



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES &
ENVIRONMENTAL CONTROL
DIVISION OF WATER
21309 Berlin Road, Suite 2
GEORGETOWN, DELAWARE 19947

February 11, 2014

Kim Yanaitis.
Septic Solutions, LLC
13 Charles Point
Newark, DE 19702-2227

RE: Approval of the Strab-Infiltrator IM540 Pre-Engineered Lift Station

Dear Ms. Yanaitis,

The Division of Water Resources has received and reviewed your request to approve your Strab-Infiltrator IM540 pre-engineered lift station; to be used in conjunction with Class B designed or other gravity fed on-site wastewater treatment and disposal systems in Delaware. We are pleased to inform you that we are able to approve the lift station referenced above, provided that they are installed in accordance with the designers proposed components and specific permit conditions. The tank manufacturer's anti-buoyancy protocol must be adhered to

Additionally, specific components (brands, model numbers, etc...) should be listed on permit insert sheet. As a condition of this approval, no substitution of components is allowed without written approval from the design engineer and pre-approval from the Department.

If you have any other questions please contact me at 856-4561.

Sincerely,

James Cassidy
Program Manager I
Ground Water Discharges Section

Cc: file

Delaware's good nature depends on you!

SEPTIC SOLUTIONS, LLC

13 Charles Pointe
Newark, DE 19702-2227
(302) 438-7498
kyanaitis@comcast.net

October 30, 2018

James Cassidy
DNREC
21309 Berlin Road
Georgetown, DE 19947

RE: PRE-ENGINEERED LIFT STATION
STRAB – INFILTRATOR IM540

Dear Jim,

Enclosed please find the design package for a pre-engineered lift station.

This design consists of:
Infiltrator IM540 pump tank
Goulds 3885 Model WE0311L pump
SJE Pumpmaster Plus Pump Switch
Tank Alert XT Alarm System

Please review the design at your earliest convenience. If you should have any questions or require additional information, please do not hesitate to contact me.

Sincerely,



Kimberly A. Yanaitis, P.E.

PROJECT NAME:

STRAB - INFILTRATOR IM540
LIFT PUMP PACKAGE

Date: 10/30/2018
Design: KAY
Page: 1 of 2

300 LF TRANSMISSION LINE, 18' STATIC HEAD

AVERAGE FLOW:

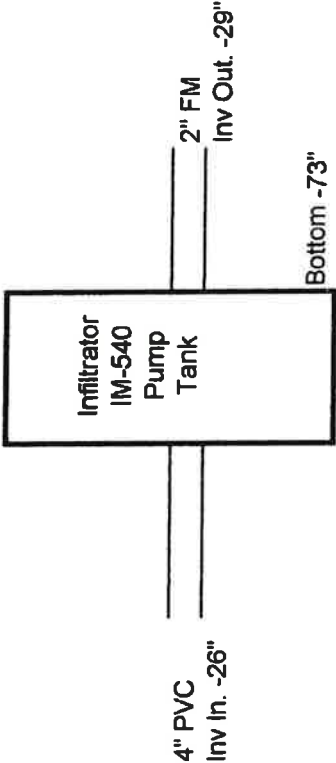
600 GPD (0.42 GPM)

FORCE MAIN SIZE:

$D_{max} = 0.404 * \text{SQRT}(Q \text{ peak})$
 $D_{max} = 0.404 * \text{SQRT}(0.42 \text{ GPM})$
 $D_{max} = 0.26"$

Use 2" SCHD 40 PVC

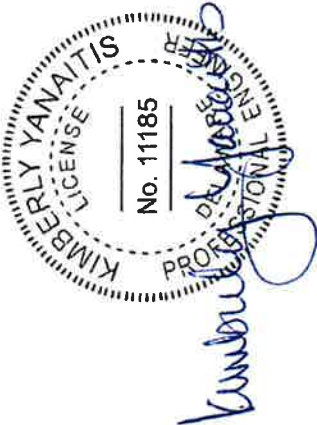
GRADE 0"



H.W.L. -54 "
PUMP ON -60 "
PUMP OFF -63 "
BOTTOM -73 "

STATIC HEAD: SH = HIGH POINT - PUMP OFF

SH = 18 FT



PIPE AND FITTING SCHEDULE

Date: 10/30/2018
Design: KAY
Page: 2 of 2

Q (GPM)	2" STEEL		2" PVC (SDR-21)		FITTING	K-VALUE
	V ² / 2G	Hf (ft/100 ft)	V ² / 2G	Hf (ft/100 ft)		
20	0.0568	0.868	0.05031	0.63	2" CHECK VALVE 2" GATE VALVE 2" 90 BEND 2" 45 BEND	0.04 0.16 1.00 0.32

Note: K-values per Supplement to NCC Std. Spec
Construction Section 35.16, Part 5
Sample Designs for Sewage Pumping Stations

LOSSES

20 GPM	2" CHECK VALVE (STEEL)	1	*	0.0568	*	0.04	=	0.00227
	2" GATE VALVE (STEEL)	1	*	0.0568	*	0.16	=	0.00909
	2" 90 BEND (STEEL)	1	*	0.0568	*	1.00	=	0.05680
	2" 45 BEND (PVC)	5	*	0.05031	*	0.32	=	0.08050
	2" STEEL FM	4	*	0.868	(/100)		=	0.03472
	2" PVC FM	300	*	0.63	(/100)		=	1.89000
	STATIC HEAD						=	18.00
	TOTAL							20.07

WET WELL VOLUME (INFILTRATOR IM-540)

PUMP ON TO PUMP OFF = 3"
VOLUME = 31 GAL (Per Infiltrator Specifications)



