drawings.

Quality Assurance & Certification



Polymaster as a Quality Certified Company has a regimen of quality systems in place. These systems are recognised and certified internationally to ISO9001.

PREMIUM MATERIALS:

Insisting on the finest quality components and proven manufacturing procedures, Polymaster exclusively uses premium resins in the manufacture of all Polyethylene products within the range, fully UV stabilised in all colours to AS/NZS 4766.

ENGINEERED:

Product Design & Mould operations see the extensive use of FEA testing and engineering, all Polymaster products are thoroughly tested and trialled before being released to the public.

CERTIFICATION:

Polymaster Tanks are Independently Certified by BSI Benchmark

THE BENEFITS:

- > Product Certification by an independent testing authority is your best guarantee of a quality and long lasting product.
- > Every tank is labelled with the full manufacturing details including a serial number for complete traceability.

Granted to: Polymaster Pty Ltd by BSI Benchmark



Product Specification

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.

POLYETHYLENE MATERIALS

Polymaster uses a variety of Polyethylene resins that have been specially designed for the rotational moulding process in the manufacturing of chemical and process tanks.

These advanced materials exceed all requirements of the Australian standard AS/NZS 4766 Polyethylene Storage Tanks for Water and Chemicals. Key features of the mechanical properties include: Excellent impact resistance, strength, environmental crack resistance. These materials also carry a high level of UV and antioxidant stabiliser designed for the harsh outdoor Australian environment, minimum of UV 12 rating.

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 filled or emptied. 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.

Selecting a Safe Location

GENERAL LOCATION

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

- > 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 in line with authority storage requirements.

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 are carried out.

ACCESS

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.

ABOVE GROUND

These tanks are specially designed for above ground use and can not be buried in any circumstances, due to excessive pressure causing the side wall to collapse. Below ground tanks are available;

Below ground tanks are available, please contact you Polymaster consultant if you have this request.

WARNING

Failure to comply with these precautions and instructions can result in serious property damage, injury or death and reduce the tanks performance and longevity.

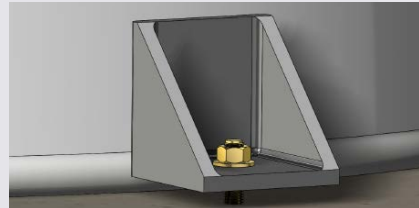
Transport, Handling and Storage

- A. DO NOT TRANSPORT WITH LIQUID INSIDE**
- B.** The Tank must be protected against mechanical damage during transport and storage.
- C.** Loading and off-loading must be carried out using only professional equipment. For Example Crane or forklift with extended forks rated to the tank weight/load. 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.
- D.** The Tank must never be pushed, pulled, dragged or rolled.
- E.** During transport and storage, the cabinet door (if present) must be tightly closed and secured.
- F.** Loading and transport areas must be smooth and free of sharp edges. During transportation, the tank must be secured to prevent the tank from moving.
- G.** 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.

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

- > For all tank installation and maintenance, please take into consideration Health & Safety and Local Building Regulations.

- > A solid flat and horizontal plinth extending a minimum of 300mm on all sides and made from concrete or bitumen is required under the tank. This plinth is to be Engineered by the user. Engineering of any restraint or tethering system to suit 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 holes be drilled or additional fittings be installed into the tank wall in addition to any provided on the tank as supplied by Polymaster.



The tanks must be adequately restrained to ensure stability whether full or empty. If hold down lugs have been specified this is only for tank positioning. These lugs are NOT designed to withstand forces or restrain the tank under external loads (E.g. wind load). Use stainless steel M12 nuts, flat washers and chemical anchor studs (Installer to provide) are positioned in the centre of the 20mm diameter hole in each lug. The nut is to be fastened to finger tight against the lug so that it does not apply any load into the lug. Use a suitable loctite (or equivalent) adhesive to ensure the nut remains in the installed position for the life of the tank.

DO NOT PLACE PACKERS UNDER THE LUG.

When using, the outer wall will bulge slightly and the lug will rotate down and up in relation to the amount of fluid inside the tank due to tank wall expansion. This movement/rotation must NOT be prevented to avoid generating significant reaction loads to the tank wall.

For further advice, contact Polymaster Help on 1300 062 064

Installation & Usage



After installation, please ensure that this instruction booklet is left with the end user for future reference.

