



# OPERATIONS & MAINTENANCE MANUAL

*(FOR MT MIXING TANKS)*

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# WARRANTY CLAIMS FORM

(FOR MT MIXING TANKS)

CUSTOMER	DETAIL CLAIM DESCRIPTION:
JOB #	
MODEL #	
SERIAL #	
DATE OF PURCHASE	
DATE OF CLAIM	
SIGNATURE	



# OPERATIONS & MAINTENANCE MANUAL

(FOR MT MIXING TANKS)

## IMPORTANT!

Read and Understand the ENTIRE manual before using product.

**COMPLETE REQUIRED WATER TEST AND RETURN A COPY OF THIS FORM TO FAX #: (330)562.2560 OR EMAIL: SALES@PROTECTOPLAS.COM**

CUSTOMER
JOB #
MODEL #
SERIAL #
DATE SHIPPED

FOR SERVICE OR TECHNICAL INFORMATION **CALL (330) 562-TANK (8265)**, BETWEEN THE HOURS OF 9 AM and 5 PM EST, MONDAY THROUGH FRIDAY.

## WATER TEST REPORT

(SEE SECTION VII. WATER TESTING for more information)

DATE OF TEST

(MONTH/DAY/YEAR)

TESTED BY

(PRINT YOUR NAME)

LENGTH OF TEST

(HOURS:MINUTES)

# OPERATIONS & MAINTENANCE MANUAL

## (FOR MT MIXING TANKS)

\*REFER TO YOUR ORDER ACKNOWLEDGEMENT AND SHOP DRAWING 'NOTES' FOR SPECIFIC CONDITIONS REGARDING YOUR TANK.

### SCOPE:

**READ ALL INSTRUCTIONS FOR EACH COMPONENT OF THIS SYSTEM.**

This manual is intended to familiarize the user owner with the usage of your tank. If you encounter a situation where you are not sure of the proper action, call our service department at (330) 562-TANK (8265), 9 AM to 5 PM, EST.

### I. SHIPPING:

- Generally, tanks 2000 Gal or < will be shipped via common carrier and larger tanks shipped via dedicated truck. For tanks that must be shipped on their sides, the most direct method will be employed.

### II. RECEIVING:

- **UPON RECEIPT LOOK FOR SHIPPING DAMAGE.** While this is not common, damage must be noted on the freight company receipt in order for claims to be pursued.

### III. HANDLING:

- **TAKE CARE REMOVING TANK AND EQUIPMENT FROM PALLET OR TRAILER.** Remove all dunnage that may cause damage to the tank. DO NOT remove fitting 'blanks' or 'plugs' until piping installation.
- **WHEN LIFTING, USE NYLON STRAPS AND SLINGS AND ENSURE ALL LIFT POINTS ARE SECURE. FOR LARGE TANKS, ALWAYS USE A SPREADER BAR.** DO NOT use chains to handle tanks.
- **DO NOT PRE-DRILL ANCHOR LOCATIONS.** Match drill to lug locations when the tank is on site.

### IV. STORAGE:

- **SHORT TERM STORAGE (up to 6 weeks):**  
Upon receipt, tank must be stored in a vertical or horizontal position--depending on tank orientation--insuring that all fittings are protected and manways are in place. DO NOT remove any fitting blanks until piping installation.
- **LONG TERM STORAGE (over 6 weeks):**  
Follow the steps above for SHORT TERM storage. If you must store your tank for more than 6 weeks, fill 1-2" of clean water at the bottom of the tank to ensure primary containment placement. Store in a warm area, do not allow water to freeze.

