# FOR BAILIFF DOUBLE WALL TANKS

Every double wall tank is fitted with the fittings, options and accessories your application needs. These are the ones our customers ask for most.

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BAILIFF ENTERPRISES INC.

# THERMOPLASTIC WELDED COUPLINGS

*HDPE · Polypropylene · PVDF · FNPT*



Welded couplings provide secure threaded fittings for plastic tanks without the need for gaskets. They also allow for vertical pipe connections on sloped areas of the tank dome. We use thermoplastic welding to fuse couplings to the tanks.

## Types & Sizes

- Polyethylene (HDPE) — 1″ to 4″ pipe size, FNPT.
- Polypropylene — 1″ to 4″ pipe size, FNPT.
- PVDF — ½″ to 6″ pipe size, FNPT.

> **Custom-fit:** We custom fit tanks with the fittings, options and accessories our customers need. Contact us to see how we can help you.

**BAILIFF ENTERPRISES, INC.** ◆ 305 E. Rogers Road ◆ Willis, TX 77378
Contact Dan Miller ◆ dmiller@plasticstoragetanks.com

BAILIFF ENTERPRISES INC.

# THERMOPLASTIC WELDED FLANGES

*ANSI 150# welded flanges for HDPE, polypropylene and PVDF chemical storage tanks*

A **thermoplastic welded flange** is the strongest way to put a pipe connection on a plastic tank. We fuse a flange adapter made of the **same resin as your tank** directly to the tank wall, so the nozzle becomes part of the tank. There is no bulkhead gasket inside the tank to leak, wear out or be attacked by the chemical.

Every flange has a standard **ANSI 150# bolt pattern** and a loose **Van Stone backing ring** that turns freely, so lining the bolt holes up with your piping is quick and easy. Welded flanges are our go-to connection for demanding chemical service such as **sulfuric acid** and **caustic soda**. For **oxidizers** such as sodium hypochlorite, we do not place welded flanges in the lower half of the sidewall.

| 150# | ½″–30″ | 4″ | 0 |
|---|---|---|---|
| ANSI bolt pattern | Flange sizes | Standard standoff | Internal gaskets |



**Flange adapter with loose backing ring**



**Welded flange with blind flange**



**Tank with welded flanges**

## WHY CUSTOMERS CHOOSE WELDED FLANGES

- **Leak-free, gasket-free nozzle**
  Fused to the tank wall, so nothing inside the tank can loosen or leak.
- **Standard ANSI 150# fit**
  Bolts straight up to ANSI 150# pipe flanges, valves and pumps.
- **Large sizes available**
  From ½″ instrument ports up to 30″ manway and outlet nozzles.
- **Same material as the tank**
  HDPE on HDPE, PP on PP and PVDF on PVDF for full chemical compatibility.
- **Easy fit-up**
  The loose Van Stone ring rotates to line up bolt holes without twisting pipe.
- **Placed where you need it**
  Sidewall or dome, at the orientation you specify. Upper sidewall or dome only for oxidizers.

## MATERIALS & SIZES

| | |
|---|---|
| **HDPE (polyethylene)** | ¾″ to 30″ · water and general chemical storage tanks |
| **Polypropylene (PP)** | 1″ to 10″ · polypropylene tanks and higher-temperature service |
| **PVDF (Kynar®)** | ½″ to 11″ · PVDF tanks for aggressive acids |
| **Flange face & ring** | Raised face (flat face on request), fiberglass-reinforced loose ring · 4″ standoff standard, up to 6″ |

**When you order, tell us:** size, material, location (degrees and height), standoff, and any blind flange, gasket or bolts.

See our **Welded Flanges** packet for dimensions, stub ends and bolt torque settings.

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# DOUBLE WALL FLANGES W/ WELDED FLANGE

When the space between the walls of the primary and secondary tank is too small to accommodate the length of the expansion joint, we add a welded flange to the outer tank to allow the expansion joint to fit.

The welded flange is extended to whatever length is needed to match up to the face of the expansion joint. A blind flange or HDPE bolted cover is attached to the welded flange and a bolted double flange is attached to the outside.





