



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
& ENVIRONMENTAL CONTROL
DIVISION OF WATER RESOURCES
20653 DUPONT BLVD
UNIT 5
GEORGETOWN, DE 19947

April 6, 2015

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

RE: Approval of the SLLC-Fralo Pre-Engineered Lift Station

Dear MS. Yanaitis,

The Division of Water Resources has received and reviewed your request to approve your SLLC-Fralo pre-engineered lift station; to be used in conjunction with Class B designed 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.

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.

Also, in the case of this product in particular, as the tank is made of non-masonry materials, strict adherence to the anti-buoyance procedures, as explained on page 14 of the "Roth MultiTank Certified Installer's Handbook 2011", must be followed.

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

Sincerely,

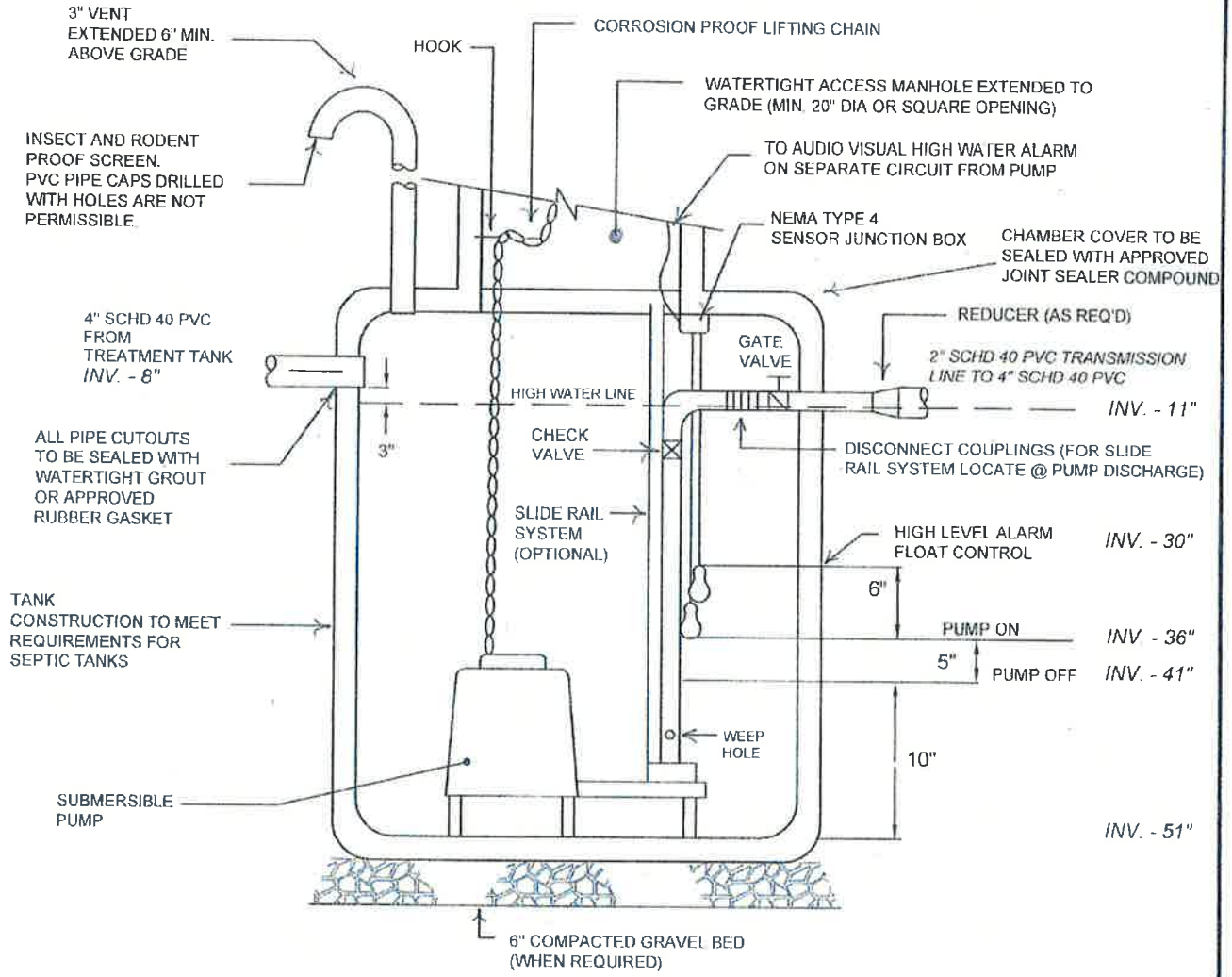
A handwritten signature in blue ink, appearing to read "James Cassidy".