Table 2: Nominal Volume Chart

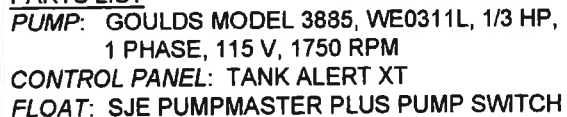
Height ¹		Total liquid volume in tank at indicated height					
		IM-540		IM-1060		IM-1530	
		U.S. Gal	Liters	U.S. Gal	Liters	U.S. Gal	Liters
1	3	3	11	3	11	17	64
2	5	8	30	13	49	34	128
3	8	14	53	28	106	51	192
4	10	21	80	46	174	68	256
5	13	29	109	65	246	94	357
6	15	37	141	86	326	122	463
7	18	46	173	107	405	152	573
8	20	55	207	129	488	180	681
9	23	64	243	152	575	212	802
10	25	74	279	176	666	245	928
11	28	84	317	200	757	280	1,061
12	30	94	356	225	852	312	1,182
13	33	105	396	251	950	351	1,328
14	36	116	437	277	1,049	387	1,463
15	38	127	480	303	1,147	422	1,597
16	40	138	523	330	1,249	464	1,756
17	43	150	566	357	1,351	500	1,892
18	46	161	611	384	1,454	537	2,034
19	48	173	656	411	1,556	575	2,177
20	50	186	702	438	1,658	614	2,322
21	53	198	749	465	1,760	652	2,468
22	56	210	796	493	1,866	690	2,612
23	58	223	843	521	1,972	729	2,758
24	61	235	891	549	2,078	770	2,914
25	64	248	940	577	2,184	808	3,058
26	66	261	988	605	2,290	847	3,208
27	69	274	1,038	633	2,396	887	3,356
28	71	287	1,088	662	2,506	928	3,513
29	74	300	1,137	691	2,616	968	3,665
30	76	313	1,185	719	2,722	1,007	3,814
31	79	326	1,233	747	2,828	1,048	3,966
32	81	338	1,281	775	2,934	1,087	4,113
33	84	351	1,328	802	3,036	1,126	4,262
34	86	363	1,375	830	3,142	1,165	4,410
35	89	375	1,421	857	3,244	1,204	4,557
36	91	387	1,466	884	3,346	1,242	4,701
37	94	399	1,511	911	3,449	1,280	4,846
38	97	411	1,555	938	3,551	1,318	4,988
39	99	422	1,598	965	3,653	1,355	5,131
40	102	433	1,640	992	3,755	1,393	5,272
41	104	444	1,681	1,018	3,854	1,430	5,412
42	107	455	1,722	1,044	3,952	1,466	5,550
43	109	465	1,761	1,069	4,047	1,502	5,685
44	112	475	1,799	1,094	4,141	1,537	5,817
45	114	485	1,836	1,118	4,232	1,572	5,950
46	117	494	1,871	1,142	4,323	1,604	6,070
47	119	503	1,905	1,165	4,410	1,638	6,201
48	122	512	1,938	1,187	4,493	1,667	6,310
49	124	520	1,970	1,208	4,573	1,697	6,422
50	127	528	1,999	1,228	4,648	1,724	6,527
51	130	535	2,027	1,247	4,720	1,749	6,621
52	132	542	2,050	1,265	4,789	1,766	6,684
53	135	547	2,071	1,278	4,838	1,777	6,726
54	137	551 ²	2,087	1,287	4,872	1,785 ²	6,758

1. Height measured from lowermost inside surface at bottom of corrugation in tank.

2. The total capacity of the IM-540 tank is 552 gallons; the total capacity of the IM-1530 tank is 1,787 gallons.

Failure to comply with these installation instructions will invalidate the warranty. Contact Infiltrator Water Technologies' Technical Services Department for assistance at 1-800-221-4436.

MAX. FM LENGTH = 300'
MAX. VERTICAL LIFT = 18'



STRAB - INFILTRATOR IM540

Infiltrator IM-Series Tank Buoyancy Control Guidance

OCTOBER 2016



Before you Begin

This document presents a method for assessing buoyancy control needs for Infiltrator Water Technologies (Infiltrator) IM-Series tanks. Tank buoyancy control measures must be implemented according to state and/or local regulations, which may supersede these guidelines. If unsure of the requirements for a particular site, contact the local health department or permitting authority.

If tank buoyancy control measures are implemented, refer to Infiltrator IM-Series Tank Installation Instructions and Riser Connection Guidance documents, as applicable, for completing the installation.

How to Use this Document

1. Using Step 1, Table 1 and Figures 1 and 2, verify that the water level outside the tank is below the outlet pipe saddle height and determine if buoyancy control is required.
2. Use the appropriate row in Step 2, Table 2 to determine the minimum buoyancy control methods for the site conditions.
3. Once the preferred buoyancy control method is selected, follow the implementation procedures provided in Step 3.

Step 1 – Determine Need for Buoyancy Control

Required information: (1) maximum height of water outside the tank and above the tank bottom; and (2) the depth of soil cover above the tank top. Tank buoyancy control may be required if:

- the water level outside the tank has the potential to rise 30 inches (750 mm) or more above the bottom of the tank; and
- less than 12 inches (300 mm) of soil cover is to be placed as backfill over the tank top.

NO BUOYANCY CONTROL IS REQUIRED IF THERE IS AT LEAST 12 INCHES (300 MM) OF SOIL COVER ABOVE THE TANK TOP.

Allowable Subsurface Water Elevation

Groundwater elevation, groundwater table, and water table are terms for the subsurface condition where water is held in the subsurface soil pores or rock. The seasonal high groundwater elevation represents the sustained highest point the water table has the potential to reach at any time of the year. That point is not necessarily the level at which groundwater may be observed seeping from the soil at the time of tank installation. In general, a qualified soil evaluator or engineer can estimate the seasonal high groundwater elevation from careful examination of the soil profile.

Under certain conditions, a perched water table may be present in the subsurface. A perched water table occurs where there is an impermeable or low-permeability soil that causes water to be present in the soil pores above the main water table. A perched water table elevation may exceed the seasonal high elevation of the main water table. The vertical position of the tank must account for both the seasonal high groundwater table and any existing or future perched water table condition. **Verify that the subsurface water elevation will not exceed the height of the outlet pipe saddle of the tank, as shown in Figure 1 and described in Table 1.**

Table 1:
Infiltrator Tank Models¹ and Conditions Requiring Buoyancy Control

	Parameter I: Water height ² above tank bottom	Parameter II: Soil cover depth above tank top ³	
		A	B
		6 in (150 mm) to 12 in (300 mm)	Above 12 in (300 mm)
1	Above outlet pipe saddle ⁴ (greater than 43" [1,075 mm])	Do not install	Do not install
2	36" (900 mm) to 43" (1,075 mm) (to outlet pipe saddle)	All models	Not Required
3	30" (750 mm) to 36" (900 mm)	IM-1530	Not Required
4	Less than 30" (750 mm)	Not Required	Not Required

NOTES:

1. Infiltrator tank models include: IM-540, IM-1060, and IM-1530.
2. Water height corresponds to seasonal high groundwater elevation or perched water elevation measured from bottom-of-tank elevation.
3. Minimum 6 inches (150 mm) soil cover backfill is required.
4. IM-Series tanks shall not be installed where the water level outside the tank exceeds the height of the outlet pipe saddle.