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Contact Dan Miller ◆ dmiller@plasticstoragetanks.com

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# COMMON VALVES

## We stock several types of valves to fit the requirements of many applications. These are the 3 most common types.



True Union Ball Valves are designed for industrial settings. The body of the valve can be replaced without dismantling the surrounding piping. These valves are available in PVC and CPVC. The internal O-rings can be FPM (like Viton) or EPDM. The valve seats are PTFE. Connections can be either threaded or socket. Automated (actuated) versions are available. ($$$)



Polypropylene Bolted Ball Valves are rugged valves. They are constructed from Polypropylene and have PTFE seat material. They have a design pressure rating of 150 psi. Locking arms are available to keep unauthorized persons from opening or closing the valve. ($$)



Compact Ball Valves are simple inexpensive valves . These valves are available in PVC and CPVC. The internal seals can be Viton or EPDM. These valves are available for threaded or socket connections. ($)



Check Valves are used to keep liquid flowing in only one direction. They can be used to keep liquid from siphoning back. These valves are available in PVC and CPVC. The internal seals can be Viton or EPDM. These valves are available for threaded or socket connections.

We can also supply less common valve types that may be more appropriate for applications. These include butterfly valves, PVDF valves and more. Just let us know what you need.

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# PVC U-VENTS



Screened PVC U-Vents are a common type of vent for plastic tanks. Since plastic tanks are designed for atmospheric pressure only, it is important that they be vented to keep from developing a vacuum or over-pressure situation.

The normal ‘rule of thumb’ for vent sizing is to supply a vent that is 1” larger in diameter than the largest inlet or drain fitting. If you have a 3” flange or coupling, you would typically use a 4” vent.

We have PVC U-Vents available in screened or unscreened versions. Our normal sizes are 2”, 3” and 4”. For sizes larger than 4”, we have fabricated U-vents available.

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Contact Dan Miller ◆ dmiller@plasticstoragetanks.com

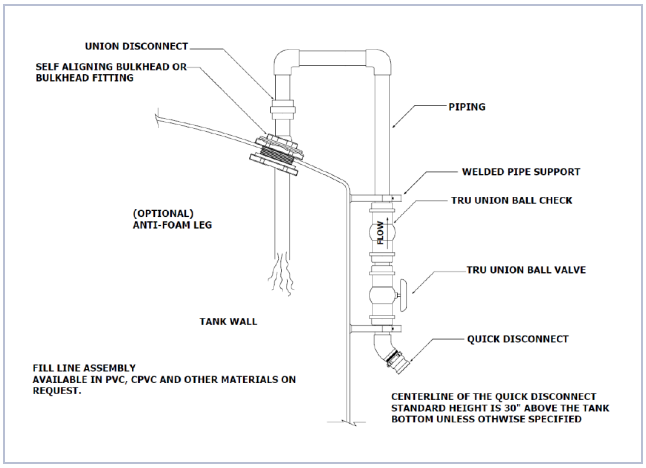
# TOP FILL LINE

A ‘Top Fill Line’ is the preferred option for chemical delivery from a truck. It allows a delivery truck to easily connect with a hose, and fill the tank.

No added sidewall penetration is required since the Top Fill Line connects through the dome of the tank. This is of extra advantage on a double wall tank.

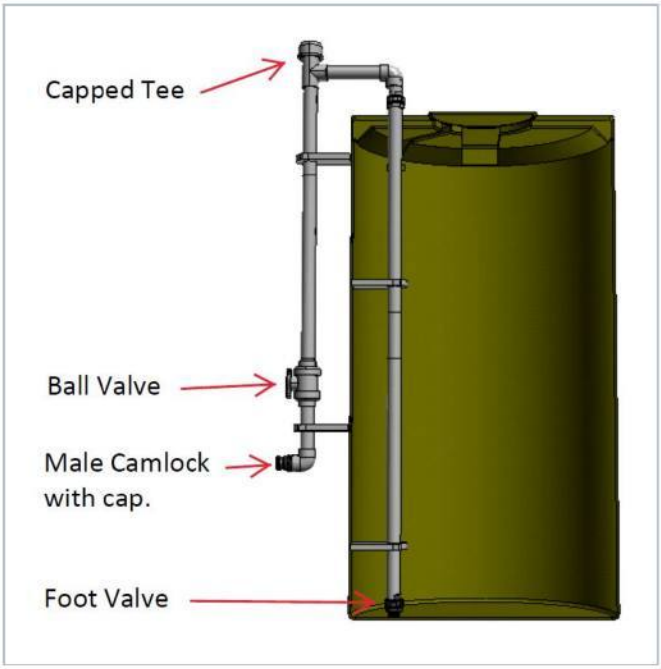
The fill line is equipped with a Ball Valve for liquid flow control and a Check Valve for safety. A version for non-hazardous liquids is available without the Check Valve. A tube is optionally available. An Anti-Foam bend is optionally available to direct fluid down the side of the tank.