James Cassidy
Program Manager
Ground Water Discharges Section

Cc: file

Delaware's good nature depends on you!

GRADE 0" (WITHOUT ADDITIONAL RISERS)



NOTES:

1. EXCAVATION LIMITS SHALL EXTEND AT LEAST 2 FEET BEYOND TANK PERIMETER
2. ALL PIPE TO BE SCHEDULE 40 PVC.
3. CHAMBER TO BE SIZED ACCORDING TO REQUIREMENTS OF DOSING VOLUME AND STORAGE SEE EXHIBIT I.
4. ALL DOSING CHAMBER COMPONENTS SHALL BE FIELD TESTED TO INSURE ACCURACY, WATER TIGHTNESS AND PROPER OPERATION OF ALL PUMPS AND ALARM CONTROLS
5. ALL ELECTRICAL CONNECTIONS SHALL BE WATERPROOF, CORROSION RESISTANT AND EXPLOSION PROOF.

TYPICAL DIMENSIONS (ID)	
LENGTH:	60"
WIDTH:	62"
HEIGHT:	51"
HEIGHT TO INLET:	43"

USING GATE VALVE, ADJUST FLOW FOR APPROX. 20 GPM (1 GAL / 3 SEC)



**FRALO RMT-500
LIFT PUMP TANK
(N.T.S.)**

SSLLC-FRALO

ROTH MultiTank® PRODUCT DETAILS

MODEL (MultiTank)	DESIGN CAPACITY US Gallons (Liters)	TOTAL CAPACITY US Gallons (Liters)	ACTUAL CAPACITY US Gallons (Liters) 40"/42" Liquid level	HEIGHT Inches (mm)	WIDTH Inches (mm)	LENGTH Inches (mm)	WEIGHT Pounds (kilogram)
RMT-300 (single layer)	300 (1136)	325 (1230)	273 (1033)/284 (1075)	54 (1372)	45 (1143)	50 (1270)	120 (54.43)
RMT-500	500 (1893)	535 (2025)	452 (1710)/474 (1794)	51 (1295)	62 (1575)	60 (1524)	225 (102.06)
RMT-750	750 (2840)	1000 (3785)	853 (3229)/898 (3399)	51 (1295)	62 (1575)	103 (2616)	360 (163.29)
RMT-900	900 (3407)	1161 (4394)	990 (3747)/1028 (3891)	51 (1295)	62 (1575)	118 (2997)	450 (204.12)
RMT-1000E	1000 (3785)	1161 (4394)	990 (3747)/1028 (3891)	51 (1295)	62 (1575)	118 (2997)	450 (204.12)
RMT-1060	1060 (4012)	1337 (5061)	1177 (4455)/1227 (4645)	51 (1295)	62 (1575)	133 (3378)	520 (235.87)
RMT-1250	1250 (4730)	1469 (5560)	1259 (4766)/1319 (4992)	51 (1295)	62 (1575)	148 (3759)	560 (254.01)
RMT-1500	1500 (5678)	1771 (6703)	1540 (5830)/1601 (6060)	51 (1295)	62 (1575)	177 (4496)	640 (290.30)

Call 1.866-943-7256 or visit www.roth-america.com for additional information and product lines.



Roth, a family-owned business established in Germany 60 years ago, now operates in 29 countries worldwide with \$250 million in sales and 1,100 employees. The North American division operates two manufacturing plants in upstate New York. Roth specializes in environmentally-friendly products that produce, distribute and store energy for the finest homes.