Figure 1: Assessing Water Elevation

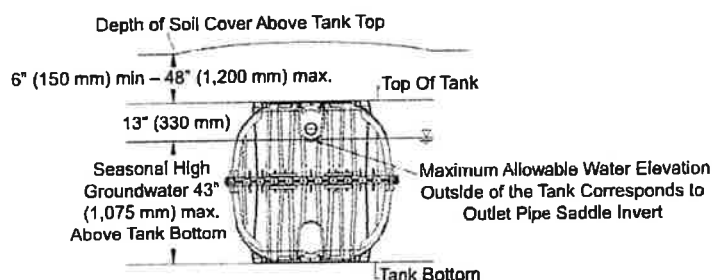


Figure 2: Buoyancy Control Parameters for Table 1

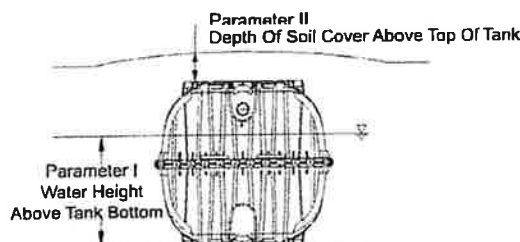


Table 1 Instructions

1. In the left-hand column of Table 1, locate the row corresponding to the height of the water elevation outside the tank and above the tank bottom (Parameter I) for the site conditions. See Figure 2.
2. Follow that row to the right until reaching the column corresponding to the depth of soil cover proposed above the tank top (Parameter II). See Figure 2.
3. If the tank model is listed in that cell, then buoyancy control is required (proceed to Step 2). If the tank model is not listed in that cell, then no buoyancy control is required.
4. IM-Series tanks shall not be installed where the water level outside the tank exceeds the height of the outlet pipe saddle.

Step 2 – Determine Buoyancy Control Method

Step 2 is used if the Step 1 analysis shows that buoyancy control is required for the tank model and installation conditions. The site-specific maximum height of water outside of the tank and above the tank bottom and the depth of soil cover above the tank top must be known to complete Step 2.

Table 2 Instructions

For the appropriate tank model, select the desired buoyancy control method under each method description column. Refer to the Compatible Devices and Products and Step 3 – Implementation sections of this document for additional information on the buoyancy control methods shown in Table 2.

Table 2: Buoyancy Control Method Selection

Tank Model	Parameter I: Water height above tank bottom	Parameter II: Soil cover depth above tank top	Minimum supplemental downward force required ¹ (total, both tank sides)	Buoyancy Control Methods				
				Concrete-filled half pipe (min. length/ side)	Concrete parking bumpers (min. length/ side)	Concrete traffic barriers (min. length/ side)	Helical anchors (min. no./side)	Concrete collar (min. width x min. height)
IM-540	36 in (900 mm) to outlet pipe saddle*	6 in (150 mm) to 12 in (300 mm)	2,200 lbs (1,000 kg)	3.8 ft (1.2 m)	3.8 ft (1.2 m)	3.8 ft (1.2 m)	2	6 in (150 mm) x 9 in (225 mm)
IM-1060	36 in (900 mm) to outlet pipe saddle*	6 in (150 mm) to 12 in (300 mm)	2,700 lbs (1,225 kg)	4.2 ft (1.3 m)	4.5 ft (1.4 m)	4.2 ft (1.3 m)	2	12 in (300 mm) x 9 in (225 mm)
IM-1530	30 in (750 mm) to outlet pipe saddle*	6 in (150 mm) to 12 in (300 mm)	4,300 lbs (1,955 kg)	6.3 ft (2.0 m)	6.5 ft (2.0 m)	6.3 ft (2.0 m)	2	12 in (300 mm) x 9 in (225 mm)

NOTES:

1. See Supplemental Force discussion below.
2. IM-Series outlet pipe saddle height is 43 inches (1,075 mm) above tank bottom (see Figure 1).

Supplemental Force

The minimum supplemental downward force required is included in Table 2 to allow custom buoyancy control methods. These values include a factor of safety of 1.5 applied to the calculated force required to restrain the tank. Custom-designed buoyancy control methods shall conservatively consider saturated conditions from the bottom-of-tank elevation to ground surface. As long as buoyancy control is provided that supplies the minimum weight listed in the table (for poured-concrete blocks or other methods designed by third parties), the tanks are calculated to be stable for the water height outside the tank and above the tank bottom and corresponding soil cover conditions. All Infiltrator strapping and fastening recommendations apply for custom-designed buoyancy control methods. Contact Infiltrator's Technical Services Department with any questions regarding supplemental force requirements.

Compatible Devices and Products

Infiltrator tanks are compatible with the following products for buoyancy control:

- **Tie-down straps:** high-tensile-strength, 10,000 lb (4,500 kg) minimum capacity, nylon or polyester, with corrosion-resistant hardware.
- **Concrete deadmen anchors:** concrete-filled plastic half pipe, precast parking bumper, precast traffic barrier, or precast block.
- **Helical anchors:** Chance™ No-Wrench Screw Anchors with minimum 6-inch (150 mm) diameter, Class 7 or equal.
- **Mid-Seam Concrete Collar:** cast-in-place concrete (minimum 3,000 psi compressive strength at 28 days and minimum 6% air entrainment).

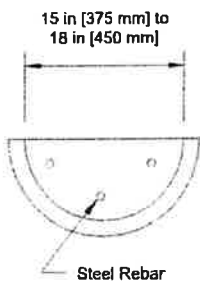
Tie-Down Straps

Straps are commercially available in varying lengths and with assorted hardware and tightening options. Nylon or polyester strapping with minimum 10,000 lb (4,500 kg) capacity is required for buoyancy control use with Infiltrator tanks. Place straps over the tank at specified locations only (see Figure 5). Tighten straps snugly with a ratchet or turnbuckle system to remove all slack and slightly pre-load the system. All connections, fittings, and hardware must be corrosion resistant or coated with epoxy or other corrosion-resistant materials to inhibit deterioration in the subsurface environment. Consider encapsulating such components in heat-shrink tubing or applying a corrosion-resistant coating prior to burial.



Concrete Deadmen Anchors

Recommended concrete deadmen anchors include filled plastic half pipe, precast parking bumpers and traffic barriers, and precast blocks. The weight of the deadmen anchors combined with the weight of soil above them provides buoyancy control when properly secured. Deadmen anchors are placed at the bottom of the tank excavation on opposite sides of the tank. The deadmen anchors are fastened to each other with tie-down straps placed over the tank at the locations specified for each tank model (see Figure 5).

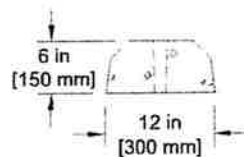


Concrete-filled Plastic Half Pipe

Use Schedule 40 PVC plastic pipe with a minimum inside diameter of 15 inches (375 mm) or HDPE corrugated pipe with a minimum inside diameter of 18 inches (450 mm) cut in half lengthwise. Fill with concrete having a minimum unit weight of 145 lbs/ft³ (2.32 metric tons/m³) reinforced with three equally spaced 40-grade, 1/2-inch (13 mm) diameter steel bars. Weight is 61 lbs/ft (91 kg/m) minimum.