### V. INSTALLATION:

#### A) PLACEMENT

- **REFER TO HANDLING INSTRUCTIONS WHILE MOVING TANK.**
- **DO NOT ALLOW TANK TO 'SWING' WHILE BEING STOOD UPRIGHT.** Avoid any sharp contact or unnecessary force to the tank or its fittings during handling.
- **PLACE TANK ON A FLAT, SOLID AND CLEAN LEVEL SURFACE FREE OF ALL DEBRIS AND 100% BOTTOM SUPPORT.** Check the tank to ensure no rocks or foreign objects are stuck to the bottom surface.  
**(FOR TANKS WITH A STAND):** Ensure the tank is in a vertical and plumb position and the stand is secured to a clean, level surface. **(FOR TANKS WITH CABLE SYSTEMS):** Install cables after tank stand has been positioned and secure.
- **DO NOT TIGHTEN HOLD DOWN CABLES TO YOUR PAD.** You must allow for tank expansion and contraction during usage.

## B) PIPING

- **ALL PIPING TO SIDEWALLS, (EITHER BY FLANGES OR COUPLINGS) MUST BE NON-RIGID AND 100% INDEPENDENTLY SUPPORTED FROM THE TANK TO ALLOW FOR TANK EXPANSION.**
- **ALL FLANGED NOZZLES (WFN, WPFN) REQUIRE 8-11 ft-lbs. OF TORQUE TO SEAL. DO NOT over-tighten.**
- **WPFN or 'Pad FLANGE' NOZZLES MUST BE INSTALLED WITH THE CORRECT BOLTS. DO NOT over-tighten.**

**AS INSTALLATIONS VARY WITH FIELD CONDITIONS, YOU MUST CHECK YOUR PIPING TO ENSURE YOU HAVE ADEQUATE ROOM (1.5% DIMENSIONAL MOVEMENT) FOR THE TANK TO EXPAND AND CONTRACT.**

*(SEE SECTION IV. for proper STORAGE)*

- **IF EXPANSION JOINTS ARE REQUIRED, THEY MUST BE IN PLACE AT THE TANK FITTING TO ISOLATE THE TANK FROM VIBRATION/FORCE.** Proper alignment is required when piping to a plastic tank. **DO NOT** push/pull fitting to match piping under any circumstances, as it may cause damage to the tank or fitting.

## C) VENTING

- **ALL TANKS MUST HAVE A FREE VENT TO THE ATMOSPHERE.** Tanks are designed to operate at atmospheric pressure.
- **ALL TANKS ARE EQUIPPED WITH PROPER VENTING FOR THE DRAIN INCLUDED.** If you have purchased a tank or you are adding additional inlets/outlets ensure the tank will remain at atmospheric pressure at all times. **FAILURE or NON-REPAIRABLE DAMAGE** may occur if improperly vented. Serious injury or death may occur if tank were to implode or explode.
- **WHILE CONNECTING VENT PIPING ENSURE THAT LINE LOSSES DO NOT CAUSE PRESSURE ON THE TANK.** When connecting to a vent line that is assisted with an exhaust system; insure that a negative condition does not exist in the tank.

- **AIR (PNEUMATIC) UNLOADING CHEMICAL/PRODUCT INTO ANY TANK IS DANGEROUS. DO NOT** employ this type of filling procedure.

**IMPORTANT!**  
**IMPROPER VENTING CAN CAUSE PRE-MATURE TANK FAILURE AND VOIDS ALL WARRANTIES.**

## C) MIXER

- **CAREFULLY REMOVE MIXER MOTOR FROM PACKAGING AND SET IT ASIDE.** Ensure all information from the mixer manufacturer is thoroughly read and saved for future reference.
- **UNPACK ALL ASSOCIATED PARTS.** Remove all dunnage that may cause damage to the mixer or its associated parts.
- **TO DETERMINE THE PROPER MOUNTING HARDWARE, REFER TO THE MIXER MANUFACTURER'S DRAWINGS.** If mounting bolts were received or you purchased a 'clamp' style mixer, proceed to the following steps.
- **PLACE YOUR MIXER MOTOR ONTO THE MIXER SUPPORT THAT WAS PROVIDED WITH YOUR TANK.** This may require additional assistance, as some mixers can weigh an excess of 60 lbs. To identify the style of support you purchased, refer to your shop drawings.
- **TIGHTEN MOUNTING HARDWARE OR CLAMP TO ENSURE MIXER MOTOR STABILITY.** Typically, when using lock washers, the torque can be set at 25 ft-lbs. for normal operating conditions. You may find your application requires more or less torque. **DO NOT** over tighten bolts as this can damage the plastic support system.



