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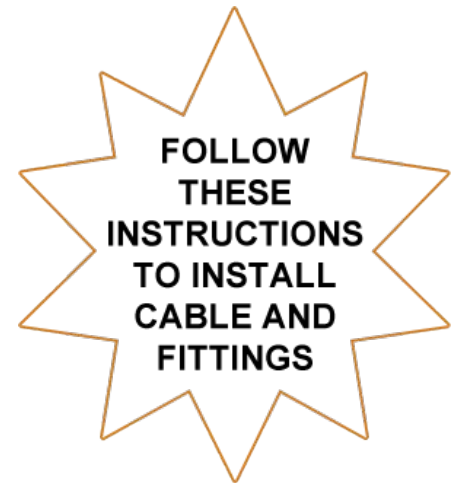
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Washougal, WA 98671

FineLine® BALL ASSEMBLY INSTRUCTIONS

Choose **STAINLESS CABLE & RAILING™** for all your fittings and cablerail assemblies!

Table of Contents:

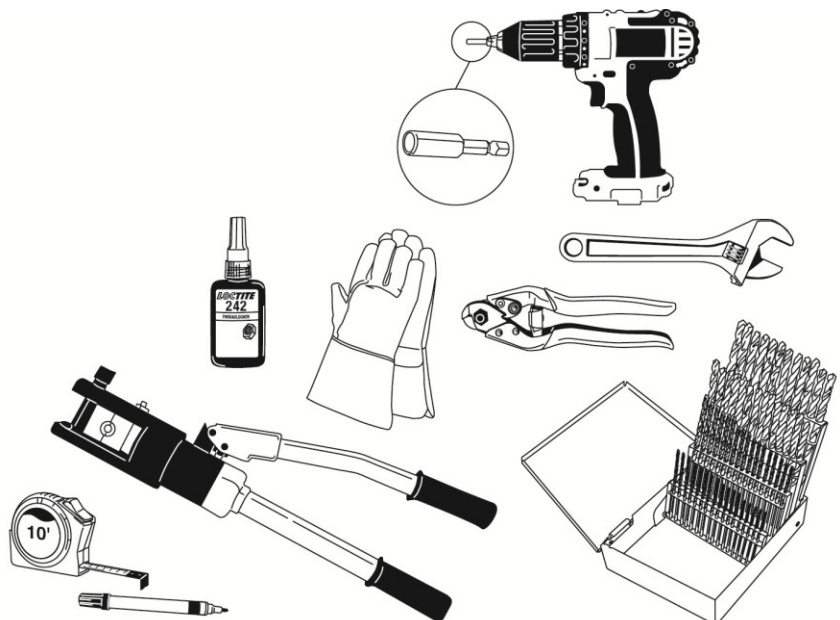
1. NECESSARY TOOLS
2. LAYOUT
3. HOLE DRILLING
4. MEASURE/CUT CABLE ASSEMBLY
5. CRIMP FITTING ON ONE END OF CABLE
6. INSTALL FineLine® BALL TURNBUCKLE/SWAGE BALL END WITH ATTACHED CABLE TO POST 1
7. DETERMINE & CUT CABLE TO FINAL LENGTH & CRIMP
8. REINSTALL FineLine® BALL TURNBUCKLE/SWAGE BALL END TO POST 2
9. TENSION THE CABLES



Just follow these simple steps:

1. NECESSARY TOOLS

1. MEASURING TAPE
2. CABLE CRIMPERS
3. CABLE CUTTERS
4. LOCTITE™
5. DRILL
6. DRILL BITS INDEX
7. LEATHER GLOVES
8. WRENCH
9. BLACK MARKER



2. LAYOUT

- Determine where the cable will start and stop (ie; Sections). Reference the color-coded layout sheet (Fig 1) if it was included with these instructions.

