

### Operating Principles

The Solinst Tag Line uses a weight clipped to a polyethylene coated, permanently marked, stainless steel wireline or laser-marked PVDF flat tape. The weight provides a simple method to measure the depth to the bottom of a well, or the depth to the top of a backfill sand or bentonite layer.

The Tag Line weight is lowered until the cable/tape goes slack, indicating it has reached bottom. The cable/tape is gently pulled up to remove the slack and the measurement is taken from the top of casing or the Tape Guide measurement point.

The weight clips off the cable or tape, which allows it to be used for other applications, such as bailer, pump, datalogger, or packer deployment.

**Note:** The Tag Line Reel is not recommended for heavy lift applications (i.e. 4 ft Pumps, and 3 or 4 ft stainless steel Bailers). The reel is just meant to be used as a cable/tape deployment and storage device. When the Tag Line is used as a retrieval device, there may be enough strain and tension on the line to damage the reel if not properly operated. It is recommended that the line is wound onto the reel after relieving tension by raising the line manually.

### Using the Tape Guide

1. The Tape Guide has been designed to:
  - Improve accuracy when reading depths and easily obtain repeatable measurements,
  - Prevent cable or tape from being cut by well casing,
  - Allow the cable/tape and weight (bailer, pump, etc.) to hang straight from the side of the well.
2. Feed the cable/tape into and out of the well using the groove in the top of the Tape Guide.
3. For ease of operation the Tape Guide can be used to support the Tag Line reel (small size only). Simply fit the small end of the Tape Guide onto the edge of the well casing (2" or 50 mm dia. or larger).
4. Insert the leg of the Tag Line reel into the hole on the Tape Guide and rest the Tag Line on the side of the well casing.

**Note:** Medium and large reels should be placed on the ground, while using the Tape Guide for protection on sharp well casing edges.

### Routine Care

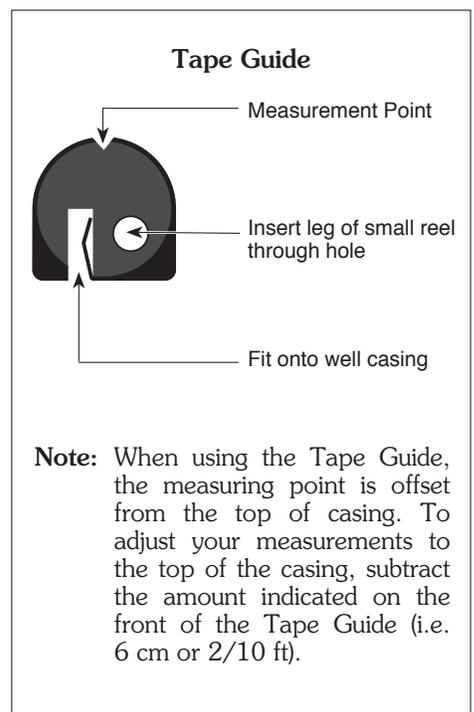
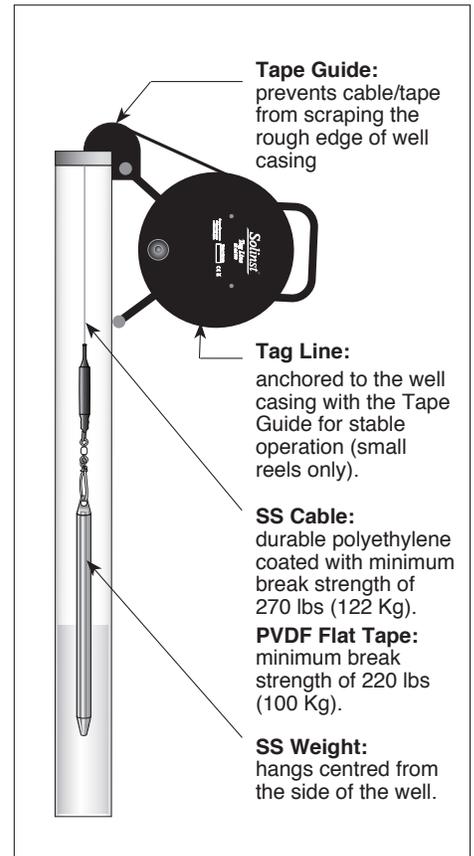
1. After use, the cable/tape should be carefully rewound onto the reel, the weight wiped dry and placed into the weight holder.
2. The weight, cable/tape, and reel can be cleaned with a phosphate free (non-abrasive) detergent and warm water.
3. Use of a carrying case adds to the service life of the Tag Line.
4. Use of the Tape Guide adds to the life of the cable or tape.