- **ALWAYS CHECK HARDWARE TO ENSURE THAT IT IS NOT LOOSE.** Loose mixer attachment can result in catastrophic tank failure and may cause injury or death. Routine maintenance is required.
- **INSTALL PROP AND SHAFT WITH PROVIDED HARDWARE.** Refer to mixer manufacturer's instructions. NEVER ENTER A TANK UNLESS PROPERLY TRAINED FOR CONFINED SPACE ENTRY. Props must always remain submerged 1-1/2 times their diameter. Props that are allowed to 'surface' or cut through a vortex can cause damage to tank and mixer and may result in a failure.
- **IF YOUR MIXER REQUIRES GREASE, GEAR OIL, AIRSET SYSTEM OR OTHER FINALIZATION PROCEDURES, ENSURE THEY ARE COMPLETED BEFORE POWERING YOUR MOTOR.** Running this equipment without oil and grease can destroy the equipment. Protectoplas will not warrant any equipment that has been damaged due to negligence.
- **GEAR REDUCED MIXERS COME PRE-FILLED WITH OIL.** To ensure oil does not leak during shipping a plug was installed in the breather port. **BEFORE OPERATION, REMOVE PLUG AND INSTALL BREATHER PORT.** Refer to the gearbox manufacturer's manual for further instruction.
- **APPLY THE PROPER POWER SOURCE TO YOUR MOTOR.** Read all warning labels and comply with all requirements set by MFG, Local, and State regulations.

**(FOR ELECTRIC POWER SOURCES):** Ensure a licensed professional makes all necessary connection in accordance with mixer mfg instructions. Electrical shock can cause injury or death.

**(FOR AIR POWER SOURCES):** Refer to manufacturer pressure and volume requirements and cross check them with the compressor output in use. Ensure muffler and air set is properly installed before pressurizing. Improper installation of pressurized parts can cause injury or death.

- **POWER ON THEN OFF QUICKLY and CHECK PROPER ROTATION DIRECTION.** Prop should be turning in a clockwise direction. DO NOT run mixer unless the prop is adequately submerged and turning in a clockwise direction. FAILURE to follow the necessary procedure will result in permanent damage to the tank and may cause serious harm or death.

**DO NOT RUN MIXER UNLESS THE PROP IS ADEQUATELY SUBMERGED AND TURNING IN A CLOCKWISE DIRECTION.**

***(SEE SECTION XII. TROUBLE SHOOTING for more information)***

- **CRITICAL SPEED OF SHAFT:** This is the angular velocity that alters or changes the natural frequency of a rotating object. It can cause excessive vibration and damage the support structure as well as the mixer. The magnitude of deflection in a shaft depends upon the balance of the shaft/props, damping (material viscosity), and support structure. To operate the mixer correctly it must be run at an RPM above or below critical speed of the shaft. As this varies depending upon product in the vessel it is typically tested in water during the water test. As the viscosity is changed the RPM of the mixer must be adjusted. If the desired results are not achieved contact a Protec-toplas Tech for a application assessment.

***(SEE SECTION VII. WATER TESTING for more information)***

## **VI. HOLD DOWN SYSTEMS** (if applicable)

- **DO NOT PRE-DRILL CONCRETE PAD.** Your cable hold down system comes with pre-drill base plates which are used to mark anchor locations.
- **ALL SYSTEMS MUST HAVE PROPER ANCHORS INSTALLED IN THE CONCRETE.** Set your base plates a minimum of 2" from tank wall. All anchors are 'by others,' check with local regulations for size/type requirements.