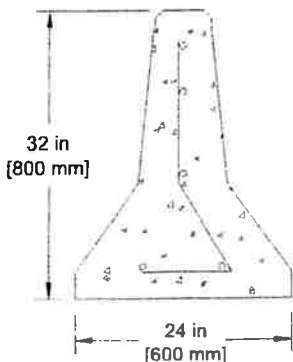
Concrete Parking Bumper

Use commercially available steel-reinforced parking bumpers with typical dimensions of 12 inches wide by 6 inches high (300 mm x 150 mm). Weight is 58 lbs/foot (86 kg/m) minimum.



Concrete Traffic Barrier

Use commercially available steel-reinforced concrete traffic barrier or equivalent. Typical dimensions include a 24-inch-wide base tapering to a 6-inch-wide top, with a height of approximately 32 inches (600 mm x 150 mm x 800 mm). Weight is 390 lbs/foot (580 kg/m) minimum.



Precast Blocks

Concrete precasters can fabricate blocks of various dimensions and weights. Blocks are often an affordable option if they satisfy the minimum weight requirements for use as buoyancy control (see Table 2 and the Supplemental Force section of Step 2 for more information).

Helical Anchors

Chance™ No-Wrench Screw Anchors with a 6-inch (150 mm) diameter flight, Class 7, or equal. These anchors rely on the shear strength of the soil combined with the weight of the soil above the anchor flight to provide holding strength. Proper installation is to 4 feet (1.2 m) below the bottom of the tank excavation and to within 5° of alignment with the strap alignment. Determine the proper locations for anchor installation to ensure that tie-down straps will be aligned properly for each tank model (see Step 3: Implementation), and follow the anchor manufacturer installation instructions.

Typical working torque:
 3/4" Rod 400 ft. lbs. (542 N-m)
 1" Rod 1,000 ft. lbs. (1,356 N-m)
 1 1/4" Rod 2,300 ft. lbs. (3,118 N-m)



Concrete Collar

A ballast may be constructed along the mid-height seam of the tank using cast-in-place concrete (minimum 3,000 psi compressive strength at 28 days and minimum 6% air entrainment). Concrete shall be cast in contact with the exterior surface of the tank to allow interlock with sidewall ribs and the mid-height flange. Reinforcing steel is not required, but may be added if desired.

Step 3 – Implementation

Effective buoyancy control of Infiltrator tanks requires careful preparation, thorough excavation, precise placement, secure strapping and proper backfilling, as described and illustrated below.

Excavation Requirements

It is recommended that the excavation width provide a minimum of 36 inches (900 mm) clearance beyond the tank on all sides when utilizing buoyancy control. This will allow sufficient space within the excavation to place anchoring equipment and fasten strapping. The excavation should provide a minimum 48-inch (1,200 mm) clearance beyond the tank when using Chance™ No-Wrench Screw Anchors to allow for room to properly install the screw anchors. The actual excavation size shall be determined by the installer. Refer to Infiltrator IM-Series Tank Installation Instructions for additional excavation procedures.

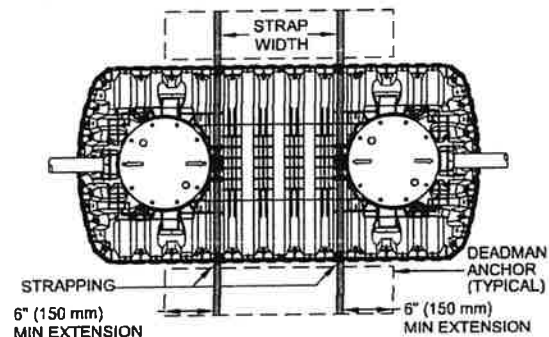
Concrete-filled Half Pipe Construction

Concrete-filled half pipe shall be supported with soil or other stabilizing means below the pipe haunches prior to concrete placement. The stabilization shall prevent the pipe from rolling during placement and curing of the concrete. Concrete shall be allowed to cure for a minimum of one day prior to tank backfilling.

Placement of Deadmen and Anchors

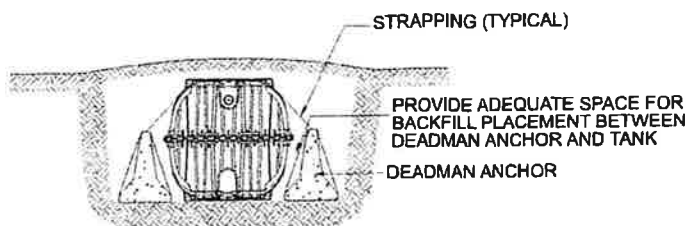
Concrete deadman anchors are to be installed at the bottom of the tank excavation, parallel to the long axis of the tank (see Figure 3).

Figure 3: Plan View



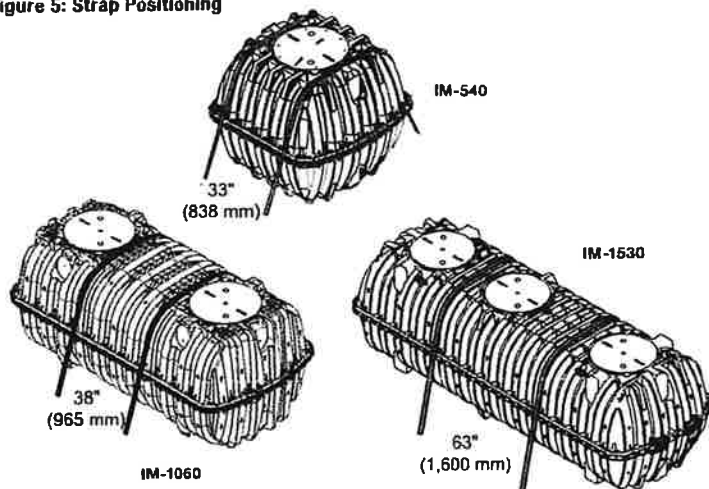
The deadmen should be placed close to, but not touching, the tank on both sides of the tank to allow the placement of backfill between the deadman anchor and tank sidewall (see Figure 4).

Figure 4: Section View



Helical anchors should be installed so that the eye loop is level with the bottom of the tank excavation. They must be in line with the tank model strapping locations (see Figure 5) or lifting lugs, as appropriate. Anchors must also be installed at such a distance from and angle to the tank so that the strapping is within 5° of alignment with the anchor shaft per the anchor manufacturer's recommendations.

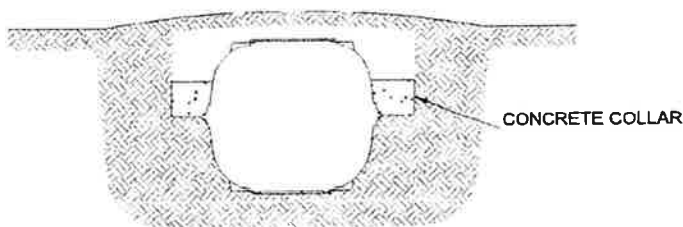
Figure 5: Strap Positioning



Concrete Collar

Backfill the tank to the mid-seam area. Concrete (minimum 3,000 psi at 28 days and minimum 6% air entrainment) shall be cast in contact with the exterior surface of the tank to allow interlock with sidewall ribs and the mid-height flange. The bottom of the concrete collar shall be cast at the top of the mid-seam flange.