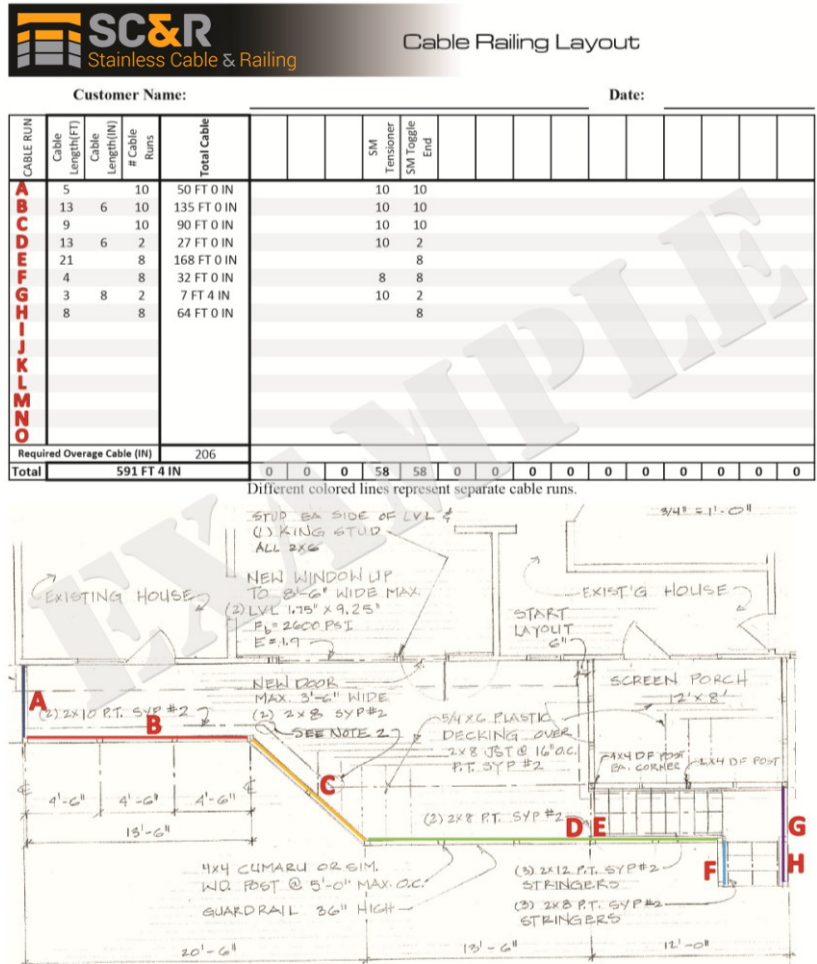


Fig 1

3. HOLE DRILLING

- Do you need to drill holes for the cables? (Fig.2).

Factory and Field Swage Drill Size Recommendations

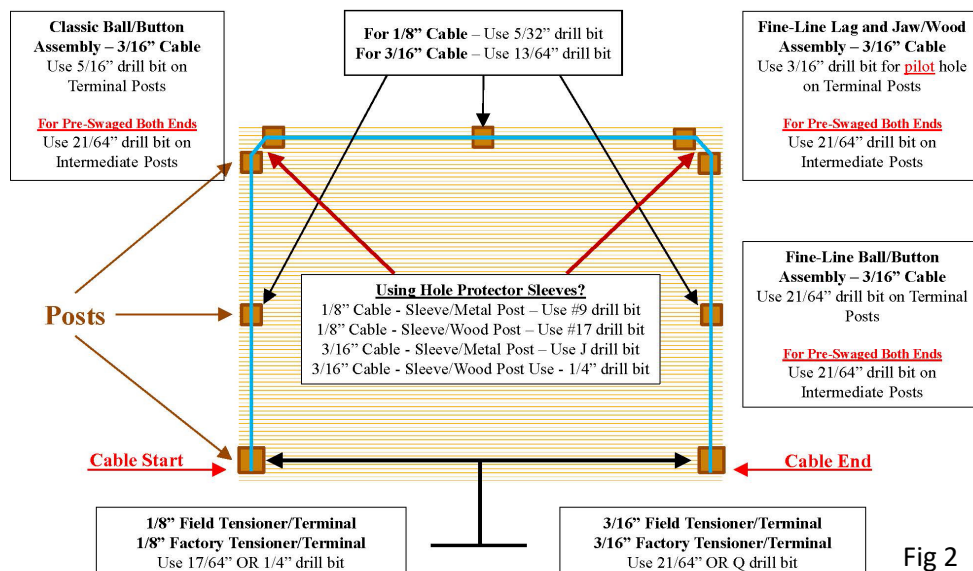
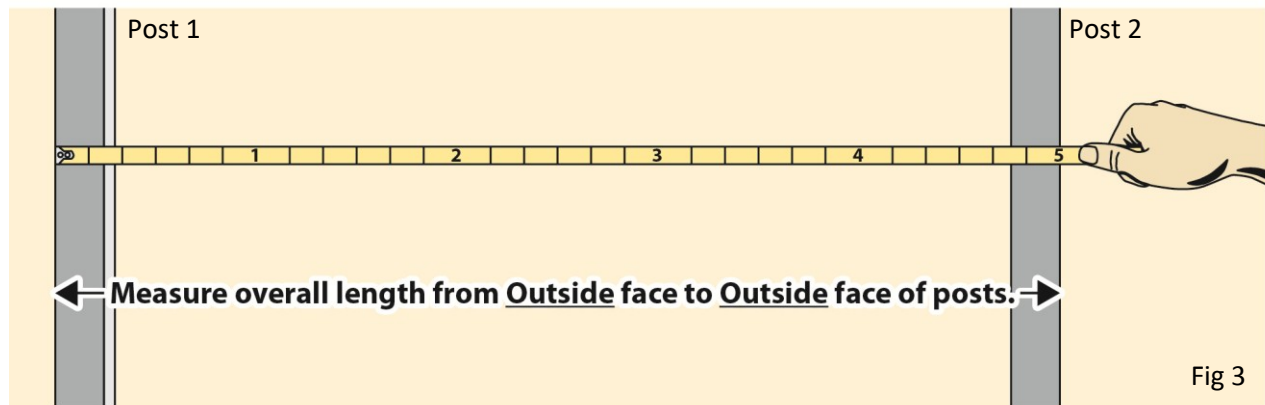


