

TANK INSTALLATION MANUAL

- 105 GFT
- 126 GFT
- 300 P/T
- 500 P/T
- 600 P/T
- 1250 S-A
- FT Series
- 1500 S-A



CONSOLIDATED
TREATMENT SYSTEMS

Tank Installation Procedures

1.0) General

- 1.1) Comply with applicable federal, state and local laws, codes and regulations for installation and use of "CTS" Tanks.
- 1.2) Conform to all required safety regulations.
- 1.3) **Caution** – DO NOT INSTALL A "CTS" TANK IN ANY AREA WHERE UNSTABLE SOIL CONDITIONS PREVAIL SUCH AS SLIDE AREAS, OR IN AREAS OF UN COMPACTED FILL. DO NOT INSTALL "CTS" TANKS IN AREAS SUBJECT TO FLOODING CONDITIONS. (These conditions can cause property damage.)
- 1.4) **Caution** – DURING AND AFTER INSTALLATION, DO NOT ALLOW ANY HEAVY EQUIPMENT TO OPERATE OVER THE EXCAVATION AREA WHERE A "CTS" TANK IS INSTALLED. (This also can cause property damage.)
- 1.5) After the "CTS" tank is installed fill tank with water to provide ballast.
- 1.6) Failure to follow installation instructions may void the "CTS" tank warranty.
- 1.7) If installation is in high water table area, uplift restraints may be required refer to section. 12.0

2.0) Storage, Transporting, and Handling

- 2.1) Store the "CTS" Tank on a flat level area. Make sure the tank is not resting on any objects that could cause damage.
- 2.2) Be sure to secure the tanks if in strong wind area.
- 2.3) When transporting the tanks on a trailer be sure to securely strap the tanks down. Utilize the lifting eyebolts as anchor points. (Failure to do so can result in damage to the tank.)
- 2.4) Always lift the "CTS" tanks utilizing ALL lifting eyebolts with chains, cables, or straps that are designed and rated for lifting. Ensure that the tank is lifted evenly from all eyebolts.
- 2.5) **WARNING** – DO NOT DROP THE TANK . THIS CAN CAUSE SERIOUS INJURY OR DEATH ALONG WITH PROPERTY DAMAGE.

3.0) Location

- 3.1) The site plan should show the desired location of the tank as part of the system plan. Make sure the site plan accurately reflects the conditions actually existing at the site and that all required setbacks (i.e., to wells, property lines, etc.) are being met.

4.0) Grade and Ground Contour

- 4.1) Position the tank so that surface water will drain away from the tank lid and effluent will drain to a lower grade. (Unless effluent is being pumped)

5.0) Cover Exposure

- 5.1) The lid must be exposed at all times to permit the system to function properly and to allow for routine maintenance.

6.0) Building Sewer Line

- 6.1) Carefully check all elevations to insure that the building sewer will have the proper slope to meet the inlet of the "CTS" tank and maintain the grade requirements to insure proper exposure of the cover. The elevation of the outlet should also be checked to insure proper elevation of the effluent disposal system.

7.0) Excavation Preparation

- 7.1) Clear an area at least (2) feet larger in diameter than the dimensions of the tank.
- 7.2) Excavate a hole approximately two (2) feet wider than the diameter of the tank. The hole should be dug to the depth specified on the approved plans. This depth should take into account bedding, backfilling, and riser requirements.
- 7.3) Determine the required depth of the excavation based upon the elevation of the invert of the inlet sewer line or the elevation of the finished grade. A riser will be required if the elevation of the finish grade exceeds the height of the tank at the sewer grade.
- 7.4) Care should be taken to not dig too large or deep an excavation. This material should be compacted to 95 percent maximum density of the tank when it is filled with water.
- 7.5) The maximum burial depth of the "CTS" Tank is 24 inches from finished grade to the top of the tank.

8.0) Setting the Tank

- 8.1) Lift the tank with a strap or other technique that will not puncture, scratch, or break the tank.
- 8.2) Slowly lower the tank into the excavation, making sure it is aligned correctly, level, stable, bedded properly, and at the correct elevation. Adjust the tank as necessary.
- 8.3) Before filling with water or backfilling around tank, carefully re-check elevation and grades of inlet, outlet and building sewer. If elevations are not correct, remove tank and dig out additional material or add necessary amount of bedding material (refer to Section 7.4).

- 8.4) It is important that the fill material be compacted evenly around the basin to prevent uneven settling after the backfilling is completed. With sandy fill materials, it is advisable to “water in” the fill as it is placed in the excavation.