SECTION VIEW



Strapping

Proper installation of straps over the tank is critical for tank stability under constant and fluctuating water conditions both inside and outside the tank. Straps must be placed at the specified strapping locations for each model, as illustrated in Figure 5. Strapping locations are embossed on the exterior surface of the tank with the following text: "SHIPPING /ANTI-BUOYANCY STRAP HERE." The IM-Series tank strapping locations correspond to structurally reinforced areas of the tank body. Straps must never be placed over access openings, lids, or inlet/outlet piping. Straps must be tightened with a ratchet or turnbuckle system to remove slack and slightly pre-load the system.

STRAPPING NOTES:

1. The buoyancy control shall be centered across the straps (excludes helical anchors). The control shall extend a minimum of 6 inches (150 mm) beyond the maximum strap width (see Figures 3 and 5).
2. The minimum deadman length corresponds to the tank model-specific strap width plus 12 inches (300 mm).

Backfill and Cover

Place backfill between deadman anchor and tank sidewall to fully fill void and tank body corrugations. A minimum 6" layer (150 mm) of suitable cover material is required over all Infiltrator tank installations. Mound cover to direct surface water drainage away from the tank excavation footprint to prevent filling of the tank excavation with precipitation. Establish erosion-resistant vegetation within the tank installation footprint. Refer to Infiltrator IM-Series Tank Installation Instructions for complete backfilling and cover procedures.

General Specifications

- Prior to ground disturbance, check for subsurface obstructions and utilities in conformance with applicable regulatory requirements.
- Excavation safety provisions shall conform to applicable government regulations.
- Follow manufacturer instructions for all products and devices used for Infiltrator tank buoyancy control.
- Buoyancy control methods described herein do not account for unanticipated conditions such as surface flooding, temporary inundation or other natural occurrences, unintended removal of cover fill over tank, etc.
- Buoyancy control methods described herein are recommendations only; consult a professional engineer for customized designs, if desired.

Parts and Supplies

The parts and supplies necessary are to be purchased separately from the tank. All parts and supplies are either commercially available or available through Infiltrator's network of tank distributors. Some parts may require fabrication on site using common construction practices.



4 Business Park Road
P.O. Box 768
Old Saybrook, CT 06475
860-577-7000 • Fax 860-577-7001
1-800-221-4436
www.infiltratorwater.com

U.S. Patents: 4,759,661; 5,017,041; 5,156,486; 5,336,017; 5,401,116; 5,401,459; 5,511,903; 5,716,163; 5,588,778; 5,839,844 Canadian Patents: 1,329,959; 2,004,564 Other patents pending. Infiltrator, Equalizer, Quick4, and SideWinder are registered trademarks of Infiltrator Water Technologies. Infiltrator is a registered trademark in France. Infiltrator Water Technologies is a registered trademark in Mexico. Contour, MicroLeaching, PolyTuff, ChamberSpacer, MultiPort, PosiLock, QuickCut, QuickPlay, SnapLock and StraightLock are trademarks of Infiltrator Water Technologies. PolyLok is a trademark of PolyLok, Inc. TUF-TITE is a registered trademark of TUF-TITE, INC. Ultra-Rib is a trademark of IPEX Inc.

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Wastewater

APPLICATIONS

Specifically designed for the following uses:

- Homes, Farms, Trailer Courts, Motels, Schools, Hospitals, Industry, Effluent Systems

SPECIFICATIONS

Pump

- Solids handling capabilities: $\frac{3}{4}$ " maximum
- Discharge size: 2" NPT
- Capacities: up to 140 GPM
- Total heads: up to 128 feet TDH
- Temperature:
104°F (40°C) continuous, 140°F (60°C) intermittent.
- See order numbers on reverse side for specific HP, voltage, phase and RPM's available.

MOTORS

- Fully submerged in high-grade turbine oil for lubrication and efficient heat transfer.
- Class B insulation on $\frac{1}{2}$ - 1½ HP models.
- Class F insulation on 2 HP models.

Single phase (60 Hz):

- Capacitor start motors for maximum starting torque.
- Built-in overload with automatic reset.

- SJTOW or STOW severe duty oil and water resistant power cords.
- $\frac{1}{2}$ - 1 HP models have NEMA three prong grounding plugs.
- 1½ HP and larger units have bare lead cord ends.

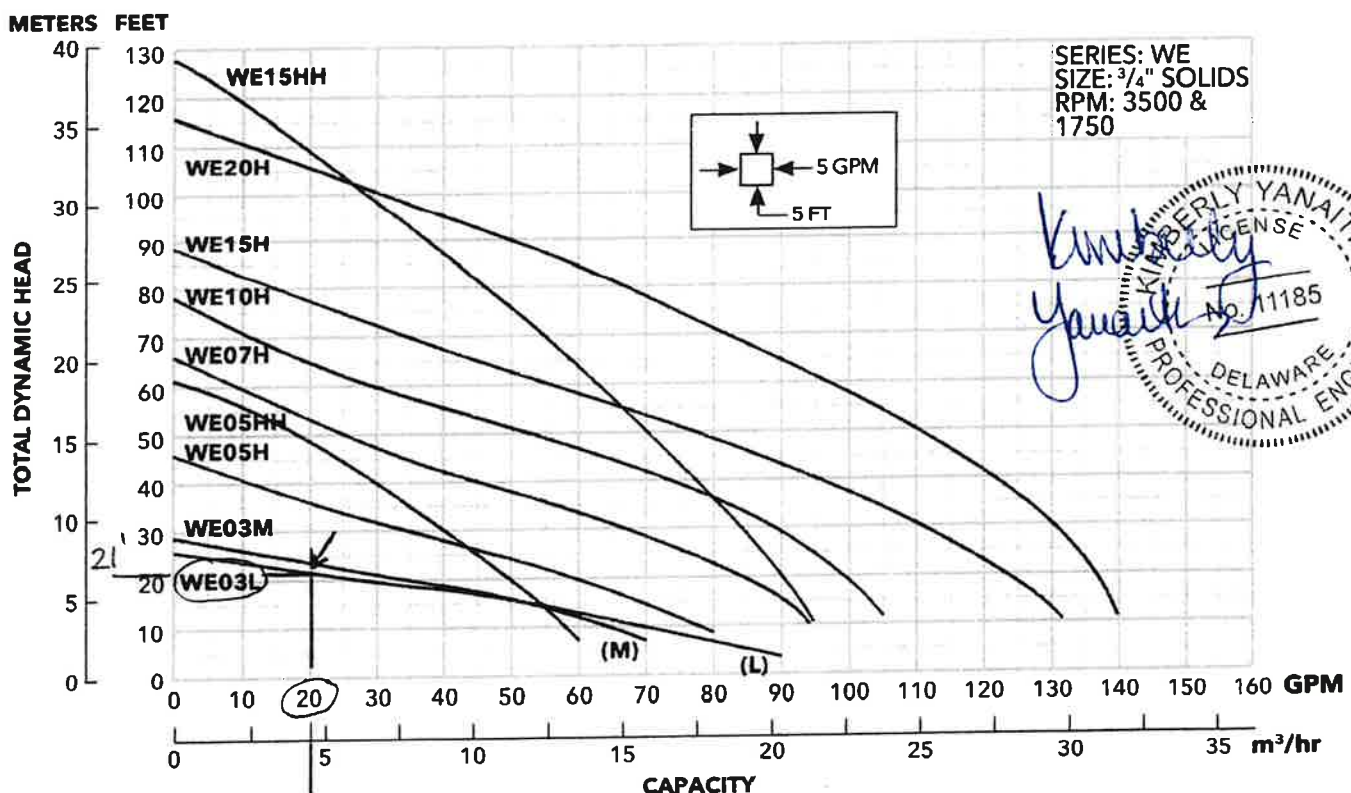
Three phase (60 Hz):