Chemical Tanks are warranted against faulty manufacture of the tanks, provided that the following criteria are adhered to (applicable to all models):

The warranty excludes ancillary fittings such as contents measuring gauges or mechanical pumps. Further warranty information on ancillary fittings and pumps is detailed in the suppliers manual and/or product information.

- > The tank is installed and commissioned in accordance with the installation guide.
- > The tank is installed and commissioned by a suitably qualified engineer.
- > The tank has not been subject to misuse, careless handling, faulty installation, or any repairs have not been attempted or carried out other than by authorized, competent service staff.
- > The tank 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. Which-ever occurs first. This 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 immediately and taken out of service in line with that chemicals safe handling procedures. We recommend contacting the chemical supplier as part of this process.
- > Immediately upon discovery of any defect you contact Polymaster and allow a representative to inspect the tank and its surroundings and where necessary carry out any repairs

(before any attempts are made to move the tank). Safe Chemical handling takes precedence over a representative inspecting the tank.

- > The warranty card should be returned to the supplier at 161 Karinie St, Swan Hill Vic. 3585 or industrial@polymaster.com.au
- > The tank serial number must be recorded on the warranty card to validate warranty. This number is usually located on outside tank by the access hole.

Standard and ancillary fittings, repairs and maintenance are to be carried out by a Polymaster designated service agent. This is at the discretion of Polymaster.

Standard and ancillary fittings, repairs and maintenance are to be carried out by your local service agent. Polymaster does not offer service or repairs to this station.

PIPING AND VALVES

All hoses, piping and valves must be adequately supported independently of the tank. Flexible connections must be used when connecting to fittings installed on the tank, to ensure successful installation and tank warranty.

All fittings, valves, and piping should be shielded to prevent possible physical impact and protect personnel from chemical spray or leakage.

Also refer to the Flexible Connection sections in this manual.

Installation & Usage (cont.)

Filling & Dispensing

WARNING

Failure to support and protect valves and piping and to provide engineered foundations for tank will void your warranty and could cause chemical release resulting in serious injury and or property damage.

GENERAL SAFETY PRECAUTIONS THE TANK IS INSTALLED ABOVE GROUND.

- > Polymaster polyethylene tanks are heavy and require adequate equipment and properly trained personnel to unload and position the tanks.
- > Do not stand or work on top of tank as the surfaces are slippery and flexible which could result in serious injury or death.
- > If the tank needs to be entered ensure proper confined space procedures are adhered to and adequate ventilation equipment is provided.

TANK TESTING AND CHEMICAL COMPATIBILITY

When installed it is strongly recommended that tanks are Hydrostatically tested for 24-48 hours before introduction of chemical. Remove all water used for testing in case of possible reaction with chemicals stored.

Confirm compatibility of the tank and all associated fittings and gaskets with the chemical being stored. Label tank with appropriate chemical warning label and do not remove any Polymaster Warning Labels.

Ensure tanks are adequately vented to prevent pressure or vacuum.

FILLING CHEMICAL TANK

NOTE: THE TANK MUST NOT BE FILLED AT A RATE GREATER THAN 250 LITRES PER MINUTE (LPM) WHEN USING THE TOP FILL ASSEMBLY OPTION.

The maximum level must NOT be exceeded.

- A. Filling should be performed only under constant supervision of an authorized person.
- B. Tank filling is to occur only via the provided Camlock or tank specific fill point connection.
- C. Do not overfill. Check level gauge during filling.
- D. Disconnect delivery hose from coupling.
- E. Promptly clean up any drips or spills.
- F. The maximum tank fill/discharge rate is specific to each application's design, and is based on fitting type and relief installed. Review your application to ensure the fill/discharge rate does not exceed the installed venting devices.

CHEMICAL TANKS LIFTING POINTS

In the event of tank relocation, the tank lift should be performed using the moulded lifting lugs. Do not lift the tank by using any of the installed fittings. The tank must be empty when lifted, taking care not to damage the tank walls, base, roof, pipework and fittings.

Please contact Polymaster for appropriate lifting plans, for your tank type.

Flexible connections are required on fittings installed on the tank to allow the tank to expand and contract and to protect the tank from pump vibrations.

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

- A. 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.
- B. Attach only FULL FACE flanges to the flexible connection. They are not designed to attach directly to tank wall.
- C. Ensure adequate clearance between bolt ends for full use of flexible connections.
- D. Provide pipe support adjacent to the flexible connection.

