

DAILITE

DAILITE TANK

ROTO-MOLDED POLYETHYLENE TANKS

INSTRUCTION MANUAL

For Handling & Maintenance of Polyethylene Tanks



W A R N I N G

■ Be careful about Oxygen Deficiency !

Do not enter inside the tank. There will be terrible danger.

In case entering inside the tank due to unavoidable reason, you have to take necessary arrangements as followings ;

- Clean up enough inside the tank with water and dry it completely.
- Thereafter, ventilate sufficiently inside the tank, and analyze oxygen concentration and existence of poisonous gases before entering inside the tank.
- If all above going well enough, you will work inside the tank with the person who always supervise your work.

■ Be careful about sliding down from the top of the tank !

Do not go up on the top of the tank specially in case chemical liquid being inside. There will be terrible danger.

In case going up on the top of the tank due to unavoidable reason, you have to take necessary arrangements as followings ;

- Wear the helmet, safety-shoes and safety-belt and set the safety rope firmly.
- If all above doing well enough, you will work on the top of the tank with the person who always supervise your work.



C A U T I O N

■ Do not use fire and or heating steam near the tank !

■ Not to be pressurized and not to be depressurized inside the tank !

■ Do not do air blow upon completion of feeding liquid into the tank !

■ Stop operation of electric heating system when the tank is empty !

■ Stop operation of the agitator when the tank is empty !

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*It is requested that you would read this manual to make sure correct use of DAILITE TANK. You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

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1. Delivery

1-1 Check accompanied parts, if any, to ensure receipt of all items first when TANK are delivered.

1-2 Check unloading area to ensure no stone, no object or nothing which could damage TANK.

2. Unloading

2-1 Pay careful attention not to damage TANKs caused by sudden strong wind blow or sharp edges during handling TANK. Extra handling care is requested for nozzles or fittings attached to TANK.

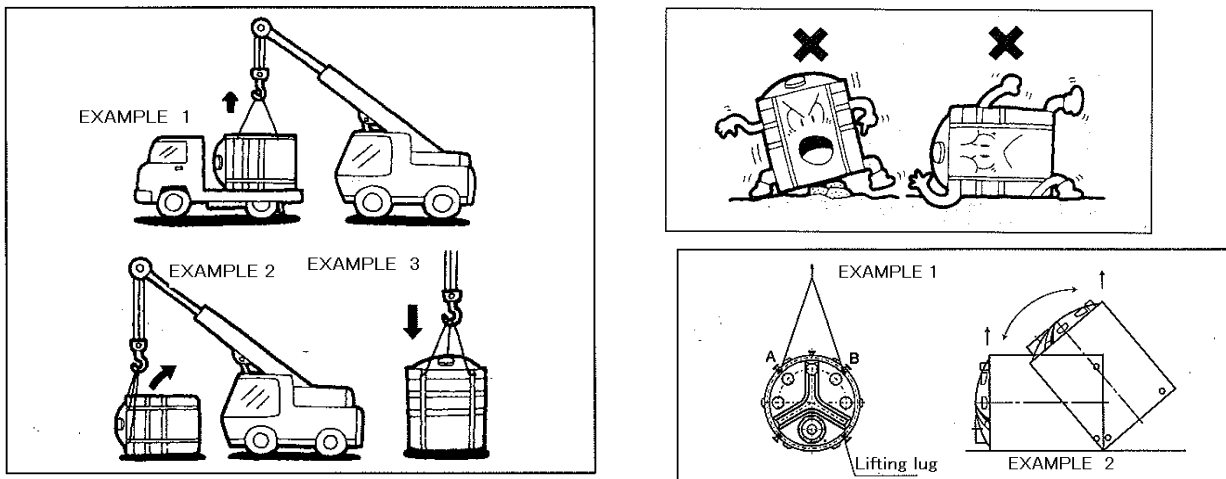
2-2 Upon TANK arriving at site, it should be unpacked, unloaded and set up as soon as possible, avoiding to lay it down sideways for a long time.

2-3 In a strong wind, unloading operation of TANK should be suspended.

2-4 When unloading and installing TANK, lift it up and down slowly to avoid TANK slipping out from the reinforcing steel frame. Lift by wiring with at least two of the clamping bolts between the vertical steel angles which fasten the steel frames. ★ See below the left cartoon.

Lift TANK without steel frames by wiring with lifting lugs on top board of TANK.

Roping/Wiring on the nozzles of TANK is strictly prohibited.