- **ALL CABLE SYSTEMS COME WITH PRE-CUT CABLE COVERS.** Make sure to install cable cover where the cable loops through your tanks hold down lug(s). Failure to install cable covers can and will result in damage to your tank.

## VII. WATER TESTING

- **TANK HAS BEEN FACTORY TESTED TO ENSURE QUALITY,** however damage can occur during shipping or install. Water testing is a necessary requirement to ensure tank is fully functional.
- **AFTER TANK HAS BEEN PIPED,** close any bottom fittings and fill to the top of the straight shell with water at full tank capacity (usable gallonage) for 24 hours minimum. **DO NOT USE PRODUCT** until this has been completed. Once the time has elapsed and there are no leaks, you may put your tank into service.
- **DO NOT USE PRODUCT UNTIL WATER TEST HAS BEEN COMPLETED.** Once the time has elapsed and there are no leaks, you may put your tank into service.
- **CONDENSATION MAY FORM ON THE OUTSIDE OF YOUR TANK.** This does not mean it is leaking. Make sure to thoroughly inspect all questionable areas before making a decision. If you do find a problem contact Protectoplas immediately.

## VIII. OPERATIONS

- **ANY CHANGES TO THE INSTALLATION OF THE TANK MUST NOT AFFECT THE VENTING.** This tank must be kept atmospheric at all times.
- **CHECK CHEMICAL COMPATABILITY.** Tanks are designed and built to ASTM D1998-06 for rotationally molded, type II or linear polyethylene standards. **PROTECTOPLAS DOES NOT WARRANT FOR CHEMICAL ATTACK OR PRODUCT MISUSE.**
- **DO NOT OVERFILL THE TANK.** The working capacity of the vessel is the straight side capacity. You must monitor the liquid level if the tank is not equipped with an overflow.

## IX. MAINTENANCE

- **WITH PROPER INSTALLATION THE TANK ITSELF WILL NOT NEED SERVICE.** Mixers and other parts may need attention periodically.
- **(TANK):** If you feel that the tank has become misshapen, brittle, or found to be cracked contact Protectoplas technician before using.
- **(FITTINGS):** Make sure all piping remains independently supported with all expansion joints in place. Expansion joint must remain attached directly to fitting. Check bolt tension on flanges to ensure they are at 11 ft-lbs., and make sure fittings are not carrying any weight.
- **(MIXER):** Check oil and grease daily. Ensure all mounting bolts are secure. Ensure prop and shaft are tight and all bolts are secure. Make sure motor is free from dust and debris, and that all electrical connections are secure.
- **(VFD DRIVES):** VFD drives for motors typically do not require maintenance. Keeping dust and debris away from them is required as they may be operating at elevated temperatures. Keep chemical/product away from electrical connections at all times to avoid potential injury or death from electrical shock.
- **(STANDS, LADDERS AND PLATFORMS):** Steel stands, ladders, platforms, or cable hold down systems may require touch-ups with high-quality spray paint from time to time to ensure longevity. If oxidation occurs smooth with grinding disk/sand paper and use spray paint to cover. If severe corrosion is evident, consult a Protectoplas technician before continued use.
- **(HOLD DOWN SYSTEMS):** Cable hold down systems have (2) styles. One connects the tank to a steel stand. This is to prevent the tank from moving or rotating on the stand.

- The second style system has a powder coated base that sits approx. 1" from the tank side wall. It is anchored to surface by others and will usually come with (2) or (4) bases ranging in various size. Periodically check the tension on the cables and the position of the cable sleeves for either style. Make sure the cable has not come free from cover as it can cut or dig into the plastic hold down lug on the tank. For systems with bases, refer to "stand" above for further instructions.