Welded Pipe supports are used to support the Top Fill Line. No wall penetrations are needed for these braces.




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# TOP DRAIN LINES




Top Drain Lines allow a tank to be drained without sidewall penetration. This is beneficial in every tank but especially important in double wall tanks.

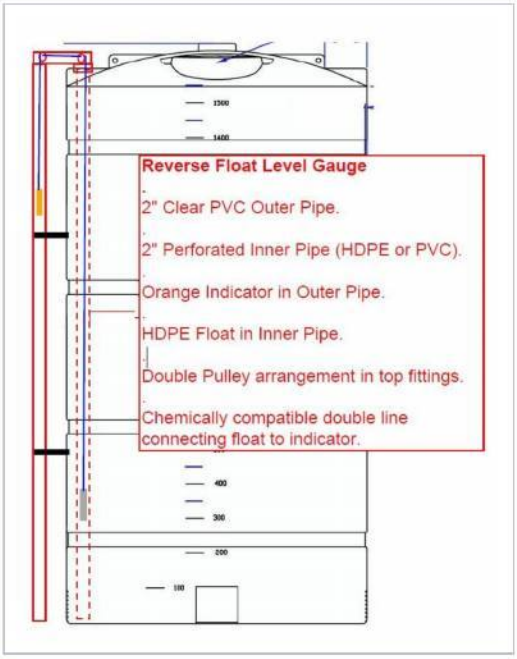
- Top Drains are available in 2", 3" and 4" sizes.
- Available in PVC, CPVC, PVDF, HDPE and Stainless Steel.
- Top Drains are braced with welded supports.

Our Top Drain Lines can terminate outside the tank with a cam lock fitting, flange or NPT threaded fitting. The flanged and threaded fittings are normally used for pump connections. A flexible connection should be used between the pump and tank.

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Contact Dan Miller ◆ dmiller@plasticstoragetanks.com

# REVERSE FLOAT LEVEL INDICATOR

Our Reverse Float Level Indicator is a simple effective mechanical method for tracking the fill level of a storage tank. This is especially good for a double wall tank since it does not require sidewall pene-trations.




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BAILIFF ENTERPRISES INC.

# ULTRASONIC LEVEL SENSOR & DISPLAY

Know how much is in your tank without climbing up, opening a lid or reading a float backwards. The EchoSonic® II ultrasonic sensor mounts in a 2" top fitting and measures the liquid surface with sound. It sends a continuous 4–20 mA level signal.

Add the optional DataView™ LI55 display to read gallons, inches or percent full right at the tank. Or wire the signal to your PLC or SCADA system. Nothing touches the liquid.

| 18 ft | ±0.2% | 4–20 mA | Non-contact |
|---|---|---|---|
| Max. range | Accuracy | Output | No wetted parts |



LU23-01 Sensor — LI55-1211 Display

## WHY CUSTOMERS CHOOSE IT

- **Non-contact measurement**
  Reads from above the liquid. No floats, ropes or moving parts to stick or wear.
- **Reads in gallons**
  32-point linearization converts level to true volume, even in domed tanks.
- **One power connection**
  The display runs on 85–265 VAC and supplies 24 VDC to the sensor.
- **Built for corrosive chemicals**
  PVDF transducer, Viton® gasket and a sealed Type 6P housing.
- **Alarms and pump control**
  Two relays for high/low alarms or auto fill, plus a 4–20 mA repeater output.
- **More usable capacity**
  An 8" dead band and narrow 3" beam measure nearly to the top of the tank.

## THE LEVEL PACKAGE

SENSOR
### LU23-01
EchoSonic® II transmitter. 18 ft range, 2" NPT mount, 10 ft cable, USB calibration fob included.

DISPLAY · OPTIONAL
### LI55-1211
DataView™ controller. 6-digit LED display, 85–265 VAC, 2 relays and 4–20 mA repeater.