3. FOUNDATION OF TANKS

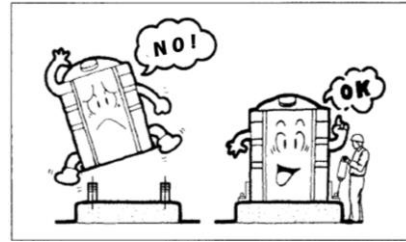
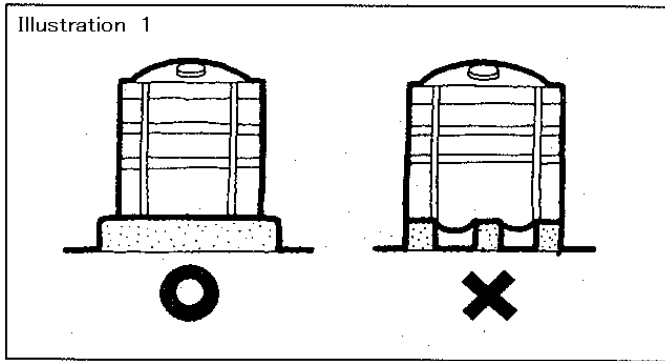
3-1 Make full-face footing to install TANKs, such as on flat-surfaced and evenly laid concrete or reinforced steel plates. (Illustration 1.)

3-2 Leave no sharp, no lumpy nor no hurty materials on the surface of the foundation.

3-3 When the embedding places for anchor bolts are dug on the surface of the foundation, match the position and size to the anchor holes of TANK. (recommendable hole size of box patterns: approx. 100mm width × 150mm length × 200-500mm depth)

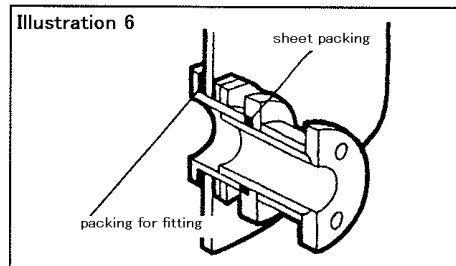
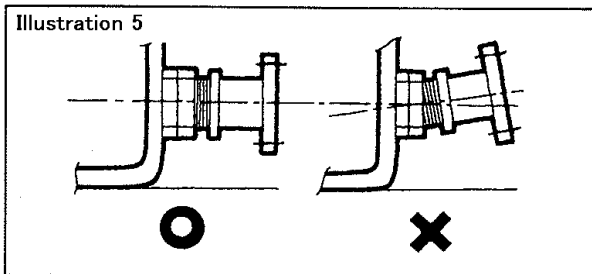
3-4 Make sure to place the anchor after installing the TANK. Because the main body of tank is made by polyethylene, there is around 1.5% of expansion or contraction. When an anchor is struck before installation, it doesn't match the anchor holes of TANK.

3-5 After TANKs are installed, get all clamping bolts between vertical angles loose enough in order to prepare TANKS being expanded due to liquid fulfillment inside and/or high temperature outside. (All clamping bolts with stopping red paint were strongly tightened when the TANKS were gone out from the factory)



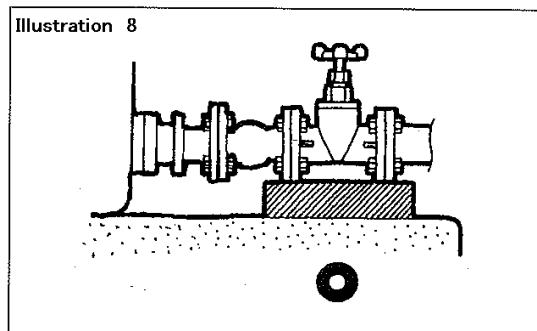
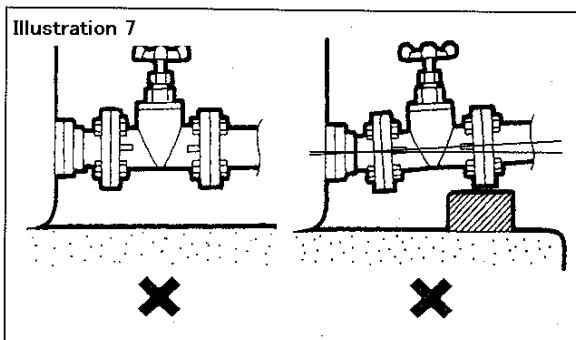
4. PIPING

4-1 Before the piping parts are twisted into fittings with threads, make sure that no foreign material exists on threads and no scratch or hurt is made on the end of fittings. As fittings and flanged short-pipes are sealed by sheet packing, twist the piping parts into fittings at right angle and firmly until the sheet packing of flanged pipe hits the head of fitting. (Illustration 5 and 6)



4-2 In piping, careful attention must be paid not to be burdened at the joint points of fittings, welded or soldered nozzles on TANK in any ways.

All valves for piping must be supported horizontally not to burden the nozzles on TANK whether the valves are opened or closed. (Illustration 7, 8)



4-3 Connect flanges opposite to each other in line. Never force the flanges connected out of line, which will cause the damage.