ENERGY PRODUCTION:
Solar and Heat Pump Systems

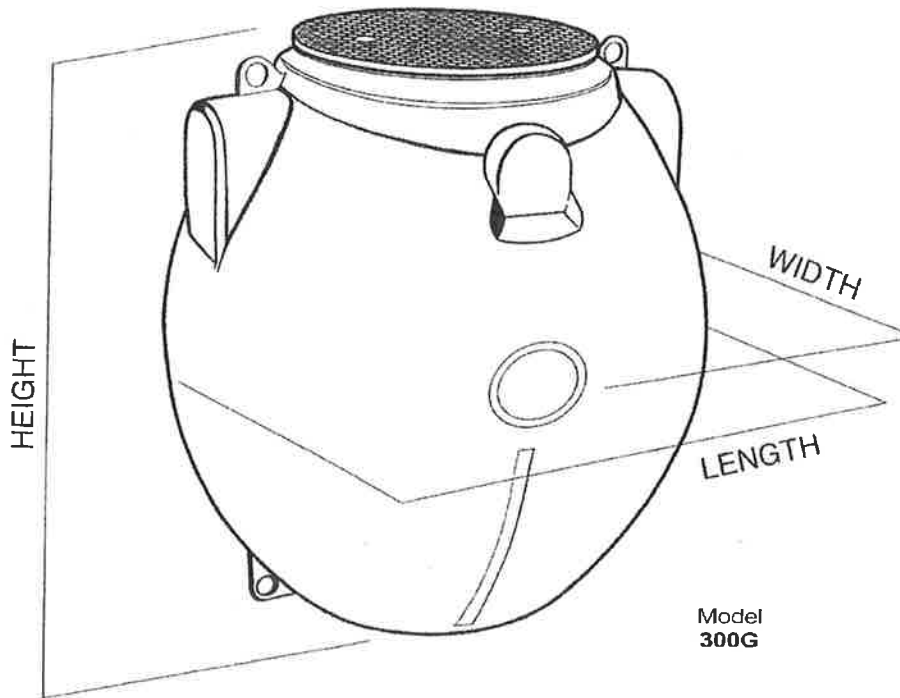
ENERGY STORAGE:
Septic, Cistern, Rainwater Collection and Oil Storage Tanks

ENERGY DISTRIBUTION:
Radiant Floor Heating and Pex-c Plumbing Systems

Roth Global Plastics Corporate Office
P.O. Box 245, Syracuse, NY 13211 Toll Free US: 866.943.7256
P: 315.475.0100 F: 315.475.0200 sales@roth-usa.com www.roth-america.com

Distributed by:

SEPTTECH™ TANK SPECIFICATIONS



LIQUID LEVEL	
HEIGHT INCHES (mm)	TANK VOLUME GALLONS (liters)
2 (51)	6 (23)
3 (76)	9 (34)
4 (102)	12 (45)
5 (127)	18 (68)
6 (152)	23 (87)
7 (178)	28 (106)
8 (203)	33 (125)
9 (229)	39 (148)
10 (254)	44 (167)
11 (279)	51 (193)
12 (305)	58 (220)
13 (330)	65 (246)
14 (356)	72 (273)
15 (381)	79 (299)
16 (406)	86 (326)
17 (432)	94 (356)
18 (457)	102 (386)
19 (483)	110 (416)
20 (508)	118 (447)
21 (533)	126 (477)
22 (559)	134 (507)
23 (584)	142 (538)
24 (610)	151 (572)
25 (635)	159 (602)
26 (660)	167 (632)
27 (686)	175 (662)
28 (711)	183 (693)
29 (737)	191 (723)
30 (762)	200 (757)
31 (787)	208 (787)
32 (813)	216 (818)
33 (838)	224 (848)
34 (864)	232 (878)
35 (889)	239 (905)
36 (914)	246 (931)
37 (940)	253 (958)
38 (965)	259 (980)
39 (991)	266 (1007)
40 (1016)	273 (1033)
41 (1041)	278 (1052)
42 (1067)	284 (1075)
43 (1092)	289 (1094)
44 (1118)	294 (1113)
45 (1143)	299 (1132)
46 (1168)	304 (1151)
47 (1194)	308 (1166)
48 (1219)	313 (1185)
49 (1245)	316 (1196)
50 (1270)	319 (1208)
51 (1295)	321 (1215)
52 (1321)	324 (1226)
53 (1346)	325 (1230)

300G SPECIFICATIONS

MODEL	DESIGN CAPACITY US Gallons (Liters)	TOTAL CAPACITY US Gallons (Liters)	HEIGHT	WIDTH	LENGTH	WEIGHT Pounds
300G	300 (1136)	300 (1136)	54"	45"	50"	120

OTHER SEPTTECH™ TANKS AVAILABLE

MODEL	RATED CAPACITY US Gallons (Liters)	TOTAL CAPACITY US Gallons (Liters)	HEIGHT	WIDTH	LENGTH	WEIGHT Pounds
ST-500	400 (1515)	500 (1893)	51"	62"	60"	225
ST-750	750 (2840)	1007 (3812)	51"	62"	103"	360
ST-900	900 (3405)	1147 (4340)	51"	62"	118"	450
ST-1000E	1000 (3405)	1147 (4340)	51"	62"	118"	450
ST-1060	1060 (4012)	1311 (4962)	51"	62"	133"	520
ST-1250	1250 (4730)	1464 (5541)	51"	62"	148"	560
ST-1500	1500 (5678)	1768 (6692)	51"	62"	177"	640