Fig 2

4. MEASURE/CUT CABLE ASSEMBLY

4.1 Doing only one section at a time, measure (Fig. 3) overall length from outside face of the beginning



4.2 Using this measurement, unroll enough cable from the spool to complete one cable assembly. Add an extra 3" to make sure the cable is long enough and to make it easier to work with. Cut to this length using the recommended Cable Cutters or a Hand Grinder.

POSSIBLE FITTING COMBINATIONS

Fig 4 FineLine® Ball Turnbuckle (ref. #1)/Swage Ball End (ref. #2)



Fig 5 FineLine® Ball Turnbuckle (ref. #1)/FineLine® Ball Turnbuckle (ref. #2)

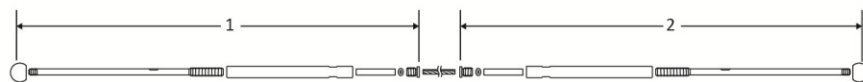
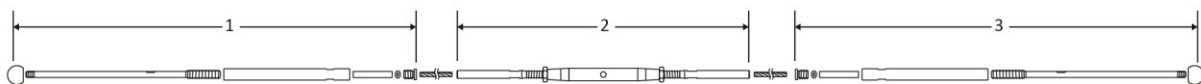


Fig 6 FineLine® Ball Turnbuckle (ref. #1)/FineLine® Inline Turnbuckle (ref. #2)/FineLine® Ball Turnbuckle (ref. #3)



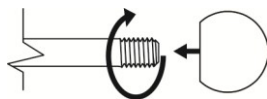
NOTE: If using an Inline Turnbuckle (Fig. 6, Ref #2), determine desired position in the cable run and cut cable accordingly. For 1/8" Inline Turnbuckles cut out approximately 6.5" from the cable run and install. For 3/16" Inline Turnbuckles cut out approximately 8.5" from the cable run and install.

5. CRIMP FITTING ON ONE END OF CABLE

5.1 Attach a fitting, either a FineLine® Ball Turnbuckle or Swage Ball End, depending on the design, to one end of the cable using the Cable Crimper.

NOTE: Individual components may need assembly (Fig. 7).

SWAGE BALL END COMPONENTS



FineLine® BALL TURNBUCKLE COMPONENTS

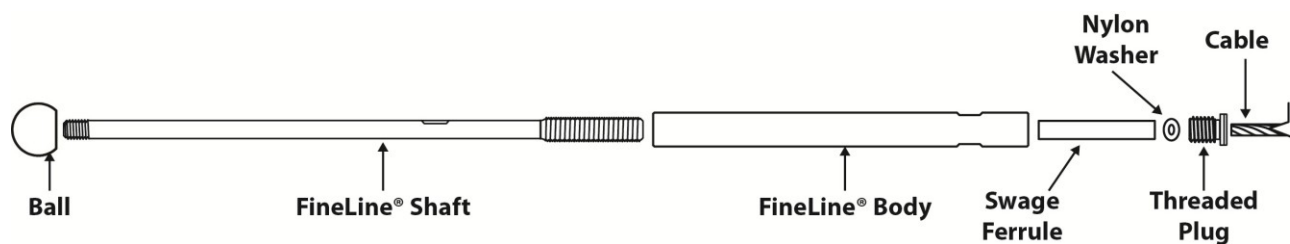


Fig 7

CRIMPING INSTRUCTIONS FOR SWAGE BALL END

- Insert cable into fitting all the way
- Using a black marker, mark the cable to provide a visual reference that the cable remains fully seated down inside the fitting and does not slip out (Fig. 8).