9.0) Backfilling the Tank

- 9.1) Level the tank. This can be achieved by placing a 4' level across the mouth of the tank.
- 9.2) Once the tank has been leveled fill the tank 25% full of water before backfilling.
- 9.3) Place the cover on the tank and carefully begin backfilling evenly around the tank with clean, friable soil less than one-inch in diameter, gravel, or sand until the tank is backfilled, making certain the tank is level. Add fill in six-inch lifts and compact to 95 percent maximum density. Continue backfilling to the outlet pipe.
- 9.4) Measure and mark locations for your inlet and outlet pipes. Drill 5" holes for the supplied 4" pipe gaskets. Firmly insert the inlet and outlet sewer pipes (4" Sch. 40 PVC) into their respective fittings. If using the tank as a Trash trap install the supplied sanitary Tees on the inlet and outlet pipes. If using the tank as a Pump tank install the pump, piping, and junction box.
- 9.5) **CAUTION:** To prevent any damage to the inlet or outlet pipes due to settling or backfilling, make sure that both the inlet and outlet pipes are set on undisturbed or firmly-packed fill material prior to final backfilling procedures.

10) Installing a Riser

- 10.1) It is necessary for the access lid to be above grade to allow for routine maintenance and to prevent the entry of surface water. Risers are available for deeper installations. **DO NOT INSTALL SYSTEM WITH GREATER THAN 24 INCHES OF BACKFILL.**
- 10.2) To install the riser, remove the access lid from the cover.
- 10.3) Apply a strip of 1/2 inch tar tape or silicone sealant into the void on the bottom side of the riser.

10.4) Place riser over the riser on the tank. Make sure to line up screw holes before firmly pressing down on the riser. Screw the riser in place using stainless steel screws that are provided and placing them in the pre-designated slots.

10.5) Replace access lid. Fasten with tamperproof screws.

11.0) Repairs

11.1) Since "CTS" Tanks are fabricated GRP (Glass Reinforced Polyester) it is easily repaired. Repair procedure consists of proper surface preparation, then applying a GRP matrix consisting of the appropriate amount of fiberglass mat, woven roving, and catalyzed resin and allowing to cure.

- Repairs must be performed by factory certified personal so not to void warranty. Consult your local distributor.

12.0) Buoyancy

12.1) Buoyancy of any buried vessel is dependent on multiple factors.

- Weight of buried vessel
- Minimum weight of liquid in vessel
- Amount of cover
- Level of groundwater relative to vessel

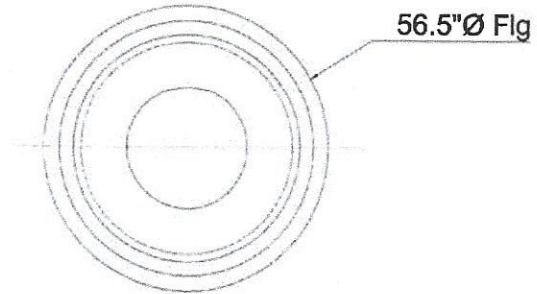
12.2) Only one of which can be determined by the manufacturer of the vessel. Aside from the weight of the vessel, all other factors are site specific criteria that cannot be calculated by the manufacturer. See tank spec. sheet for weight, displaced weight, and Buoyant Force.

12.3) All anti-buoyancy calculations and counter measures should be considered a site specific requirement that the system engineer/designer should account for.

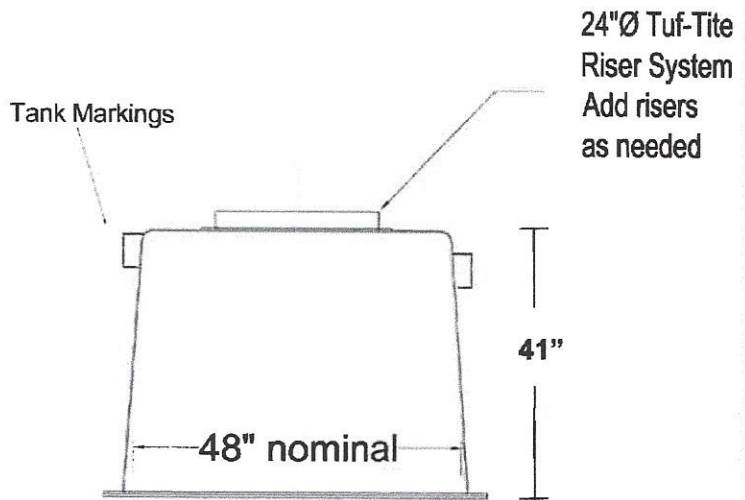
General information about Buoyancy, and uplift restraint.