ENCLOSURE · OPTIONAL
### LM92-1002
NEMA 4X polycarbonate windowed box. Mounts the display on the tank, a stand or a wall.

**Ideal for:** bulk chemical, water and wastewater storage and process tanks with a calm liquid surface, and remote reading to a PLC or SCADA system.

**Ask us first if your liquid** foams heavily, gives off dense fumes, or is stored above 140°F. We will recommend the right level option.

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Contact Dan Miller ◆ dmiller@plasticstoragetanks.com

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# ULTRASONIC SPECIFICATIONS

## SENSOR · LU23-01

*EchoSonic® II Ultrasonic Level Transmitter*

| | |
|---|---|
| **Range** | 8" to 18.0' (20 cm to 5.5 m) |
| **Accuracy** | ±0.2% of range |
| **Resolution** | 0.039" (1 mm) |
| **Dead band** | 8" (20 cm) |
| **Beam width** | 3" (7.6 cm) |
| **Signal output** | 4–20 mA, two-wire |
| **Fail-safe** | 4, 20, 21, 22 mA or hold last |
| **Supply** | 24 VDC loop, 0.5 W |
| **Process temp.** | -4° to 140°F (-20° to 60°C) |
| **Ambient temp.** | -31° to 140°F (-35° to 60°C) |
| **Max. pressure** | 30 psi (2 bar) |
| **Enclosure** | Type 6P, encapsulated, submersible |
| **Materials** | Polycarbonate housing, PVDF transducer, Viton® gasket |
| **Cable** | 10' (3 m), 4-conductor shielded |
| **Process mount** | 2" NPT |
| **Configuration** | WebCal® software; LI99-1001 USB fob included |
| **Approvals** | cFMus, CE, RoHS |

## DISPLAY · LI55-1211

*DataView™ Level Controller (optional)*

| | |
|---|---|
| **Display** | LED, 6-digit |
| **Digit height** | Main 0.6", secondary 0.46" |
| **Units** | Gallons, liters, in., ft., m or % |
| **Linearization** | 2–32 point (level to volume) |
| **Sensor input** | (1) 4–20 mA |
| **Supply voltage** | 85–265 VAC, 50/60 Hz |
| **Consumption** | 20 W max. |
| **Sensor supply** | 24 VDC @ 200 mA (powers the sensor) |
| **Relays** | (2) SPDT, 3 A @ 30 VDC / 250 VAC |
| **Repeater output** | Isolated 4–20 mA to PLC/SCADA |
| **Setup** | Front push buttons, password protected |
| **Memory** | Non-volatile |
| **Ambient temp.** | -40° to 149°F (-40° to 65°C) |
| **Enclosure** | 1/8 DIN, polycarbonate |
| **Faceplate rating** | NEMA 4X (IP65) |
| **Approvals** | UL, cULus, CE |

## ENCLOSURE · LM92-1002 (OPTIONAL)



Single-indicator windowed box for one LI55 display. NEMA 4X polycarbonate with a clear cover for outdoor, on-tank or wall mounting.

**Size:** approx. 7.9" W × 7.9" H × 6.3" D **Includes:** mounting plate, stand-offs, #8-32 screws and washers.

## INSTALLATION NOTES

- Mount the sensor vertically in a 2" top fitting, away from the fill inlet, sidewall and obstructions.
- Wire the sensor to the LI55's 24 VDC sensor supply. The display powers the loop.
- Keep the highest liquid level at least 8" below the sensor face.
- Enter tank height and capacity so the display reads in gallons.

*Specifications from Flowline datasheets DS300610 and DS301033. EchoSonic, DataView and WebCal are trademarks of Flowline, Inc. Specifications subject to change.*

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Contact Dan Miller ◆ dmiller@plasticstoragetanks.com

# INTERSTITIAL LEAK DETECTOR

An Interstitial Leak Detector warns you when the primary tank of a double wall tank leaks. A probe hangs to the bottom of the space between the inner and outer tanks. When it touches liquid, the detector sounds a horn, flashes a red strobe and can signal your control system.