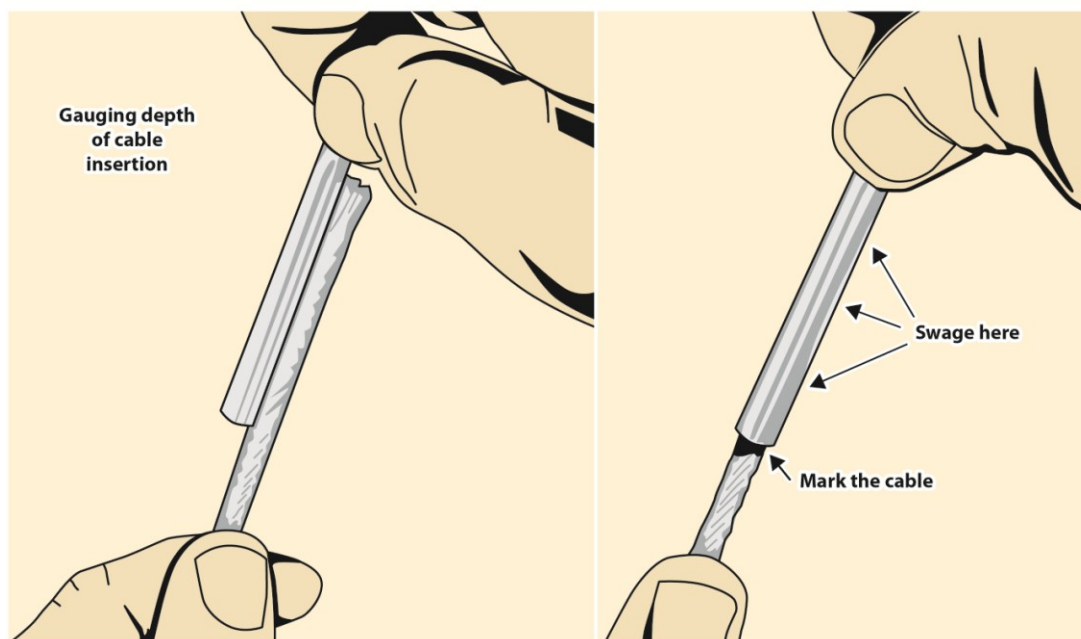


Fig 8

CRIMPING INSTRUCTIONS FOR FineLine® TURNBUCKLE

– Grasp cable end and push the following sequence of components onto the cable (Fig. 9).

1. Threaded Plug
2. Nylon Washer
3. Swage Ferrule

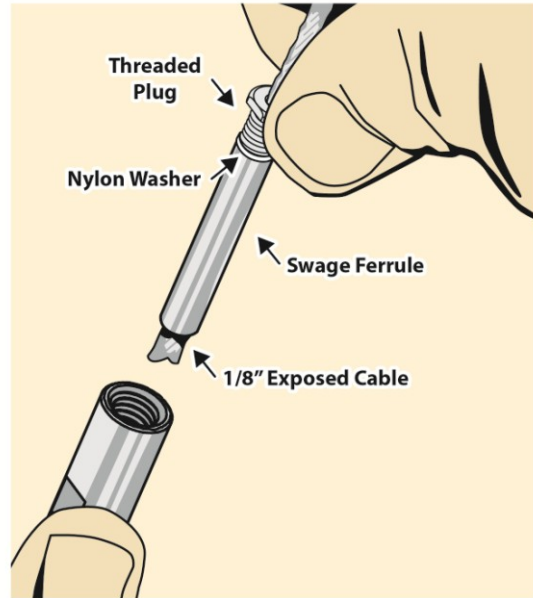
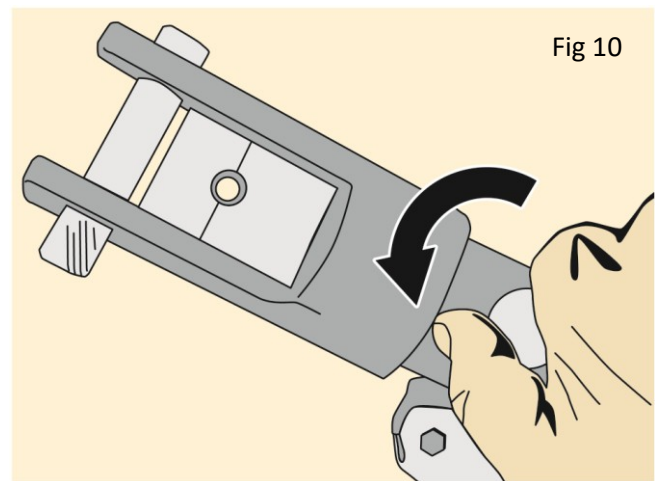