### Replacement Parts

The following parts (with instructions) can be provided should the parts become lost or damaged.

1. Weights
2. Reels
3. Replacement cables or tapes
4. Splice kits

**Note:** To store the Tape Guide, simply clip it onto the support bracket located on the back of the Tag Line reel.





## Tag Line Applications

The Tag Line was originally designed to be used during monitoring well construction, but with a weight that is removable, the Tag Line is also useful for many other applications.

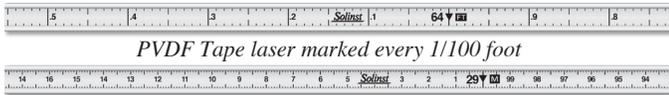
### Ideal for measuring:

- The depth to the bottom of a borehole or well
- Depths during well installation
- Sand and bentonite layers when installing a Solinst CMT or Waterloo Multilevel System

### With the tag weight removed, it can be used for:

- Safety support for portable pumps
- Supporting Model 800 Packers during lowering and removal
- Bailer deployment – Model 428 and 429
- Discrete Interval Sampler support line (Model 425)
- Deploying Levelloggers during pumping, slug tests

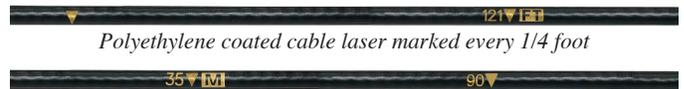
You always know the exact depth of the pumps, bailers, packers, or dataloggers, using the conveniently laser marked cable or tape.



PVDF Tape laser marked every 1/100 foot



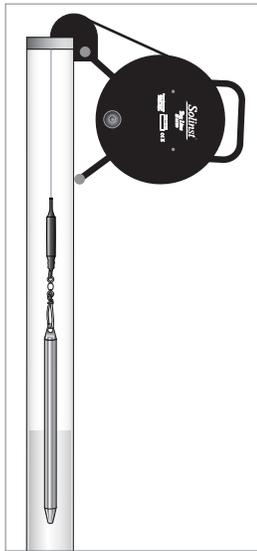
PVDF Tape laser marked every millimeter



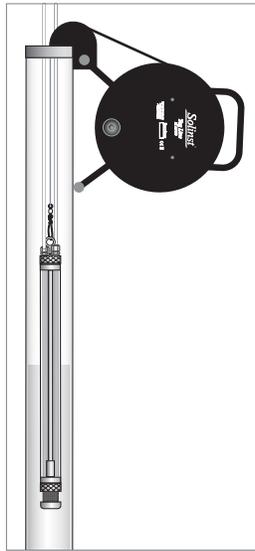
Polyethylene coated cable laser marked every 1/4 foot



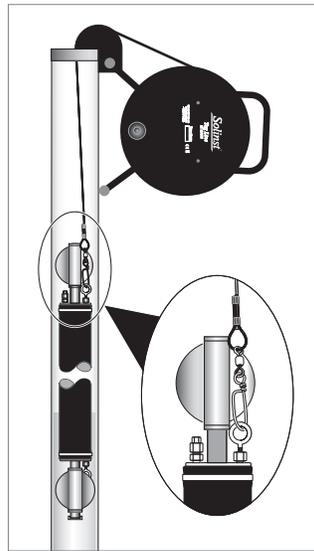
Polyethylene coated cable laser marked every 5 centimeters