- Access at or above grade level must be secured against unauthorized access
- Not rated for vehicular traffic loading

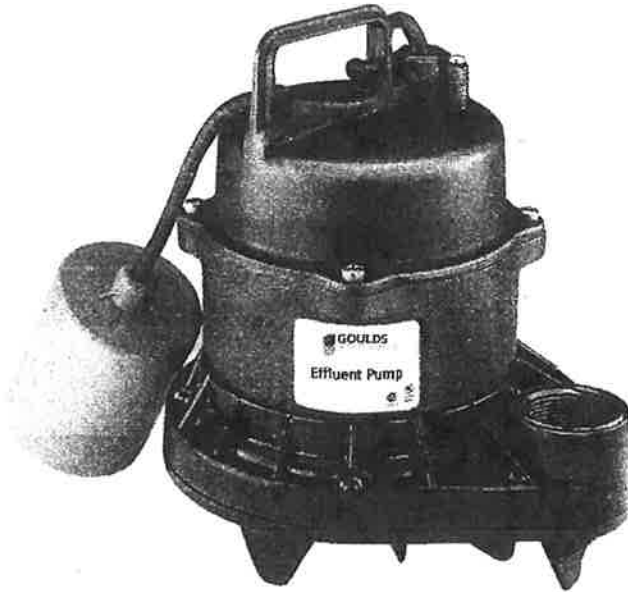
WARRANTY FRALO Plastech Mfg. warrants the FRALO SEPTTECH™ tank for a period of fifty years from date of purchase against any manufacturing defects, providing the tank has been used and installed in accordance with manufacturer's written instructions. FRALO will, at its option, repair or replace any tank it deems to be defective and FRALO's obligations under this warranty are strictly limited to the repair and/or replacement of the defective tank. FRALO assumes no liability in cases of improper installation or misuse. FRALO is not responsible for any resulting contingent liabilities or charges. This warranty applies only to the original tank installation.



FRALO Plastech Manufacturing, LLC
 FRALO Plastech Manufacturing, LLC is a leading manufacturer of plastic products for over 50 years. We welcome your comments and look forward to meeting your future engineered plastic product needs.

TECHNICAL BROCHURE

B3871 R1



EP04 & EP05 Series

Model 3871

SUBMERSIBLE EFFLUENT PUMPS

 **GOULDS**
WATER TECHNOLOGY
a xylem brand

Wastewater

FEATURES

EP04 Impeller: Thermoplastic semi-open design with pump out vanes for mechanical seal protection.

EP05 Impeller: Thermoplastic enclosed design for improved performance.

Casing and Base: Rugged thermoplastic design provides superior strength and corrosion resistance.

Motor Housing: Cast iron for efficient heat transfer, strength, and durability.

Motor Cover: Thermoplastic cover with integral handle and float switch attachment points.

Power Cable: Severe duty rated oil and water resistant.

Bearings: Upper and lower heavy duty ball bearing construction.

AGENCY LISTINGS



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

APPLICATIONS

Specifically designed for the following uses:

- Effluent systems
- Homes
- Farms
- Heavy duty sump
- Water transfer
- Dewatering

SPECIFICATIONS

- Solids handling capability: ¾" maximum.
- Capacities: up to 60 GPM.
- Total heads: up to 31 feet.
- Discharge size: 1½" NPT.
- Mechanical seal: carbon-rotary/ceramic-stationary, BUNA-N elastomers.
- Temperature:
 - 104° F (40° C) continuous
 - 140° F (60° C) intermittent.
- Class B Insulation
- Fasteners: 300 series stainless steel.
- Capable of running dry without damage to components.

Motor:

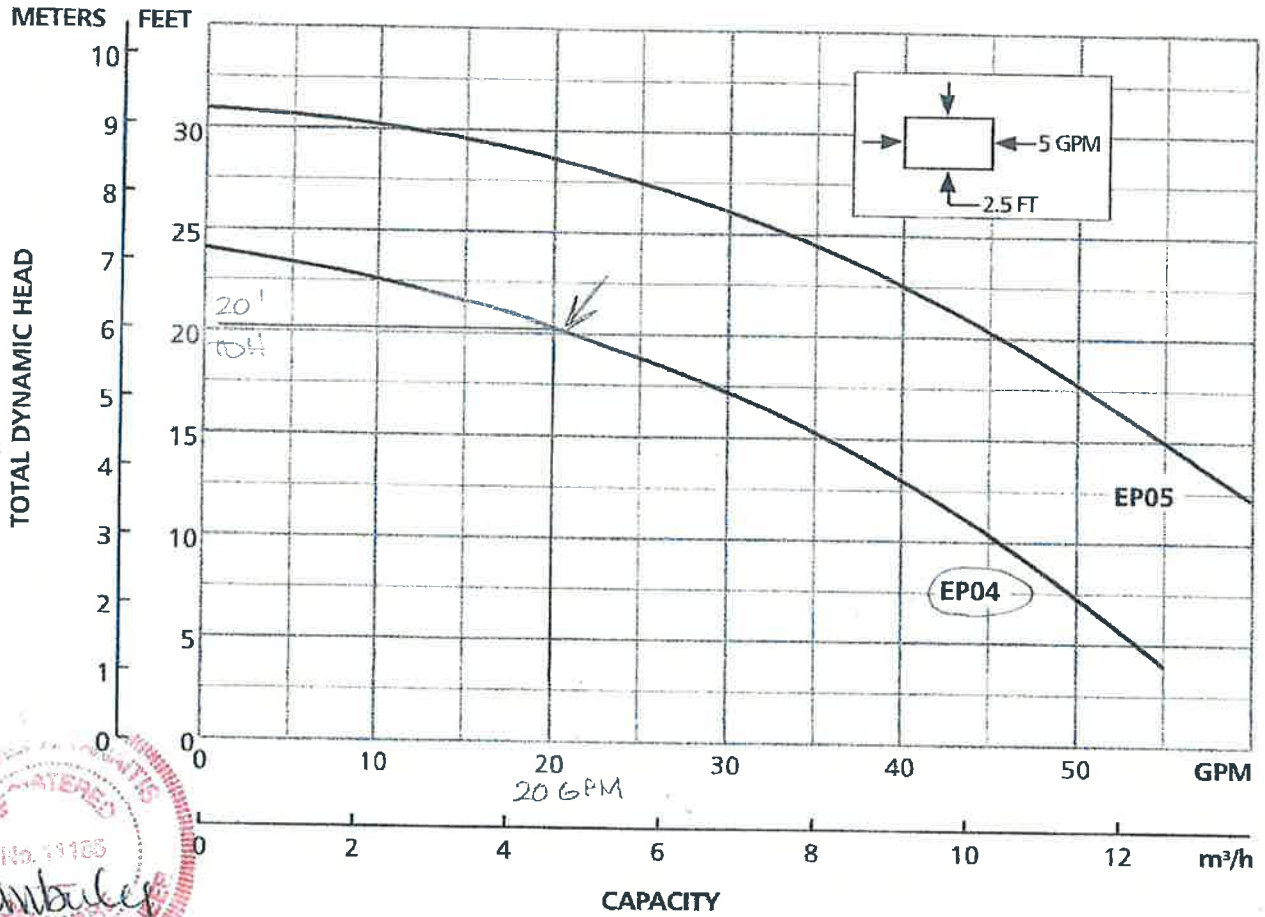
- EP04 Single phase: 0.4 HP, 115 or 230 V, 60 Hz, 1550 RPM, built in overload with automatic reset.
- EP05 Single phase: 0.5 HP, 115 V or 230V, 60 Hz, 1550 RPM, built in overload with automatic reset.
- Power cord: 10 foot standard length, 16/3 SJTW with three prong grounding plug. Optional 20 foot length, 16/3 SJTW with three prong grounding plug (standard on EP05).
- Fully submerged in high grade turbine oil for lubrication and efficient heat transfer.

Available for automatic and manual operation. Automatic models include Mechanical Float Switch assembled and preset at the factory.

PERFORMANCE RATINGS

Total Head (ft. of water)	Gallons Per Minute	
	EP04	EP05
5	53	-
10	46	62
15	36	55
20	21	46
25	0	33
30	-	11