The detector mounts on a 2" NPT fitting on top of the secondary tank, so nothing passes through the primary tank.

| 95 dB | NEMA 4X | 2" NPT |
|---|---|---|
| Horn, silenceable | Indoor / outdoor | Top mount |




**Alarm enclosure with strobe**

## WHY CUSTOMERS CHOOSE IT

- **Early warning**
  Finds a primary tank leak while the outer tank still holds the liquid.
- **Fail-safe probe**
  The system checks the probe constantly and alarms if it fails or is disconnected.
- **All-PVC probe**
  Potted conductance probe can be fully submerged.
- **Sound and light**
  95 dB horn with a silence button and a flashing red strobe on the box.
- **Ties into your system**
  Optional relay output for a PLC, control system or auto-dialer.
- **Simple install**
  Connect power and the probe. Also works as a stand-alone high level alarm.

## SPECIFICATIONS

| | |
|---|---|
| **Model** | JWB Company LDA-1 Leakminder |
| **Power** | 110 VAC (24 VDC optional), under 1 A |
| **Enclosure** | NEMA 4X, 10" × 7" × 3.5" |
| **Probe & cable** | Conductance type, all PVC, 19 ft cable |
| **Alarms** | 95 dB horn with silence; red strobe (about 1 Hz) |
| **Relay (optional)** | Form C, NO/NC, 5 A @ 120 VAC |
| **Connection** | 2" NPT with cable grip or conduit |
| **Options** | UL approved version; relay output; 24 VDC power |
| **Warranty** | One year from the manufacturer |



**Inside view**



(Probe)

**Probe**

*Specifications from the JWB Company LDA-1 Leakminder data sheet. Specifications subject to change.*

**BAILIFF ENTERPRISES, INC.** ◆ 305 E. Rogers Road ◆ Willis, TX 77378
Contact Dan Miller ◆ dmiller@plasticstoragetanks.com

# TANK INSULATION

We spray a closed-cell polyurethane foam directly onto the outside of the tank. Our standard coat is 2" thick, and we can apply 3" or 4" when you need more. The foam is then sealed with a white elastomeric mastic that blocks UV light and stretches as the tank expands and contracts.

Insulation keeps the liquid closer to the temperature you want, cuts the load on heat trace and protects outdoor tanks from freezing.

| R-6.7 | R-13+ | 98% |
|---|---|---|
| per inch | Standard 2" coat | Closed cell |



Insulated vertical tank



Cone bottom

## WHY CUSTOMERS CHOOSE IT

- **Closed-cell foam**
  Will not absorb water or let it pass through, so it keeps insulating outdoors.
- **Flexible UV coating**
  White elastomeric mastic protects the foam from sunlight and moves with the tank.
- **Thicker when needed**
  2" standard; 3" or 4" for colder climates or tighter temperature control.
- **Bonded to the tank**
  Sprayed on with no seams or gaps for water to get behind.
- **Pairs with heat trace**
  Heat pads go on first and the foam covers them, so a small system holds temperature.
- **Easy to touch up**
  Scuffs from shipping repair with canned closed-cell foam and an elastomeric roof coating.

## FOAM PROPERTIES

| | |
|---|---|
| **Type** | Two-component closed-cell spray polyurethane |
| **R-value** | 6.7 per inch (6.9 per inch at 4") |
| **Core density** | 2.0–2.3 lb/ft³ |
| **Closed cell content** | 98% |
| **Compressive strength** | 26 psi |
| **Water absorption** | 0.6% by volume |
| **Flame spread** | 25 (ASTM E84, Class I) |

## COATING & OPTIONS

| | |
|---|---|
| **Standard thickness** | 2" foam (R-13+) |
| **Optional** | 3" (R-20) or 4" (R-27) |
| **Top coat** | White elastomeric acrylic mastic for UV protection |
| **Fittings** | Foam is cut back around fittings, lids and lugs |
| **Heat trace** | SPX pads and 2XTC controller, installed under the foam |
| **Touch-up** | Closed-cell canned foam plus elastomeric roof coating |

*Foam properties are typical values from the BASF SPRAYTITE® 178 technical data sheet. Actual values vary with application conditions.*

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Contact Dan Miller ◆ dmiller@plasticstoragetanks.com

BAILIFF ENTERPRISES INC.

# TANK HEAT TRACE

Keep the liquid in your tank from freezing, or hold it at a process temperature. We bond HTD Heat Trace SPX heating pads to the sidewall of the tank and wire them to a 2XTC controller. The controller holds your setpoint and a separate high-limit sensor keeps the pads from ever overheating the plastic.