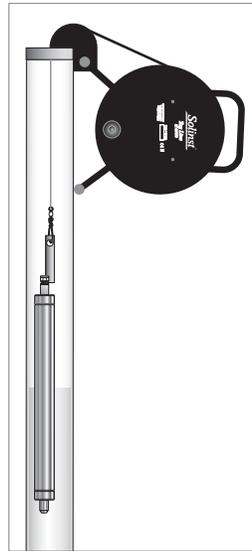
The Tag Line can be used to measure well depths during monitoring well construction



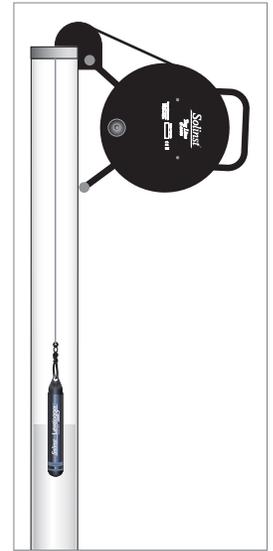
Model 407  
Bladder Pump or  
Model 408  
Double Valve Pump



Model 800  
Low Pressure Packer



Model 425  
Discrete Interval Sampler



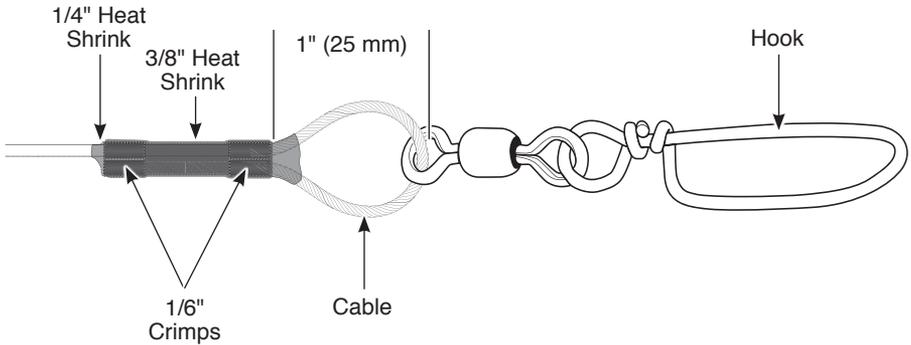
Model 3001  
Levellogger

**Note:** The Tape Guide can only be used as reel support for small Tag Line reels. Medium and Large reels should be placed on the ground.

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## Tools and Materials Needed

1. Replacement Stainless Steel Hook Assembly (#109662), includes:
  - Hook (#102665)
  - 3/8" Heat Shrink (#100878)
  - 1/4" Heat Shrink (#104115)
  - 3 x 1/6" Crimps (1 as spare) (#106365)
2. Hot Air Gun
3. Vice