Fig 9

- a) Turn the knob on the Cable Crimper counterclockwise to open the jaws and position the fitting 1/8" from the end of the fitting (Fig. 10).
- b) Turn knob clockwise and pump the handle consecutive times until the two die halves nearly touch.
WARNING: Only firm handle pressure is needed to close the die halves. Applying excessive force to the tool will result in damage.
- c) Reposition the dies 1/4" further along the fitting and rotate 45 degrees. Repeat the crimping process for a total of three crimps.
- d) Spray and wipe down the crimped fittings using CitriSurf® Passivator (available through our website) and a clean cloth, to repassivate the stainless steel.



6. INSTALL FineLine® BALL TURNBUCKLE/SWAGE BALL END WITH ATTACHED CABLE TO POST 1

(See Fig. 3)

- a) Insert FineLine® Ball Shaft/Swage Ball End Shaft through the 3/8" drilled hole on Post 1. Apply Loctite™ to the threads (Fig. 11) and screw on the ball which will rest on the outside face of the post (Fig. 12).

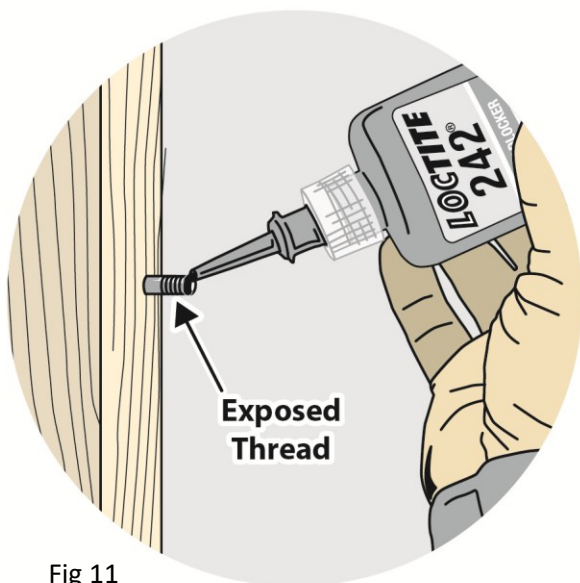


Fig 11

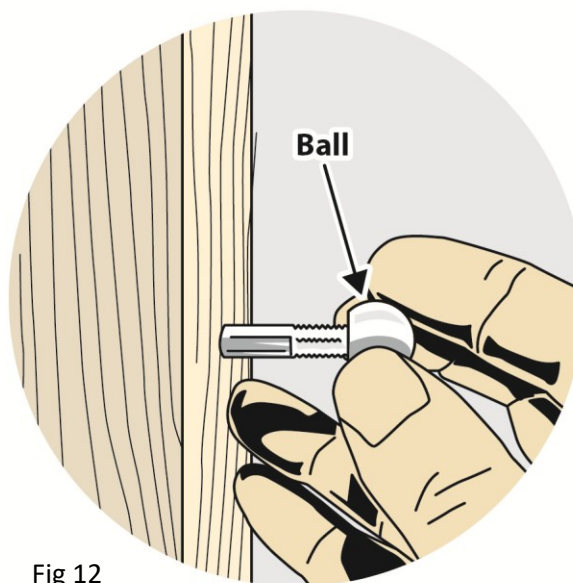


Fig 12

NOTE: If using a FineLine® Ball Turnbuckle (Fig. 4 Ref #1), screw on the FineLine® Body 3-4 turns to allow cable tightening once installed.

- b) Lace cable through intermediate posts (Fig.13).

NOTE: If using an Inline Turnbuckle (Fig. 6 Ref #2), determine desired position in the cable run and cut cable accordingly.

NOTE: If using Hole Protector Sleeves, install these prior to lacing the cable through the intermediate posts. Reference (Fig. 2) for drill size recommendations.