- Class 10 overload protection must be provided in separately ordered starter unit.
- STOW power cords all have bare lead cord ends.
- Designed for Continuous Operation: Pump ratings are within the motor manufacturer's recommended working limits, can be operated continuously without damage when fully submerged.
- Bearings: Upper and lower heavy duty ball bearing construction.
- Power Cable: Severe duty rated, oil and water resistant. Epoxy seal on motor end provides secondary moisture barrier in case of outer jacket damage and to prevent oil wicking. Standard cord is 20'. Optional lengths are available.
- O-ring: Assures positive sealing against contaminants and oil leakage.

AGENCY LISTINGS



Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association File #LR38549



MODELS

Order Number	HP	Phase	Volts	RPM	Impeller Diameter (in.)	Maximum Amps	Locked Rotor Amps	KVA Code	Full Load Efficiency %	Resistance		Power Cable Size	Weight (lbs.)
										Start	Line-Line		
WE0311L	0.33	1	115	1750	5.38	10.7	30.0	M	54	11.9	1.7	16/3	56
WE0318L			208			6.8	19.5	K	51	9.1	4.2		
WE0312L			230			4.9	14.1	L	53	14.5	8.0		
WE0311M			115			10.7	30.0	M	54	11.9	1.7		
WE0318M			208			6.8	19.5	K	51	9.1	4.2		
WE0312M			230			4.9	14.1	L	53	14.5	8.0		
WE0511H	0.5	1	115	3450	3.56	14.5	46.0	M	54	7.5	1.0	14/3	60
WE0518H			208			8.1	31.0	K	68	9.7	2.4	16/3	
WE0512H			230			7.3	34.5	M	53	9.6	4.0	14/4	
WE0538H		3	200			4.9	22.6	R	68	NA	3.8	14/4	
WE0532H			230			3.3	18.8	R	70	NA	5.8	14/4	
WE0534H			460			1.7	9.4	R	70	NA	23.2	14/4	
WE0537H		1	575		3.88	1.4	7.5	R	62	NA	35.3	14/3	
WE0511HH			115			14.5	46.0	M	54	7.5	1.0	16/3	
WE0518HH			208			8.1	31.0	K	68	9.7	2.4	14/4	
WE0512HH		3	230			7.3	34.5	M	53	9.6	4.0	14/3	
WE0538HH			200			4.9	22.6	R	68	NA	3.8	14/4	
WE0532HH			230			3.6	18.8	R	70	NA	5.8	14/4	
WE0534HH		1	460			1.8	9.4	R	70	NA	23.2	14/3	
WE0537HH			575			1.5	7.5	R	62	NA	35.3	14/4	
WE0718H	0.75	1	208	3450	4.06	11.0	31.0	K	68	9.7	2.4	14/3	70
WE0712H			230			10.0	27.5	J	65	12.2	2.7	14/4	
WE0738H		3	200			6.2	20.6	L	64	NA	5.7	14/3	
WE0732H			230			5.4	15.7	K	68	NA	8.6	14/4	
WE0734H			460			2.7	7.9	K	68	NA	34.2	14/3	
WE0737H			575			2.2	9.9	L	78	NA	26.5	14/4	
WE1018H	1	1	208	3450	4.44	14.0	59.0	K	68	9.3	1.1	14/3	80
WE1012H			230			12.5	36.2	J	69	10.3	2.1	14/4	
WE1038H		3	200			8.1	37.6	M	77	NA	2.7	14/3	
WE1032H			230			7.0	24.1	L	79	NA	4.1	14/4	
WE1034H			460			3.5	12.1	L	79	NA	16.2	14/3	
WE1037H			575			2.8	9.9	L	78	NA	26.5	14/4	
WE1518H		1	208		4.56	17.5	59.0	K	68	9.3	1.1	14/3	80
WE1512H			230			15.7	50.0	H	68	11.3	1.6	14/4	
WE1538H		3	200			10.6	40.6	K	79	NA	1.9	14/3	
WE1532H			230			9.2	31.7	K	78	NA	2.9	14/4	
WE1534H			460			4.6	15.9	K	78	NA	11.4	14/3	
WE1537H			575			3.7	13.1	K	75	NA	16.9	14/4	
WE1518HH	1.5	1	208	3450	5.50	17.5	59.0	K	68	9.3	1.1	14/3	80
WE1512HH			230			15.7	50.0	H	68	11.3	1.6	14/4	
WE1538HH		3	200			10.6	40.6	K	79	NA	1.9	14/3	
WE1532HH			230			9.2	31.7	K	78	NA	2.9	14/4	
WE1534HH			460			4.6	15.9	K	78	NA	11.4	14/3	
WE1537HH			575			3.7	13.1	K	75	NA	16.9	14/4	
WE2012H	2	3	230	3450	5.38	18.0	49.6	F	78	3.2	1.2	14/3	83
WE2038H			200			12.0	42.4	K	78	NA	1.7	14/4	
WE2032H			230			11.6	42.4	K	78	NA	1.7	14/4	
WE2034H			460			5.8	21.2	K	78	NA	6.6	14/4	
WE2037H			575			4.7	16.3	L	78	NA	10.5	14/4	

SJE PUMPMASTER® PLUS Pump Switch

Mechanically-activated, wide-angle switch designed for direct control of pumps up to 3/4 HP at 120 VAC and 2 HP at 230 VAC.