It is almost always paired with our spray-foam insulation.

| 0.39 | 150°F | 210–4200 W |
|---|---|---|
| watts / sq. in. | Max. maintain | System sizes |



**2XTC tank heating controller**

## WHY CUSTOMERS CHOOSE IT

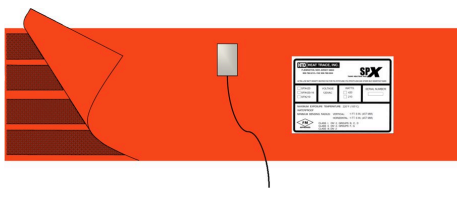
- **Made for plastic tanks**
  Ultra-low watt density pads with an internal over-temperature thermostat. Safe on HDPE and polypropylene.
- **Waterproof pads**
  Epoxy-glass laminate keeps working even if rain or an overflow gets under the insulation.
- **Two sensors**
  A process RTD holds your setpoint. A separate high-limit RTD shuts the heat off if the tank wall gets too hot.
- **Alarms you can wire in**
  Low temperature, high temperature and low heater current, with relay contacts and a 4–20 mA temperature output.
- **Indoor or outdoor**
  NEMA 4X / IP66 controller runs on 100–277 VAC and switches up to 30 A.
- **Sized to your tank**
  We pick the pads from your tank size and the temperature difference you need to hold.

## THE HEAT TRACE PACKAGE

PAD
### SPX 210
210 W, 30" × 18" adhesive-backed pad. For small tanks and tight spaces.

PAD
### SPX 420
420 W, 60" × 18" pad. Available with 10, 16, 20 or 24 ft cold leads.

CONTROLLER
### 2XTC
Process control with high-limit protection. One controller runs up to 30 A of pads.



**SPX pad with cold lead**

**Ideal for:** freeze protection of water and chemicals stored outdoors, and keeping viscous or temperature-sensitive liquids at a steady temperature.

**Tell us:** the tank, the liquid, the lowest outside temperature and the temperature to hold. We will size the system and quote it installed.

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# HEAT TRACE SPECIFICATIONS

## PADS · SPX 210 / 420

*HTD Heat Trace plastic tank heating pad*

| | |
|---|---|
| **Power** | SPX 210: 210 W · SPX 420: 420 W |
| **Size** | 30" × 18" (210) · 60" × 18" (420) |
| **Watt density** | 0.39 W/sq. in. |
| **Voltage** | 120 VAC (240 VAC on request) |
| **Max. maintain temp.** | 150°F (66°C) |
| **Max. exposure temp.** | 220°F (104°C) |
| **Min. install temp.** | 50°F (10°C) |
| **Min. tank diameter** | 36" (18" bend radius) |
| **Construction** | Multi-path parallel circuit in waterproof epoxy-glass laminate, aluminum ground shield |
| **Protection** | Internal over-temperature thermostat |
| **Cold lead** | 3-conductor 16 AWG, TPE jacket, tinned copper braid |
| **Mounting** | Adhesive back; edges sealed with aluminum tape |

## CONTROLLER · 2XTC

*Microprocessor tank heating controller*

| | |
|---|---|
| **Power input** | 100–277 VAC, 50/60 Hz |
| **Heater output** | 30 A SPST relay, active arc suppression |
| **Process setpoint** | 0–200°F, on/off with adjustable band |
| **High limit** | 0–250°F, separate sensor |
| **Alarms** | Low temp., high temp., low current (current test every 24, 168 or 720 hrs) |
| **Alarm outputs** | Relays, 5 A @ 277 VAC, open or close on alarm |
| **Remote output** | 4–20 mA process temperature |
| **Sensors** | 1,000 Ω platinum RTD, 2-wire |
| **Ambient** | -40° to 113°F |
| **Enclosure** | NEMA 4X / IP66 polycarbonate |
| **Approvals** | UL 508, CSA 22.2 #14 |

## STANDARD SYSTEMS

| Pads | Watts | Amps @ 120 V | Controllers |
|---|---|---|---|
| **1 × SPX 210** | 210 | 1.75 | 1 |
| **2 × SPX 210** | 420 | 3.5 | 1 |
| **1 × SPX 210 + 1 × SPX 420** | 630 | 5.25 | 1 |
| **2 × SPX 420** | 840 | 7 | 1 |
| **3 × SPX 420** | 1,260 | 10.5 | 1 |
| **4 × SPX 420** | 1,680 | 14 | 1 |
| **5 × SPX 420** | 2,100 | 17.5 | 1 |
| **6 × SPX 420** | 2,520 | 21 | 1 |
| **7 × SPX 420** | 2,940 | 24.5 | 2 |
| **8 × SPX 420** | 3,360 | 28 | 2 |
| **10 × SPX 420** | 4,200 | 35 | 2 |

We size each system from the tank and the **temperature difference** you need to hold: the gap between the lowest expected outside temperature and the liquid temperature. Our sizing tables run from 30°F to 100°F of difference for every vertical and double wall tank we sell.