Wastewater

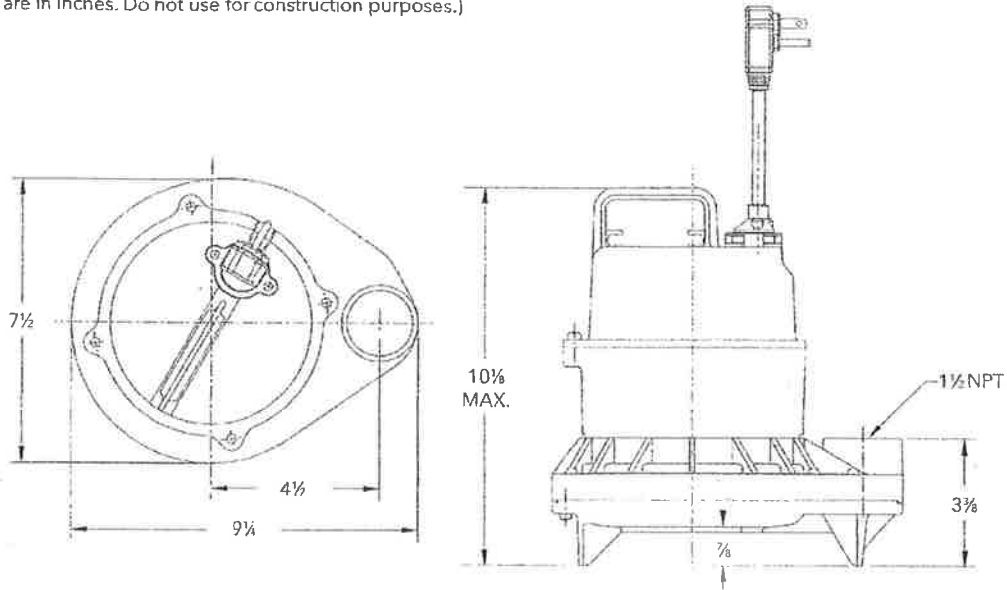


MODEL INFORMATION

Order No.	HP	Volts	Amps	Minimum Circuit Breaker	Phase	Float Switch Style	Cord Length	Discharge Connection	Minimum On Level	Minimum Off Level	Minimum Basin Diameter	Maximum Solids Size	Shipping Weight lbs/kg	
EP0411	.4	115	12	20	1	Plug / No Switch	10'	1½"	Manual	Manual	15"	¾"	20 / 9.1	
EP0411A						Piggyback / Wide-Angle	10'	1½"	12"	6"	15"		21 / 9.5	
EP0411F						Plug / No Switch	20'	1½"	Manual	Manual	15"		20 / 9.1	
EP0411AC						Piggyback / Wide-Angle	20'	1½"	12"	6"	15"		21 / 9.5	
EP0412	.5	230	6.5	10		Plug / No Switch	10'	1½"	Manual	Manual	15"		¾"	20 / 9.1
EP0412F						Plug / No Switch	20'	1½"	Manual	Manual	15"			20 / 9.1
EP0511F						Plug / No Switch	20'	1½"	Manual	Manual	15"			22 / 10
EP0511AC						Piggyback / Wide-Angle	20'	1½"	12"	6"	15"			23 / 10.4
EP0512F	.5	230	6.5	10	Plug / No Switch	20'	1½"	Manual	Manual	15"	¾"	22 / 10		
EP0512F					Plug / No Switch	20'	1½"	Manual	Manual	15"		22 / 10		

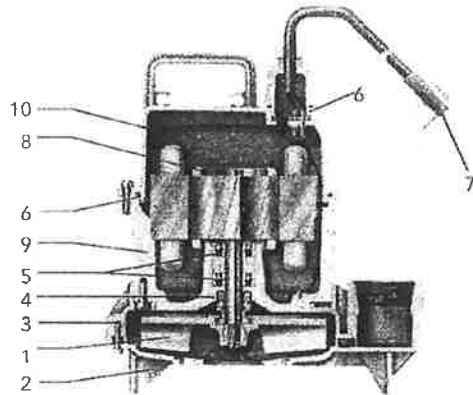
DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)



COMPONENTS

Item No.	Description
1	Impeller
2	Base
3	Pump casing
4	Mechanical seal
5	Ball bearings
6	O-rings
7	Power cord
8	Oil filled motor
9	Motor housing/stator assembly
10	Motor cover



xylem
Let's Solve Water

Xylem, Inc.
2881 East Bayard Street Ext., Suite A
Seneca Falls, NY 13148
Phone: (866) 325-4210
Fax: (888) 322-5877
www.gouldswatertechnology.com

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TANK ALERT® AB Alarm System

Easy-to-install liquid level alarm system with auto-reset and battery backup features for indoor use.

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

The Tank Alert® AB alarm system can serve as a high or low level alarm depending on the float switch model used.

The alarm horn sounds 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 green "Power On" light indicates 120 VAC primary power to the alarm. Low battery chirp feature indicates when battery should be replaced.