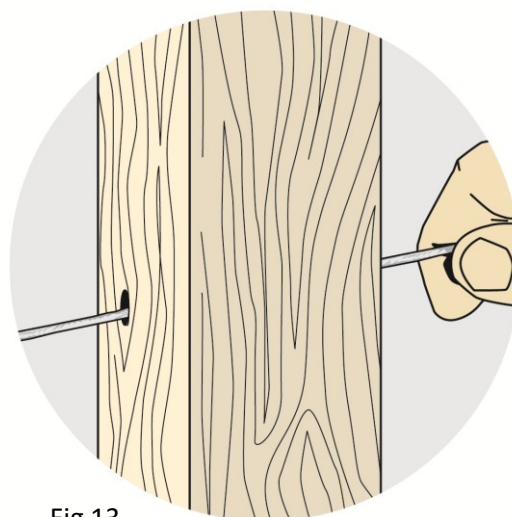


Fig 13

7. DETERMINE & CUT CABLE TO FINAL LENGTH & CRIMP

PROCEDURE FOR SWAGE BALL END

- Insert a piece of cable into the receiver end of the Swage Ball End (Fig. 14) and mark on the fitting that indicates how far the cable penetrates.
- Position the Swage Ball End on the outside face of the post, pull all slack out and hold cable adjacent to the Swage Ball End. Mark the cable where it matches mark on the Swage Ball End (Fig. 15). Cut cable to its final length (Fig. 16).

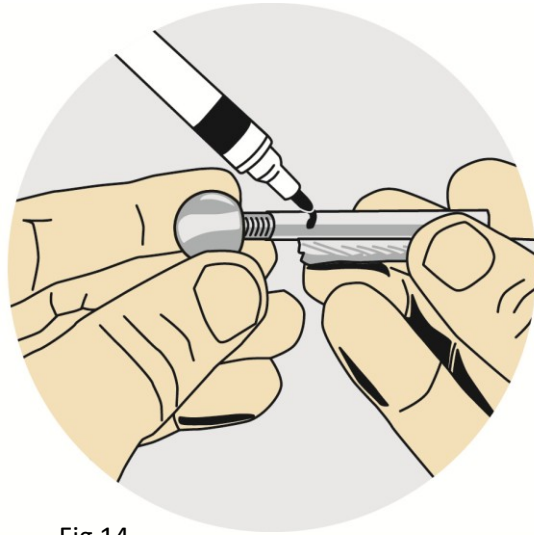


Fig 14

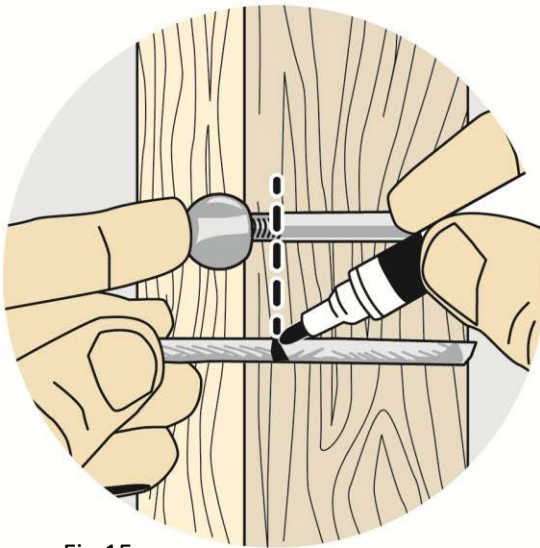


Fig 15

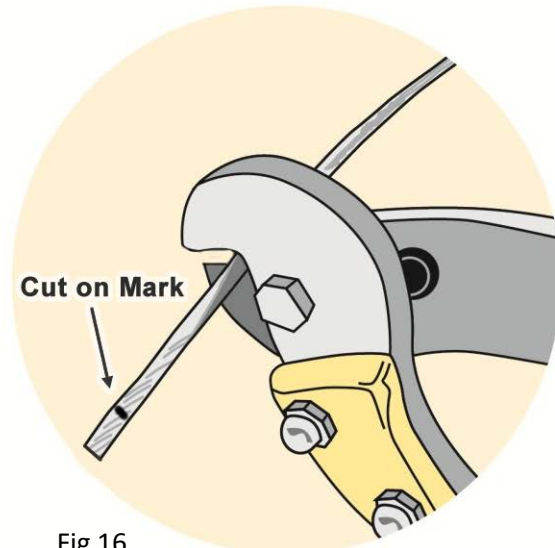


Fig 16

PROCEDURE FOR FineLine® BALL TURNBUCKLE

- Refer to Fig 9.
- Perform step 6a. Screw FineLine® Body onto FineLine® Shaft 3-4 times (Fig. 7).
- Screw on the FineLine® Threaded Plug (Fig. 9).
- Pull all slack out and mark the cable the exact spot where it enters the FineLine® Threaded Plug (Fig. 17).
- From your mark, add 2 3/8" and mark the cable again (Fig. 18).
- Cut cable to its final length (Fig. 16).