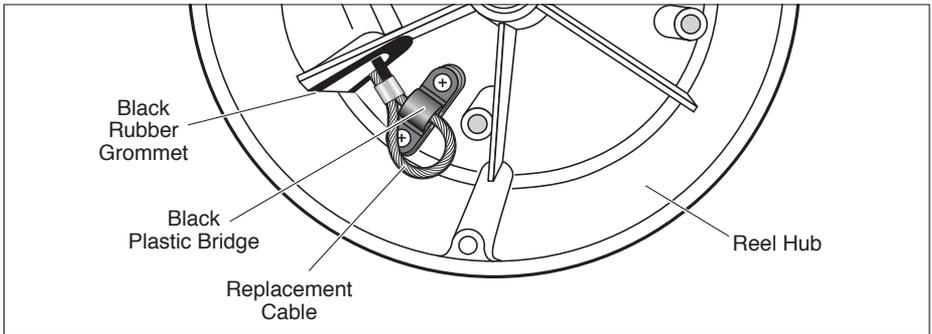
## Instructions

1. Slide both pieces of heat shrink over the end of the cable and out of the way.
2. Slide two crimps over the cable end.
3. Loop the cable through the eye in the hook and bring the cable end back onto itself.
4. Thread the cable end through each of the crimps. The crimps should be about 3/4" (20 mm) apart, with the first crimp covering the end of the cable. The loop created in the cable should not be longer than 1" (25 mm). See diagram.
5. Place each crimp individually into a vise and tighten the vice to capture the cables. Flattening of the cable should be visible when adequate pressure has been applied.
6. Slide the 1/4" heat shrink down the cable and center it over both crimps. Use a hot air gun to shrink the heat shrink over the cable. Repeat this process with the 3/8" heat shrink, centered over the previously installed 1/4" heat shrink.

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### Tools & Materials Needed

1. Model 103 Replacement Cable (comes with grommet and clip)
2. Phillips Screwdriver



*Model 103 Replacement Cable Connection*

### Tag Line Cable Replacement

1. Unwind the old cable from the reel and cut the cable near the grommet.
2. Unscrew the three screws from the faceplate, and remove the faceplate from the reel.
3. Undo the two screws from the black plastic bridge inside the reel hub and remove the remaining cable. Note how the plastic bridge holds the cable in the reel. Keep the plastic bridge, as you will reuse this and the screws to attach the replacement cable.
4. Remove the old grommet from the reel if required, and replace it using the new one supplied on the replacement cable.
5. Feed the new cable through the black rubber grommet and into the reel hub. Avoid tangling the cable. Feed about 1 ft (0.3 m) of cable through the grommet so as to provide enough slack to continue.
6. Place the black plastic bridge through the loop in the cable end. Re-install the two screws to secure the cable to the Reel Hub. See image above.
7. Replace the faceplate back on the reel, and re-fasten using the three screws.
8. Holding the replacement cable to remove any slack, wind the cable onto the reel.
9. Clip the weight from the old cable onto the new cable.

**Note:** If you are using the replacement cable as a safety support for a pump or sampler, remove the grommet, and connect a D-ring (or any suitable connector) to the loop on the end of the cable, and attach it securely to the eyelet on the underside of a well cap.

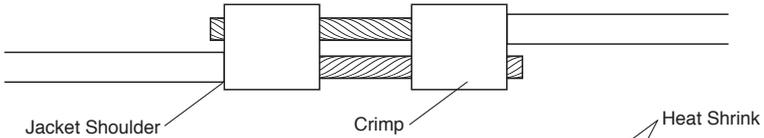
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### Tools & Materials Needed

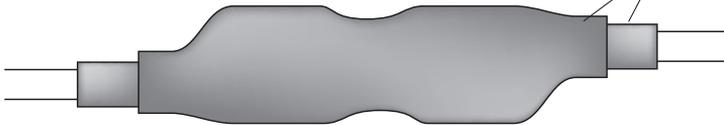
1. Model 103 Cable Splice Kit (#107771)  
See photo at right.
2. Wire Strippers
3. Pliers or Vise Grips
4. Hot Air Gun



### Step 1



### Step 2



### Instructions

1. Slide the large piece of heat shrink onto one of the cables and position it roughly 12" up the cable. Also slide the narrow piece of heat shrink onto the cable and position it next to the large heat shrink.
2. Strip 1" of polyethylene jacket from the ends of the tag line that will be spliced.
3. Slide a crimp onto one of the stripped cables and position it up against the jacket shoulder. Slide the other crimp onto the same cable and position it flush with the end of the cable. Place the assembly on a flat surface.
4. Hold the cable and crimp assembly in position on the flat surface and carefully slide the second cable into position opposite the first. (See Diagram).
5. Crimp one of the crimps using a T-188 tool, (a pair of vise grips or bench vise can be used if required).
6. Ensure alignment of the second crimp and repeat step 5.
7. Centre the narrow heat shrink over the splice and shrink it to size using a hot air gun. Repeat the process with the larger heat shrink. Finish the process by pinching the heat shrink between your forefinger and thumb to ensure bonding.

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Printed in Canada  
May 17, 2010

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