ALARM SYSTEMS

FEATURES

- NEMA 1 enclosure, designed for ease of installation, rated for indoor use.
- Automatic alarm reset.
- Red "alarm" light and green "power on" light, alarm "test" switch, and horn "silence" switch.
- Alarm horn sounds at 87 decibels at 10 feet (3 meters).
- Can be used with any UL Listed / Recognized switching mechanism rated to include 1 amp, 9 VDC load.
- If primary power fails, the alarm system continues to work due to battery backup feature. (Battery not included.)
- Complete package includes standard SJE SignalMaster® control switch with 15 feet (4.57 meters) of cable (other lengths available) and mounting clamp.
- Switching mechanism operates on low voltage and is isolated from the power line to reduce the possibility of shock.
- Low battery chirp.
- Easy access battery compartment.
- External terminal block for easy float switch installation.
- CSA Certified.
- UL Listed.
- Three-year limited warranty.



OPTIONS

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

- alternate float switch models for high or low level warning.
- auxiliary dry normally open and normally closed contacts. (Tank Alert® AB with auxiliary contacts included is CSA certified only.)
- splice kit.

SPECIFICATIONS

VOLTAGE FOR 120 VAC MODEL:

Primary: 120 VAC, 60 Hz, 2.4 watts max. (alarm condition)

Secondary: 9 VDC

BATTERY BACKUP POWER: 9 VDC

ALARM ENCLOSURE: 6 x 4 x 2.25 inch (15.24 x 10.16 x 5.71 cm), NEMA 1 plastic.

ALARM HORN: 87 decibels at 10 feet (3 meters)

POWER CORD: 6 foot (1.8 meter)

FLOAT SWITCH CONNECTION TERMINAL:

For float switch connection only. Do not apply power. (Voltage across terminals is 8-9 VDC).

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 (7.0 cm x 12.3 cm), high impact, corrosion resistant polypropylene housing for use in sewage and water up to 140°F (60°C)

AUXILIARY ALARM CONTACTS (OPTIONAL):

(CSA certified only unit)

Voltage: 120 VAC

Current: 5 amps maximum N/O
3 amps maximum N/C

SJE Rhombus

PO Box 1708, Detroit Lakes, MN 56502

1-888-DIAL-SJE • 1-218-847-1317

1-218-847-4617 Fax

email: sje@sjerhombus.com

www.sjerhombus.com

SEE BACKSIDE FOR ORDERING INFORMATION.

TANK ALERT® AB Alarm System

Easy-to-install liquid level alarm system with auto-reset and battery backup features for indoor use.

ORDERING INFORMATION

ALARM SYSTEMS

120 VAC		Description	List Price	Shipping Weight
Part #				
1011421		TAAB-01H (120 VAC w/15' SJE SignalMaster® High Level)	\$103.28	2.73 lbs.
1011424		TAAB-01L (120 VAC w/15' SJE SignalMaster® Low Level)	\$103.28	2.73 lbs.
1011422		TAAB-01H (120 VAC w/15' Sensor Float® High Level)	\$106.73	2.81 lbs.
1011423		TAAB-01X (120 VAC no float)	\$76.04	1.44 lbs.

H = High Level L = Low Level X = No Float

MASTER CARTON holds 16 boxed units.

OPTIONS

CONTROL SWITCH OPTIONS

The Tank Alert® AB alarm system comes standard with a 15ft 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.



SPECIFICATIONS

VOLTAGE FOR 120 VAC MODEL:

Primary: 120 VAC, 50/60 Hz, 2.4 watts max. (alarm condition)
Secondary: 9 VDC

BATTERY BACKUP POWER: 9 VDC

ALARM ENCLOSURE: 6 x 4 x 2.25 inches (15.24 x 10.16 x 5.71 cm), NEMA 1 plastic

ALARM HORN: 87 decibels at 10 feet (3 meters)

AUXILIARY ALARM CONTACTS (OPTIONAL): 120 VAC, 5 amps max N/O, 3 amp max N/C (CSA certified only unit)

POWER CORD: 6 foot (1.8 meter)

FLOAT SWITCH CONNECTION TERMINAL: for float switch connection only (voltage across terminals is 8-9 VDC)

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 (7.0 cm x 12.3 cm), high impact, corrosion resistant polypropylene housing for use in sewage and water up to 140°F (60°C)

OTHER INFORMATION

Option	Description	Price
AUX	Auxiliary Alarm Contacts (CSA certified only unit, factory installed)	\$17.25

Call or fax your order!

1-888-DIAL-SJE (1-888-342-5753) ■ Fax 218-847-4617

SJE
Rhombus

www.sjerrhombus.com
sje@sjerrhombus.com

Cat Page PN 1012194M
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SJE SIGNALMASTER® Control Switch

Mechanically-activated, narrow-angle float switch designed to activate pump control panels and alarms.

This narrow-angle sensing device is used to accurately monitor liquid levels in:

- potable water
- water
- sewage applications

The SJE SignalMaster® control switch is not sensitive to rotation.