Larger systems split the pads between two controllers. Pads are installed under the insulation, and the tank is hydro-tested before shipping.

*Specifications from HTD Heat Trace SPX and 2XTC data sheets. SPX and 2XTC are products of HTD Heat Trace. Specifications subject to change.*

**BAILIFF ENTERPRISES, INC.** ◆ 305 E. Rogers Road ◆ Willis, TX 77378
Contact Dan Miller ◆ dmiller@plasticstoragetanks.com

# FIBERGLASS LADDERS & CAGES

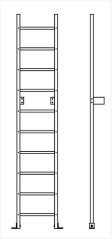
We supply OSHA-compliant fiberglass ladders for your tank. They are light, strong and will not rust or corrode, which makes them a good fit for chemical plants and other harsh locations. Ladders mount to the tank with wall brackets and can be shipped installed or as a kit.

The height of the ladder decides whether a cage or a fall arrest device is required. OSHA is moving away from cages and toward straight ladders with fall arrest devices.



**Walkthrough ladder on a Bailiff tank**

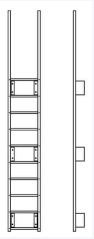
## THREE STANDARD STYLES



STRAIGHT

### Straight ladder

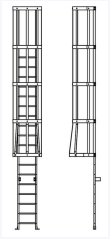
The simplest choice for shorter tanks.



MOST POPULAR

### With walkthrough

Grab rails extend past the top rung for a safer step onto the tank.



TALLER TANKS

### Caged ladder

Cage starts 7 to 8 ft above the ground.

## CONSTRUCTION

| | |
|---|---|
| **Width** | 28" standard |
| **Side rails** | 2" × 1/4" FRP square tube |
| **Rungs** | 1-1/4" dia. × 3/16" FRP fluted tube, 12" spacing |
| **Resin** | Fire retardant (IFR) polyester with UV inhibitor; vinyl ester for very corrosive service |
| **Color** | OSHA safety yellow |
| **Mounting** | Base mounted with wall brackets |
| **Delivery** | Installed, or as a kit for field assembly |

## WHY FIBERGLASS

- Will not rust or corrode; outlasts steel and aluminum
- Non-conductive and fire retardant
- Light enough to handle without a crane
- Little or no maintenance
- Custom heights, cages, platforms and brackets available

**BAILIFF ENTERPRISES, INC.** ◆ 305 E. Rogers Road ◆ Willis, TX 77378
Contact Dan Miller ◆ dmiller@plasticstoragetanks.com

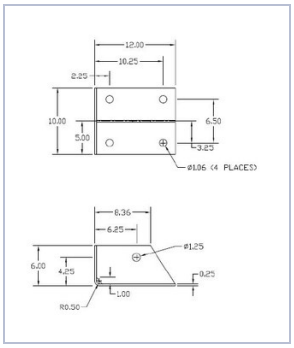
# WIND / SEISMIC RESTRAINT SYSTEM

Our wind/seismic tie-down systems consist of:

- Four heavy duty tie-down points molded in or bolted to the dome of the tank.
- 1/4" galvanized steel cable that is strong and flexible. Vinyl coated or stainless steel cable is available at additional cost.




- The cable is rated at 7,000 pounds breaking strength. The cable is cut to length for each anchor point.
- 6" tall x 10" wide x 12" deep anchors made from galvanized A-36 steel connect with the cables and are bolted into the concrete base. The holes are designed for 1" bolts.




- The cables, anchors and cable clips are all included. The cable clips are galvanized, drop forged steel shackles.
- The restraints are rated for 155 mph winds. We offer site specific, stamped wind and seismic calculations at additional cost.
- Due to foundation variances, bolts are not included.

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