Uplift restraint refers to methods and techniques to counteract the force water exerts against tanks. When a tank is submerged below a water table, the tank will displace water that would otherwise fill the excavation. The displaced water exerts a force against the tank equal to the volume of water displaced. Water weighs 62.4 lb/ft^3 , so the uplift force is equal to the product of the specific weight of the water times the tank volume below the water table. Uplift restraint is required to keep the tank from rising out of the ground.

300 P/T Tank	
MATERIALS	Glass-Reinforced Polyester
TOTAL CAPACITY	319.5 GAL.
LENGTH	56.5"
WIDTH	56.5"
HEIGHT	41"
MANWAY	24"
INLET INVERT	37"
OUTLET INVERT	35"
COMPARTMENTS	One
MAXIMUM BURIAL DEPTH	24 inches
MAXIMUM PIPE DIAMETER	4"
JOINT SEALANT	Conseal CS-102 or equal
WEIGHT	176 LBS.
DISPLACED WEIGHT (assuming saturated conditions)	2519.4 LBS.
BUOYANCY FORCE	2343.4 LBS.



TOP VIEW



SIDE VIEW

General Notes

- The inlet and outlet holes are not drilled in the tank to give the installer flexibility in the field.
- Use a 5" hole saw to drill inlet and outlet holes when utilizing 4" Jones Seal Gaskets
- If using this tank as a septic tank it comes with a sanitary Tee for the inlet and effluent filter for the outlet, and 2 - 4" Jones Seal Gaskets for the inlet and outlet pipes (effluent filter required)
- If using this Tank as a Septic/Trash tank it comes with 2-Sanitary Tees, and 2- 4" Jones Seal Gaskets for the inlet and outlet pipes.
- If using this tank as a Pump tank it comes with a junction box for electrical connections, and 2- 4" Jones Seals for the inlet and outlet pipes.
- If installing the tank in saturated soil conditions, or a seasonal highwater area you may need to utilize up-lift restraints. See installation manual for guidance.

Pump/Trash Tank

TITLE:

300 P/T

CONSOLIDATED
TREATMENT SYSTEMS

300 P/T Volume Table
300 Gallon Tank

(Liquid Depth in inches)