This mechanically-activated, wide-angle pump switch provides automatic control of pumps in:

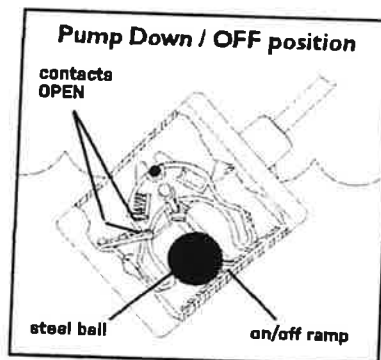
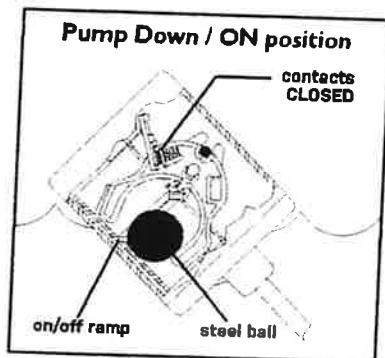
- water
- sewage applications

The SJE PumpMaster® Plus pump switch is not sensitive to rotation or turbulence allowing it to be used in both calm and turbulent applications.



FEATURES

- Heavy-duty contacts.
- Controls pumps up to 3/4 HP at 120 VAC and 2 HP at 230 VAC.
- Adjustable pumping range of 7 to 36 inches (18 to 91 cm).
- Includes standard mounting clamp and boxed packaging.
- UL Recognized for use in water and sewage.
- CSA Certified.
- Five-year limited warranty.



OPTIONS

This switch is available:

- for pump down or pump up applications as specified by part number.
- with a 120 VAC or 230 VAC piggy-back plug.
- without a plug for direct wiring in 120 VAC or 230 VAC applications.
- in standard cable lengths of 10, 15, 20, or 30 feet and 3, 5, 6, or 10 meters (longer lengths available).

**SEE REVERSE SIDE FOR ORDERING INFORMATION.
SEE PRICE BOOK FOR LIST PRICE.**

SPECIFICATIONS

CABLE: flexible 14 gauge, 2 conductor
(UL, CSA) SJOW, water-resistant (CPE)

FLOAT: 3.05 inch diameter x 3.56 inch long
(7.75 x 9.04 cm) high impact, corrosion
resistant, PVC housing for use in sewage
and water up to 140°F (60°C)

ELECTRICAL:

120 VAC 50/60Hz Single Phase:

Maximum Pump Running Current:
15 amps

Maximum Pump Starting Current:
85 amps

Recommended Pump HP:
3/4 HP or less

230 VAC 50/60Hz Single Phase:

Maximum Pump Running Current:
15 amps

Maximum Pump Starting Current:
85 amps

Recommended Pump HP:
2 HP or less

NOTE: This switch must be used with pumps
that provide integral thermal overload
protection.



SJE RHOMBUS

PO Box 1708, Detroit Lakes, MN 56502

1-888-DIAL-SJE • 1-218-847-1317

1-218-847-4617 Fax

email: customer.service@sjeinc.com

www.sjerrhombus.com

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SJE PUMPMASTER® PLUS Pump Switch

Mechanically-activated, wide-angle switch designed for direct control of pumps up to 3/4 HP at 120 VAC and 2 HP at 230 VAC.

ORDERING INFORMATION

PUMP DOWN ↓		PUMP UP ↑		Shipping Weight
Part#	Description	Part#	Description	
1003232	10PMPD1WP	1003237	10PMPU1WP	1.88 lbs.
1003233	10PMPD2WP	1003239	10PMPU2WP	1.92 lbs.
1003235	10PMPDWOP	1003241	10PMPUWOP	1.73 lbs.
1003243	15PMPD1WP	1003249	15PMPU1WP	2.23 lbs.
1003245	15PMPD2WP	1003251	15PMPU2WP	2.23 lbs.
1003247	15PMPDWOP	1003253	15PMPUWOP	2.13 lbs.
1036797	15PMPD1WP-QF	--	--	2.50 lbs.
1003255	20PMPD1WP	1003261	20PMPU1WP	2.57 lbs.
1003257	20PMPD2WP	1003263	20PMPU2WP	2.61 lbs.
1003259	20PMPDWOP	1003265	20PMPUWOP	2.49 lbs.
1003267	30PMPD1WP	1003273	30PMPU1WP	3.38 lbs.
1003269	30PMPD2WP	1003275	30PMPU2WP	3.41 lbs.
1003271	30PMPDWOP	1003277	30PMPUWOP	3.30 lbs.

D = Pump Down U = Pump Up 1 = 120VAC 2 = 230VAC

WP = With Plug WOP = With Out Plug QF = Quick Fit (CSA Certified Only)

NOTE: Descriptions are grouped by cable length measured in feet (10, 15, 20, 30).

SEE PRICE BOOK FOR LIST PRICE.

OPTIONS

MOUNTING CLAMP
is standard - deduct optional

CABLE WEIGHT MOUNTING
Is also available.

PACKAGING
Boxed - standard
Bagged - optional
Bulk - optional

ADDITIONAL CABLE
Longer cable lengths available. Please call for details.

UL Recognized for Water & Sewage



LR54245



SPECIFICATIONS

PUMPING RANGE: 7 to 36 inches (18 cm to 91 cm)

CABLE: flexible 14 gauge, 2 conductor (UL, CSA) SJOW, water-resistant (CPE)

FLOAT: 3.05 inch diameter x 3.56 inch long (7.75 cm x 9.04 cm), high impact, corrosion resistant, PVC housing for use in sewage and water up to 140°F (60°C)

ELECTRICAL:

Voltage 50Hz/60Hz Single Phase	Max. Pump Run Current	Max. Pump Start Current	Recommended Pump HP
120 VAC	15 amps	85 amps	3/4 HP or less
230 VAC	15 amps	85 amps	2 HP or less

NOTE: This switch must be used with pumps that provide integral thermal overload protection.

OTHER INFORMATION

PUMP DOWN is normally open contacts for emptying in water or sewage applications.

PUMP UP is normally closed contacts for filling in water or sewage applications.

DIRECT WIRING

Units used for direct wiring (without plug) may be used in either 120 VAC or 230 VAC applications within specified amp ratings.



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Product offering and pricing are subject to change without notice.
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TANK ALERT® XT Alarm System

Versatile, indoor or outdoor liquid level alarm system.

This alarm system monitors liquid levels in lift pump chambers, sump pump basins, holding tanks, sewage, agricultural, and other water applications.

The **Tank Alert® XT** indoor/outdoor alarm can serve as a high or low level alarm depending on the float switch model used.

The alarm horn sounds and the red beacon illuminates when a potentially threatening liquid level condition occurs. The horn can be silenced, but the alarm light remains on until the condition is remedied. Once the condition is cleared, the alarm will automatically reset.