## X. REPLACEMENT PARTS

- **REPLACEMENT PARTS ARE AVAILABLE FOR MT MIXING TANKS.** All equipment is also available from the respective manufacturing local distributors.
- **THE ADDITION OF NOZZLES OR FITTINGS REQUIRES A FACTORY SERVICE CALL.** To schedule maintenance call the service department at (330) 562-TANK (8265). 9 AM - 5 PM EST.
- **STOCK PARTS AND SIZING ARE AVAILABLE.** Visit our website at [www.protectoplas.com](http://www.protectoplas.com) for more information.

## XI. REPAIRS

- **THERE ARE NO CUSTOMER REPAIRS THAT CAN BE MADE.** If you feel a condition requires action, contact our service department to discuss the situation. *PLEASE PROVIDE SERIAL NUMBER AND MODEL NUMBER.*
- **FOR WARRANTY CLAIMS A WARRANTY REPAIR FORM MUST BE COMPLETED.** This will be supplied by the service department.

## XII. WARRANTY

- **THIS TANK IS WARRANTED FOR 1 YEAR** from the **DATE OF SHIPMENT** to be **FREE FROM DEFECTS** in the **MATERIALS AND WORKMANSHIP**, and further warrants all upright storage tanks for an additional 3 years on a prorated basis, subject to the following:

1) Products must be mounted and supported in a manner approved by the manufacturer.

2) Where special warranty limitations address the storage of transport of particular materials, due to reactions which might occur under conditions outside the control of the manufacturer, those limitations expressly apply.

3) Warranty does not cover misuse, fire, accident, negligence or unauthorized alterations to the product.

4) To obtain a warranty repair you will be required to provide a minimum 5" x 5" cutout from the damaged tank. Failure to provide the required sample will void all warranty on the tank.

- **PROTECTOPLAS CO. DOES NOT WARRANTY FOR CHEMICAL ATTACK OR MISUSE OF PRODUCT. IT IS THE RESPONSIBILITY OF THE CUSTOMER TO ENSURE THAT CONTENTS AND TEMPERATURE ARE COMPATIBLE WITH HIGH-DENSITY LINEAR POLYETHYLENE.**
- **PROTECTOPLAS DOES NOT WARRANT ANY DAMAGE DUE TO IMPROPER PIPING.**
- **PNEUMATIC (AIR) UNLOADING CHEMICAL/PRODUCT INTO ANY TANK IS DANGEROUS AND VOIDS ALL WARRANTIES GIVEN OR EXPRESSED. DO NOT EMPLOY THIS TYPE OF FILLING PROCEDURE.** To discuss proper filling procedures call a Protectoplas technician for more information at (800) 525-2661.

*(SEE previous SECTIONS for proper use and maintenance of product)*

- **LIABILITY OF THE MANUFACTURER UNDER THIS WARRANTY** (and under any other warranty, expressed or implied, statutory or otherwise) is **LIMITED TO REPAIR** or at the manufacturer's option a **A REPLACEMENT OF DEFECTIVE PRODUCT which is shown to have been defective when shipped. ONLY THEN IF THE MANUFACTURER HAS BEEN NOTIFIED OF THE DEFECTS within the warranty period and PRODUCT IS PROMPTLY DELIVERED--transportation charges prepaid--to its factory in STREETSBORO, OHIO.**

Manufacturer's liability hereunder shall not be enforceable until such equipment has been fully paid for. Except to the extent expressly assumed herein, manufacturer's liability for incidental and consequential damage is hereby excluded to the full extent permitted by the applicable law. Manufacturer's liability as stated herein cannot be altered or enlarged except by a writing signed by an officer of the manufacturer.

**PRODUCTS AND EQUIPMENT SUPPLIED BY PROTECTOPLAS CO. BUT MANUFACTURED BY OTHERS ARE SUBJECT TO WARRANTIES OF THEIR RESPECTIVE MANUFACTURER.** For warranty information on any product of this nature contact the manufacturing company. If the manufacturer is unknown, contact Protectoplas Co. for assistance.

*If you have any questions or concerns pertaining to these instructions, please call Protectoplas at (330) 562-TANK (8265) 9-5 Eastern Standard Time*