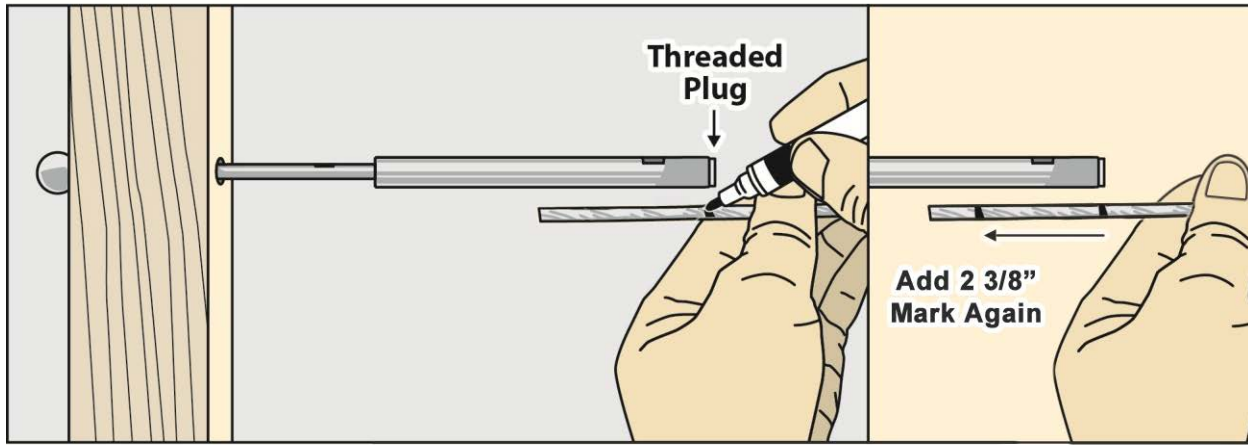


Fig 17

Fig 18

– Remove FineLine® Ball Turnbuckle/Swage Ball End and place on the deck surface. Do not unlace from intermediate posts. Crimp on fitting following Step 5 procedure.

8. REINSTALL FineLine® BALL TURNBUCKLE/SWAGE BALL END TO POST 2

9. TENSION THE CABLES

Turn FineLine® Body clockwise to tighten cable (Fig. 19). Use Vise-Grips™ and a piece of leather to protect the cable/fitting and to keep it from spinning. Start tightening the middle cable first, then tighten cables above and below in an alternating sequence until all cables have been tensioned (Fig 20).

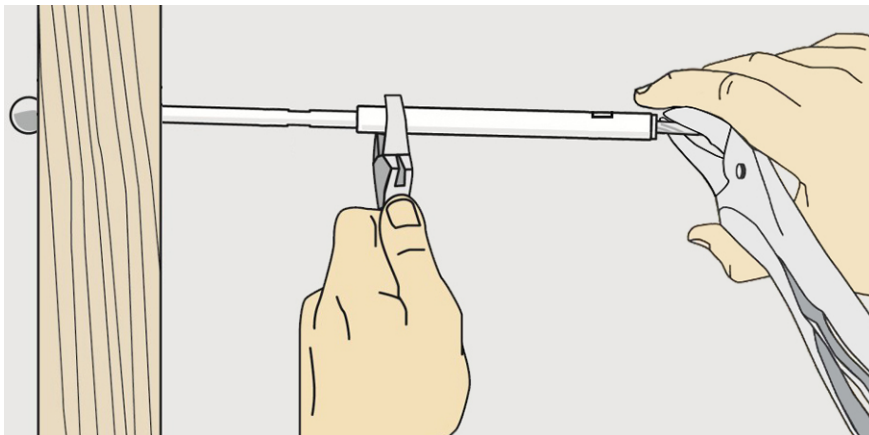


Fig 19

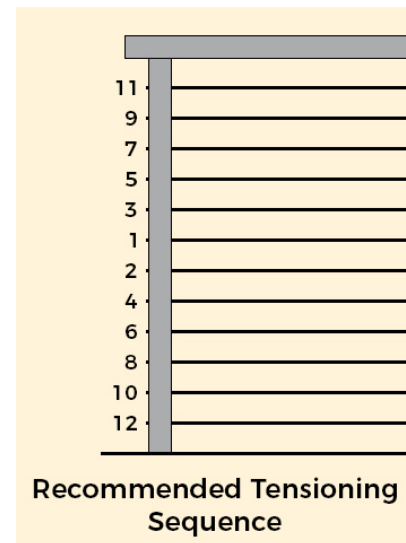


Fig 20

Spray and wipe down all cables and exposed end fittings with CitriSurf® Passivator to make sure all stainless steel is passivated and will properly resist corrosion. Then apply Rust Rescue to reinforce and prolong the passivation. Read the “Marine Grade Stainless Steel Maintenance and Cleaning Procedures” that follow for additional information and instructions.