4-4 Over tight support of piping may bring damage to TANK at jointing points of nozzles or fittings.

Piping support such as pipe-bands should be a little bit loosen to keep it free from stress, as Polyethylene TANK is to be expanded when liquid is loaded inside and this will yield some stress.

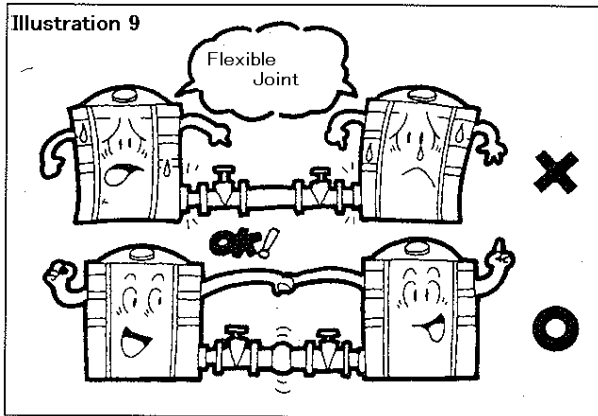
4-5 In case that flange is jointed with a companion flange by Stainless Steel made bolt and nut, tighten the bolts by torque wrench.

※Controlled torque values are as follows

1" : 7.5 N · m 2" : 11.0 N · m 3" : 11.0 N · m 4" : 15.0 N · m

Don't tighten too much because this may bring crack to the flanges as they are made of plastics such as PE or PVC.

4-6 Use flexible joints for piping where stress cannot be released such as piping by steel pipes or piping by straight pipes between different tanks, so that burden on joint point of nozzles can be decreased. (Illustration 9)



5.VENT

5-1 Before using TANK, check air-vent for possible blockage.

5-2 Pressure proof of TANK should be kept ranging +1kPa to - 0.5kPa.

Vent should be kept open. Under any air tight condition inside of TANK, adding any pressure to TANK may cause expansion of TANK and decreasing pressure may cause sinking of TANK ceiling or distortion of TANK body, which will be resulted in damage of TANK.

5-3 When liquid is delivered to TANK from tank-lorry, air vent should be opened, and never make TANK air tightened. When you are troubled with liquid gas emitted into the air, any gas cleaning equipment should be appropriately installed.

5-4 When compressor is used for delivering liquid into TANK, turn off it as soon as the delivery is completed, and never idle the compressor. Otherwise rapid increase of pressure may cause damage of TANK.

6.SERVICE TEMPERATURE

6-1 Maximum and minimum continuous temperature rating is :

60°C and -20°C for standard TANK with reinforcing frame basis 1.5 of specific gravity of liquid.

40°C and -20°C for standard TANK without reinforcing frame basis 1.3 of specific gravity of liquid.

Check the table of Polyethylene's Chemical Resistance which is needed before use of TANK.

6-2 If the temperature inside of TANK should rise over 60°C, TANK may expand by heat.

In such case, loosen clamping bolts and nuts tightening the reinforcing frame, and make TANK cool down by any appropriate means as soon as possible.

7. TESTING AND FINAL INSPECTION

7-1 Make sure if no leakage exists at the assembled parts or pipe fittings by water for a minimum 12 (twelve) hours before use.

8. MAINTENANCE AND OTHER SAFETY INSTRUCTION

8-1 Make regular painting on the reinforcing frame or other parts made of steel (except for stainless steel) for preventing from rust.

8-2 Make regular inspection of leakage especially at joint points of nozzles, valves and/or other fittings on TANK and piping.

8-3 Conditions of use of TANKs are referenced in the drawings specified for your TANK.

8-4 [Caution : fire !!]

TANK should be kept away from fire or super-heated steam, as TANK is made of Polyethylene and easily melted by them.

Don't weld directly to the reinforcing frame of TANK as it make TANK melted.

In case that welding is required, take off the reinforcing frame from TANK, and then do welding.

8-5 [Caution : Fall Danger !!]

When you need to climb on the top board of TANK, take necessary measures with lifeline (safety rope) firmly. Don't allow people climb on the top board without enough safety measures.

8-6 [Caution : Oxygen Deficiency !!]

Before entering the inside of TANK, clean inside with water sufficiently, exchange inside with fresh air, and confirm the safety by Oximeter (O₂ sensor).

8-7 Any works at heights such as the top board of TANK, or entering TANK, someone must attend at the spot as a watcher.

8-8 [Caution : No idle heating !!]

When the heater is used and in operation, keep the heating portion always submerged below liquid level.

Don't put the heater in operation without liquid filled sufficiently !

8-9 [Caution : Entrance into tank from roof manhole !!]

Fasten a rope ladder tightly and enter into tank with safety rope and safety measures.