(in)	(gal)	(in)	(gal)	(in)	(gal)	(in)	(gal)	(in)	(gal)
0.000	0.0	10.000	71.0	20.000	146.4	30.000	226.4	40.000	310.9
0.125	0.9	10.125	71.9	20.125	147.4	30.125	227.4	40.125	312.0
0.250	1.7	10.250	72.8	20.250	148.4	30.250	228.4	40.250	313.1
0.375	2.6	10.375	73.8	20.375	149.4	30.375	229.5	40.375	314.1
0.500	3.4	10.500	74.7	20.500	150.3	30.500	230.5	40.500	315.2
0.625	4.3	10.625	75.6	20.625	151.3	30.625	231.5	40.625	316.3
0.750	5.2	10.750	76.5	20.750	152.3	30.750	232.6	40.750	317.3
0.875	6.0	10.875	77.4	20.875	153.3	30.875	233.6	40.875	318.4
1.000	6.9	11.000	78.4	21.000	154.2	31.000	234.6	41.000	319.5
1.125	7.8	11.125	79.3	21.125	155.2	31.125	235.7		
1.250	8.6	11.250	80.2	21.250	156.2	31.250	236.7		
1.375	9.5	11.375	81.1	21.375	157.2	31.375	237.7		
1.500	10.4	11.500	82.0	21.500	158.1	31.500	238.8		
1.625	11.2	11.625	83.0	21.625	159.1	31.625	239.8		
1.750	12.1	11.750	83.9	21.750	160.1	31.750	240.9		
1.875	13.0	11.875	84.8	21.875	161.1	31.875	241.9		
2.000	13.9	12.000	85.7	22.000	162.1	32.000	242.9		
2.125	14.7	12.125	86.7	22.125	163.1	32.125	244.0		
2.250	15.6	12.250	87.6	22.250	164.0	32.250	245.0		
2.375	16.5	12.375	88.5	22.375	165.0	32.375	246.1		
2.500	17.3	12.500	89.5	22.500	166.0	32.500	247.1		
2.625	18.2	12.625	90.4	22.625	167.0	32.625	248.1		
2.750	19.1	12.750	91.3	22.750	168.0	32.750	249.2		
2.875	20.0	12.875	92.2	22.875	169.0	32.875	250.2		
3.000	20.8	13.000	93.2	23.000	169.9	33.000	251.3		
3.125	21.7	13.125	94.1	23.125	170.9	33.125	252.3		
3.250	22.6	13.250	95.0	23.250	171.9	33.250	253.4		
3.375	23.5	13.375	96.0	23.375	172.9	33.375	254.4		
3.500	24.4	13.500	96.9	23.500	173.9	33.500	255.5		
3.625	25.2	13.625	97.8	23.625	174.9	33.625	256.5		
3.750	26.1	13.750	98.8	23.750	175.9	33.750	257.6		
3.875	27.0	13.875	99.7	23.875	176.9	33.875	258.6		
4.000	27.9	14.000	100.7	24.000	177.9	34.000	259.7		
4.125	28.8	14.125	101.6	24.125	178.9	34.125	260.7		
4.250	29.6	14.250	102.5	24.250	179.9	34.250	261.8		
4.375	30.5	14.375	103.5	24.375	180.9	34.375	262.8		
4.500	31.4	14.500	104.4	24.500	181.9	34.500	263.9		
4.625	32.3	14.625	105.3	24.625	182.9	34.625	264.9		
4.750	33.2	14.750	106.3	24.750	183.9	34.750	266.0		
4.875	34.1	14.875	107.2	24.875	184.8	34.875	267.0		
5.000	35.0	15.000	108.2	25.000	185.8	35.000	268.1		
5.125	35.8	15.125	109.1	25.125	186.8	35.125	269.1		
5.250	36.7	15.250	110.1	25.250	187.8	35.250	270.2		
5.375	37.6	15.375	111.0	25.375	188.8	35.375	271.3		
5.500	38.5	15.500	111.9	25.500	189.9	35.500	272.3		
5.625	39.4	15.625	112.9	25.625	190.9	35.625	273.4		
5.750	40.3	15.750	113.8	25.750	191.9	35.750	274.4		
5.875	41.2	15.875	114.8	25.875	192.9	35.875	275.5		
6.000	42.1	16.000	115.7	26.000	193.9	36.000	276.6		
6.125	43.0	16.125	116.7	26.125	194.9	36.125	277.6		
6.250	43.9	16.250	117.6	26.250	195.9	36.250	278.7		
6.375	44.8	16.375	118.6	26.375	196.9	36.375	279.8		
6.500	45.7	16.500	119.5	26.500	197.9	36.500	280.8		
6.625	46.6	16.625	120.5	26.625	198.9	36.625	281.9		
6.750	47.5	16.750	121.4	26.750	199.9	36.750	283.0		
6.875	48.4	16.875	122.4	26.875	200.9	36.875	284.0		
7.000	49.3	17.000	123.3	27.000	201.9	37.000	285.1		
7.125	50.1	17.125	124.3	27.125	202.9	37.125	286.2		
7.250	51.0	17.250	125.3	27.250	204.0	37.250	287.2		
7.375	51.9	17.375	126.2	27.375	205.0	37.375	288.3		
7.500	52.9	17.500	127.2	27.500	206.0	37.500	289.4		
7.625	53.8	17.625	128.1	27.625	207.0	37.625	290.5		
7.750	54.7	17.750	129.1	27.750	208.0	37.750	291.5		
7.875	55.6	17.875	130.0	27.875	209.0	37.875	292.6		
8.000	56.5	18.000	131.0	28.000	210.0	38.000	293.7		
8.125	57.4	18.125	132.0	28.125	211.1	38.125	294.7		
8.250	58.3	18.250	132.9	28.250	212.1	38.250	295.8		
8.375	59.2	18.375	133.9	28.375	213.1	38.375	296.9		
8.500	60.1	18.500	134.8	28.500	214.1	38.500	298.0		
8.625	61.0	18.625	135.8	28.625	215.1	38.625	299.1		
8.750	61.9	18.750	136.8	28.750	216.1	38.750	300.1		
8.875	62.8	18.875	137.7	28.875	217.2	38.875	301.2		
9.000	63.7	19.000	138.7	29.000	218.2	39.000	302.3		
9.125	64.6	19.125	139.7	29.125	219.2	39.125	303.4		
9.250	65.5	19.250	140.6	29.250	220.2	39.250	304.5		
9.375	66.4	19.375	141.6	29.375	221.3	39.375	305.5		
9.500	67.4	19.500	142.6	29.500	222.3	39.500	306.6		
9.625	68.3	19.625	143.5	29.625	223.3	39.625	307.7		
9.750	69.2	19.750	144.5	29.750	224.3	39.750	308.8		
9.875	70.1	19.875	145.5	29.875	225.4	39.875	309.8		