Marine Grade Stainless Steel Maintenance and Cleaning Procedures

Stainless Cable & Railing Inc. offers Marine-Grade Stainless Steel railing frames and cable infill that boast high resilience with little maintenance. The material is in and of itself corrosion resistant thanks to a thin “passive layer” of alloying elements that forms on the surface of stainless steel. While this protective layer is strong enough to withstand typical wear and tear, it's not impervious.

We want our customers to get the most out of their cable railing and encourage periodic maintenance to keep cable infill clean, beautiful, and strong for years to come. This is especially important for exterior applications, particularly those in harsh outdoor environments exposed to salt water, industrial pollutants, de-icing salt spray, atmospheric dirt, traffic film, etc.

Perform the following procedures to keep your railing clean and preserve your warranty. You can purchase the necessary supplies through our store individually or together in a kit. Make sure to read the “WARNINGS & TIPS” on the second page.

Initial / Periodic Cleaning:

Follow this procedure immediately after installing your railing.

1. Spray CitriSurf® onto your frames and/or cables and wipe down using a clean, soft cloth.
2. Once all stainless surfaces have been cleaned and passivated using the CitriSurf® prepare Rust Rescue 200 by shaking or stirring the mixture.
3. Using a clean, soft cloth, sprayer, brush, or roller, apply Rust Rescue to your stainless steel frame and/or cables. Wear gloves while handling Rust Rescue (during steps 3-4), as it can cause skin irritation for some people.
4. Wait 2-3 minutes, then wipe off excess.
5. Allow the remaining solution to dry completely. A hot air oven, hair dryer, or other drying medium may be used to accelerate this process.

Repeat this procedure on a regular basis as needed to keep your stainless steel bright and shiny. For coastal applications, we recommend this be done every 2-3 months or so, depending on necessity.

General Cleaning:

Remove finger prints and other marks generated from daily use as needed. Apply mild soap and water or glass cleaner to area using a clean cotton cloth or chamois. Rinse clean with water and dry completely.

Oil, Grease, and Residue Cleaning:

Remove oil, grease, or residue left from other cleaning materials (such as floor cleaner or polishing detergents) as soon as possible. Apply alcohol-based products (including methylated spirit and isopropyl alcohol) or other solvents (such as acetone) several times using a clean, non-scratching cotton cloth until all traces have been removed. Use Aluminum Oxide Scotch Brite if necessary. Rinse clean with water and dry completely.

Paint and Graffiti Cleaning:

Remove as needed using proprietary alkaline or solvent-based paint strippers. Apply chosen cleaning solvent several times with a clean, non-scratching cotton cloth until all traces of paint have been removed. Use Scotch Brite if necessary. Rinse clean with water and dry completely.

Salt Film and Environmental Deposit Cleaning:

Perform cleaning regularly in consideration of environmental conditions and the rate of deposit build up. Use a clean cotton cloth with CitriSurf® solution (available in our store) to remove contamination. Apply cleaner evenly across cables to avoid a patchy appearance. Rinse clean with water and dry completely. Follow up with the Rust Rescue application procedure detailed in "Initial / Periodic Cleaning" on the previous page. Use Aluminum Oxide Scotch Brite if necessary.

WARNINGS & TIPS

- Avoid use of the following products, as they will harm your cables:
 - o Chloride-containing cleansers
 - o Hypochlorite bleaches. Should accidental contact occur, rinse off immediately with copious amounts of fresh water.
 - o Muriatic acid (commonly used to clean up tile/concrete installations)
 - o Silver-cleaners
 - o Scouring powders
 - o Hard scrapers or knives
 - o Non-stainless steel-based scouring pads, cleaning wool, or wire brushes
 - o Any cleaning utensils that have been used on “ordinary” (carbon) steel, as this may result in iron particle “cross-contamination”
- Do not leave stainless cables or fittings in contact with steel, iron, or any other metals, as this will cause rusting due to free-iron transfer. If your frame is made of a material other than stainless steel, use protective grommets or sleeves (which can be found in our store) to keep the metals from coming into contact.

Please follow these procedures to get the most out of your stainless steel frames and cable infill by Stainless Cable & Railing Inc.

If you have any questions, call us any time at 1-888-686-7245.

CitriSurf is a registered trademark of Stellar Solutions, Inc., McHenry, IL US