A "power on" light on the switch indicates power to the alarm panel.



FEATURES

- Enclosure meets Type 3R water-tight standard.
- Automatic alarm reset, horn silence switch, and alarm test switch.
- Alarm horn sounds at 85 decibels at 10 feet (3 meters).
- Alarm system (when installed on separate circuit) operates even if pump circuit fails.
- Complete package includes standard SJE SignalMaster® control switch with 15 feet (4.57 meters) of cable (other lengths available) and mounting clamp.
- UL Listed for indoor or outdoor use.
- CSA Certified.
- Five-year limited warranty.



OPTIONS

When ordered with the alarm, the system is available with:

- alternate float switch models for high or low liquid level warning.
- auxiliary dry normally open contacts for easy attachment of remote devices.
- premounted terminal block so enclosure can also be used as a junction box for splicing pump, pump switch, and pump power. Meets NEC standard for junction boxes.
- 6 foot (1.8 meter) power cord and liquid-tight connectors.

SPECIFICATIONS

VOLTAGE: 120 VAC, 50/60 Hz

ALARM ENCLOSURE: 6.5 x 4.5 x 3.0 inch (16.51 x 11.43 x 7.62 cm), indoor-outdoor, weatherproof, thermoplastic meets Type 3R water-tight standard

ALARM HORN: 85 decibels at 10 feet (3 meters), meets Type 3R water-tight standard as installed by factory

ALARM BEACON: UL Listed, Type 4x beacon assembly

TEST/SILENCE SWITCH: certified to IP66 and IP68 standards

AUXILIARY ALARM CONTACTS (OPTIONAL): 120 VAC, 5 amps max., 50/60 Hz

PRE-MOUNTED TERMINAL BLOCK (OPTIONAL): 20 amps, 120/230 VAC

POWER CORD (OPTIONAL): 6 foot (1.8 meter) cord with 120 VAC plug

FLOAT SWITCH: SJE SignalMaster® control switch with mounting clamp

Cable: 15 feet (4.57 meters), flexible 18 gauge, 2 conductor (UL) SJOW, water-resistant (CPE)

Float: 2.74 inch diameter x 4.83 inch long (7 cm x 12.3 cm), high impact, corrosion resistant polypropylene housing for use in sewage and non-potable water up to 140°F (60°C)



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D.13

SEE REVERSE SIDE FOR ORDERING INFORMATION.
SEE PRICE BOOK FOR LIST PRICE.

TANK ALERT® XT Alarm System

Versatile indoor or outdoor liquid level alarm system.

ORDERING INFORMATION

STANDARD ALARM (120 VAC)

Part#	Description	Shipping Weight
1009923	TAXT-01H (120 VAC w/15' SJE SignalMaster® High Level)	3.00 lbs.
1010251	TAXT- 01L (120 VAC w/15' SJE SignalMaster® Low Level)	3.00 lbs.
1004442	TAXT-01H (120 VAC w/15' SJE Sensor Float® High Level)	3.00 lbs.
1005140	TAXT-01L (120 VAC w/15' SJE Sensor Float® Low Level)	3.00 lbs.
1005141	TAXT-01X (120 VAC no float)	1.50 lbs.

STANDARD ALARM (120 VAC) with Terminal Block

Part#	Description	Shipping Weight
1012416	TAXT-01HAUXTB (120 VAC w/15' SJE SignalMaster® High Level Auxiliary Contacts TB)	3.50 lbs.
1022241	TAXT-01HTB (120 VAC w/15' SJE SignalMaster® High Level TB)	2.00 lbs.
1005481	TAXT-01HTB (120 VAC w/15' Sensor Float® High Level TB)	3.50 lbs.
1005835	TAXT-01LTB (120 VAC w/15' Sensor Float® Low Level TB)	3.50 lbs.
1005836	TAXT-01XTB (120 VAC no float TB)	2.00 lbs.
1009214	TAXT-01HAUXTB (120 VAC w/15' Sensor Float® High Level Auxiliary Contacts TB)	3.50 lbs.

STANDARD ALARM (120 VAC) with Options

Part#	Description	Shipping Weight
1006850	TAXT-01HAUX (120 VAC w/15' Sensor Float® High Level & Aux Con)	3.50 lbs.
1006690	TAXT-01HPC (120 VAC w/15' Sensor Float® High Level Power Cord)	3.50 lbs.

H = High Level L = Low Level X = No Float TB = Includes Terminal Block PC = Power Cord
 AUX = Auxiliary Contacts **MASTER CARTON holds 12 boxed units.**
SEE PRICE BOOK FOR LIST PRICE.

SPECIFICATIONS

VOLTAGE: 120 VAC, 50/60 Hz

ALARM ENCLOSURE: 6.5 x 4.5 x 3 inches (16.51 x 11.43 x 7.62 cm), indoor-outdoor, weatherproof, thermoplastic, meets Type 3R water-tight standard

ALARM HORN: 85 decibels at 10 feet (3 meters), meets Type 3R water-tight standard as installed by factory

ALARM BEACON: UL Listed, Type 4X beacon assembly

TEST/SILENCE SWITCH: certified to IP66 and IP68 standards

AUXILIARY ALARM CONTACTS (OPTIONAL): 120 VAC, 5 amps max., 50/60 HZ

PRE-MOUNTED TERMINAL BLOCK (OPTIONAL): 20 amps, 120/230 VAC

POWER CORD: (optional) 6 foot (1.8 meters) cord with 120 VAC plug

FLOAT SWITCH: SJE SignalMaster® control switch with mounting clamp

CABLE: 15 feet (4.57 meters), flexible 18 gauge, 2 conductor (UL) SJOW, water-resistant (CPE)

FLOAT: 2.74 inch diameter x 4.83 inch long (7 cm x 12.3 cm), high impact, corrosion resistant polypropylene housing for use in sewage and non-potable water up to 140°F (60°C)

MAXIMUM WATER DEPTH: 30 feet (9 meters), 13 psi

ELECTRICAL: 5 amps, 125 VAC/250 VAC, 50/60 Hz

Call or fax your order!

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Product offering and pricing are subject to change without notice.
 Please visit www.sjerhombus.com for the most current information.

OPTIONS

CONTROL SWITCH OPTIONS

The Tank Alert® XT alarm system comes standard with a 15 foot SJE SignalMaster® control switch with mounting clamp. Other float switches are available. See control switch section of the catalog.

To determine the price of alarm with an alternate float, add the price of the part number with "no float" to the price of the float switch.

UL Listed for Water & Sewage SIGNALING



OTHER INFORMATION

Option	Description
AUX	Auxiliary Alarm Contacts (factory installed)
PC	6 foot power cord with two RCCB 1/2 inch liquid-tight connectors



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