FLEXIBLE CONNECTION MINIMUM SPECIFICATIONS:

- i. Axial Compression $\geq 38\text{mm}$
- ii. Axial Extension $\geq 15\text{mm}$
- iii. Lateral Deflection $\geq 19\text{mm}$
- iv. Angular Deflection $\geq 14^\circ$

2. INSTALLATION OF FLEXIBLE HOSE CONNECTIONS:

- A. Check flexible hose is compatible with chemical being stored and is of sufficient size.
- B. 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.

TANK WARRANTY

All fittings, including outlets and inlets on the tank must have a flexible joint connection between the tank and the plumbing or rigid pipework. This is vital to absorb movement and stress, isolate pump vibration, accommodate pipe misalignment, and minimise surge pressures. It is the responsibility of the tank purchaser to install the appropriate flexible connections between the tank and the plumbing. This is important as the Polymaster warranty is only valid if the installation has appropriate flexible connections.

FLEXIBLE CONNECTIONS

One option to consider for applications with mild chemicals are the rubber flexible joints which are available from Polymaster. The unit has a rubber tube, which is good for hot and cold water service and mild chemicals. The fully moulded TS- single sphere or TT- double sphere design provides great flexibility, thus protecting mating flanges. The steel flanges easily rotate on the bellows, which makes it easier to line up the bolt holes during installation when mating flanges are out of line.

With a temperature rating of -20°C to 100°C , the standard sizes range from 25mm through 300mm I.D can have maximum working pressure of 2070 kPa (300 PSI),

Sizes 350mm through 600mm can have maximum working pressure of 1035 kPa (150 PSI)

Service & Maintenance

Regular routine visual inspections of your polyethylene tanks are important to ensure 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.

Internal checks are also recommended at least annually or as often as is practical. This is because cracks will often show up on the inside surface before becoming obvious on the exterior.

- A. Plan and initiate a maintenance regime for the tank system. Aim to keep all system equipment in good working condition.
- B. Spare parts must comply with the requirements of the manufacturer and be of like for like type.
- C. Any faults or alarms should be reported to the station manager immediately.
- D. Protect against unauthorised access.
- E. 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.

- F. 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 suggest 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 make inspection unsuccessful. Examine the tank surface for any cracking or surface degradation. Pay particular attention around fittings and the base in the radius where the floor meets the wall.

Service & Maintenance (cont.)

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.

EXTERNAL INSPECTION

Thoroughly clean the outside of the tank and examine for any cracking or excessive surface degradation. Pay particular attention around all fittings, level indication tubing, flexible couplings, connection hoses and gaskets for any leakage or signs of corrosion. Inspect the vents for “free flow” to ensure adequate entry for pressure and vacuum.

Check all pipe support brackets to make sure fittings, valves, piping etc., are adequately supported and protected.

Recommended Care Instructions

POLYMASTER CHEMICAL TANK

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	<p>Temperature & SG Ratings of the Fluids. Review the fluids 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.</p>	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.	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 (internal and external) are still tightly secured.	As Used/12 months.

Recommended Care Instructions



ITEM/AREA OF INTEREST	ACTION RECOMMENDED	FREQUENCY
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 users 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
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

Trouble Shooting

TOPIC	POSSIBLE CAUSE	ACTION	CONTACT
High Level Alarm (If Fitted)	Overfill	Dispense product until below alarm level. Review fill procedures. Review level sensor operation.	Contact Polymaster
	Faulty alarm or parameters	Check parameters on controller, if correct contact supplier.	Contact Polymaster
Low Level Alarm (If Fitted)	Faulty alarm parameters / low product level	Check tank levels, if enough product in the tank, check the alarm parameters on controller. If levels are low order more product.	Not required
Cabinet door not shutting	Tank not level on base	Movement in transport can impact the doors. Review and adjust as required.	Not required
Water present in product when dispensed	Water ingress to tank	Review the condition of the tank for infiltration. Review the condition of the dosing system for damage or infiltration into the system. This includes checking the cabinet condition to ensure no water is entering the cabinet and subsequently the dosing system.	

Activate your Warranty



Please activate your warranty online at polymaster.com.au/warranty



Alternatively, if you do not have access to the online warranty page, contact us on

1300 062 064

We would love to hear about your
experience with Polymaster
Please share your comments on our
facebook page
facebook.com/polymastergroupaust



Polymaster



Together we
hold the future.

→ 1300 062 064
→ polymaster.com.au/engineered-solutions

Follow us  Polymaster Group