Normally Open Model (high level).

The control switch turns on (closes) when the switch tips slightly **above** horizontal signaling a high level, and turns off (opens) when the switch drops slightly below horizontal.

Normally Closed Model (low level)

The control switch turns on (closes) when the switch tips slightly **below** horizontal signaling a low level, and turns off (opens) when the switch tips slightly above horizontal.



FEATURES

- Passed NSF Standard 61 protocol by an approved Water Quality Association laboratory.
- Mechanically-activated, snap action contacts.
- High impact, corrosion resistant, polypropylene float housing.
- Not sensitive to rotation.
- Control differential of 1.5 inches (4 cm) above or below horizontal.
- Yellow colored cap for easy identification of normally open control switch.
- White colored cap for easy identification of normally closed control switch.
- UL Listed for use in water and sewage.
- CSA Certified.
- Three-year limited warranty.



OPTIONS

This switch is available:

- CE certified unit available upon request.
- for normally open (high level) applications or normally closed (low level) applications.
- in standard cable lengths of 10, 15, 20, or 30 feet and 3, 5, 6, or 10 meters (longer lengths available)
- with two mounting options that allow for flexibility in installation:

Mounting Clamp: for applications where the switch can be attached to a discharge pipe or similar mounting device.

Externally Weighted: for applications where the switch can be suspended from above.

SPECIFICATIONS

CABLE: flexible 18 gauge, 2 conductor (UL, CSA) SJOW, water-resistant (CPE)

FLOAT: 2.74 inch diameter x 4.83 inch long (7.0 x 12.3 cm) high impact, corrosion resistant, polypropylene housing for use in sewage and water up to 140°F (60°C)

MAXIMUM WATER DEPTH: 30 feet (9 meters), 13 PSI (90 kPa)

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

NOTE: This switch is not recommended for controlling:

- electric loads less than 100 milliamps, 12 VAC
- non-arcing electric loads

SEE BACKSIDE FOR ORDERING INFORMATION.

SJE
Rhombus

PO Box 1708, Detroit Lakes, MN 56502
1-888-DIAL-SJE • 1-218-847-1317
1-218-847-4617 Fax
email: sje@sjerhombus.com

www.sjerhombus.com

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4. INSTALLATION TRAINING MATERIAL

It is highly recommended that all tanks be filled with water immediately after installation or immediately after pumping for existing tanks.

Roth tanks can be “anchored” by pouring a concrete apron around the midpoint of the tank using the excavation as a form. This detail is shown below.

Detail Provided by AFP All Consulting Engineers - www.aepengineers.com

10/26/2010 - 10:07:05 AM

RESTRAINING COLLAR FOR HIGH GROUNDWATER **TOP**

GENERAL NOTE:
1. THE BUOYANCY RESTRAINING COLLAR DESIGN IS BASED ON BUOYANCE CALCULATIONS AVAILABLE ON REQUEST FROM ROTH

CONCRETE NOTES:
1. PROVIDE CONCRETE TO OBTAIN THE MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
2. CONCRETE MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH ACI-318-99 (BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE) AND ACI-301-LATEST EDITION (SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS).

REINFORCING STEEL:
1. ALL REINFORCING STEEL SHALL BE BILLET STEEL CONFORMING TO STANDARDS OF ASTM A615, GRADE 60.

CONCRETE COLLAR SPECS

TANK MODEL	ST-500	ST-750	ST-1060	ST-1250	ST-1500
WIDTH (FEET)	7'-0"	7'-6"	7'-6"	7'-6"	7'-6"
LENGTH (FEET)	7'-3"	10'-6"	12'-0"	14'-0"	16'-6"
FACTOR-OF-SAFETY AGAINST FLOATING	2.96	2.15	2.09	2.10	2.02

CONCRETE COLLAR AROUND TANK

CONCRETE COLLAR SPECS

TANK MODEL	ST-500	ST-750	ST-1060	ST-1250	ST-1500
WIDTH (FEET)	7'-0"	7'-6"	7'-6"	7'-6"	7'-6"
LENGTH (FEET)	7'-3"	10'-6"	12'-0"	14'-0"	16'-6"
FACTOR-OF-SAFETY AGAINST FLOATING	2.96	2.15	2.09	2.10	2.02

CONCRETE COLLAR AROUND TANK

SIDE

Roth MultiTank Buoyancy Restraining System

DRWG SCALE: 1/4" = 1'-0"
PLG SCALE: 1/4" = 1'-0"
SHEET: 1