

Standard Agitators

Installation, Operation &
Maintenance Manual



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Polymaster

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ABOUT THIS PRODUCT

Polymaster Agitators & Frames are pre-engineered, purpose-built mixing systems designed to match the full range of Polymaster tanks. Each system pairs a durable Duragal RHS steel support frame with an off-the-shelf agitator, fitted with a 316 stainless steel shaft and blades, sized to suit the specific tank it's paired with.

Available to suit tank volumes from 1,000L to 50,000L across the Polymaster tank range, with custom agitators available on request for applications outside the standard range.

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

KEY FEATURES:

- Durable Duragal RHS steel fabricated support frame
- 316 stainless steel agitator shaft and blades
- Pre-engineered to match the full range of Polymaster tank volumes, from 1,000L to 50,000L
- Standard configuration suited to 1cP application viscosity
- Custom agitators available on request for higher-viscosity or specialised applications
- Motor sizing matched to tank volume and mixing requirement

MATERIALS USED IN CONSTRUCTION:

- Duragal RHS (steel) fabricated support frame
- 316 stainless steel agitator shaft and blades
- Frames and agitators are engineered using design 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.

Agitators and frames are engineered to suit tanks manufactured to AS/NZS 4766:2006 – BSI Benchmark certified (Licence BMP 657671). As a steel support structure, the frame and agitator themselves sit outside the scope of this polyethylene tank standard.

Every unit is labelled with full manufacturing details, including a serial number, for complete traceability.



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, which have been done 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, 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 risk of explosion.

CHEMICAL RESISTANCE

As standard, Polymaster's standard agitator range are supplied with 316 stainless steel wetted components. It is the customers responsibility to make a final assessment on the suitability of materials in their specific application.

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.

VISCOSITY & SG RATINGS

The viscosity as well as specific gravity (SG) of the medium to be agitated has a direct impact on the design of an agitator and its support structure. Attention must be given to the agitator system being selected for each specific application as improper selection may lead to damage of equipment and/or poor system performance.

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. 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 & SITE LOCATION

There may be local, state or national regulations that apply to your proposed tank and agitator 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.

Service access and safe egress paths away and around the tank and agitator system 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 and agitator system 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 CONSIDERATIONS

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.

TRANSPORT, HANDLING & STORAGE

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

- The agitator and frame system must be protected against mechanical damage during transport and storage.
- Loading and off-loading must be carried out using only professional equipment. Craneage at site is the responsibility of the customer/end user to suit the installation location.
- Agitator frames must never be pushed, pulled, dragged or rolled.
- Agitator frames may not be suitable for live loads, please discuss specific access requirements with Polymaster.
- For all agitator installation and maintenance, please take into consideration Health & Safety and Local Building Regulations.

For further advice, contact Polymaster on 1800 062 064

INSTALLATION

A solid flat and horizontal plinth suitable for the anchorage requirement of the agitator is required. This plinth is to be engineered by the user and is to be compatible with the anchorage requirements detailed 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 be implemented without consulting with Polymaster, doing so may void the warranty.

Drawings of agitators and support structures are available and may contain information relating to freight and handling.

Agitator installation is the end users responsibility. In most instances, the agitator shaft and hub needs to be installed through the tank manway, this means that tank entry may be required as part of agitator installation.

Additional equipment to be mounted/fitted to the agitator support structure is at the end users own risk.

ANCHORAGE

Recommended: Ramset RE0520 chemical anchors, M16x125. Refer to OEM manual for detailed installation requirements.

Check agitator drawing for specific instructions. Information on drawings overrides information within this installation guide.

USAGE

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

- Agitator systems are warranted against faulty manufacture, provided that the following criteria are adhered to (applicable to all models):
- The agitator system is installed and commissioned in accordance with this installation guide
- The agitator system is installed and commissioned by a suitably qualified engineer
- The agitator system has not been subject to misuse, careless handling, faulty installation, or any repairs have not been attempted or carried out other than by authorised, competent service staff
- The agitator system has been purchased by the end user and is not for hire purposes
- The agitator system is installed above ground
- The agitator system is inspected every 3 months. This is to be performed by a suitably qualified service engineer or technician
- Agitators have a minimum liquid level which must be maintained during usage. Failure to meet this requirement will likely cause damage to the agitator system and tank. Please refer to agitator drawing for minimum liquid level information or contact Polymaster for assistance
- Immediately upon discovery of any defect you contact Polymaster and allow a representative to inspect the agitator system and its surroundings and where necessary carry out any repairs (before any attempts are made to move the system). Safe chemical handling takes precedence over a representative inspecting the system.

CARE & MAINTENANCE

Regular routine visual inspections of your agitator is 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.

- Plan and initiate a maintenance regime for the agitator 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
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.

Item	Warranty
Agitators and frames	12 months
Hoses, nozzles and sensors	3 months

WARRANTY CONDITIONS

- This guarantee is not valid for the following defects:
- 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 unauthorized service personnel

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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