



SWING MOORING ASSEMBLY GUIDE



*Published
January 1st, 2020*



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INSTALLATION GUIDE DISCLOSURE

PLEASE NOTE: This installation guide is to be used only as an overview and resource for general information regarding the installation process of Hazelett elastic moorings. It is by no means comprehensive and should not be used as a sole tool for completing installations. System usage can vary greatly by application. It is the marina manager's responsibility to ensure proper guidelines for usage, including the maximum size vessel on the mooring and how the yacht connects to the buoy.

Every Hazelett installation should be completed by a certified and approved installer to guarantee the structural integrity and reliability of our products. Hazelett Marine is not liable for any installation completed without the approval or supervision of qualified staff.

TRANSPORT AND STORAGE

Care must be taken to transport and store the Hazelett Elastics so that they are not subject to abrasion or cutting on sharp surfaces. All rodes should be inspected for any damage UPON initial receipt and BEFORE installation.

COMPONENT ASSEMBLY

The Hazelett system includes 5/8"/16mm Uniline as the downline from the bottom of the buoy to the top of the elastics. The Uniline is looped around a galvanized thimble that connects to the shackle to protect the Uniline from rubbing against the shackle. The Uniline is then secured with 6 galvanized wire rope clips (3 at the top and 3 at the bottom). The wire rope clips should be tightened with an impact driver. Detailed instructions for wire rope clips can be found on page 6 of this guide. For Single and Double assembly systems the elastics are held together on the top end via a loop in the Uniline secured with galvanized wire rope clips and with a shackle at the bottom end. Complete and detailed full assembly images are found on the following page for reference:





Trawl floats, pictured above are secured through the small hole in the elastic and are secured on both ends with a figure 8 knot as shown above. All system assembly should be done on the barge, above water. Underwater installation should only require securing the shackle to the anchor termination shown below. Care should be taken to secure the shackle bolt with the split pin/carter pin shown above.



It is important to ensure wire rope clips are installed properly. Incorrect installation can reduce the working load limit by 40%. Below are general guidelines for installing wire rope clips.

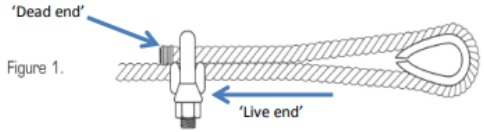


Figure 1.

- Wire Rope Clips should be inspected to ensure that:
- the wire rope clips are free from nicks, cracks and or gouges;
 - there are not any suspicious marks of repairs or reshaping;
 - clips with the correct dimensions have been selected.

Turn back specified length of wire rope from thimble (please refer tables given below). Put first clip one saddle width from seized "dead end" (Figure 1). Seat "live end" (load carrying) of the wire rope in saddle and position U-bolt over "dead end." Tighten nuts evenly to proper torque.

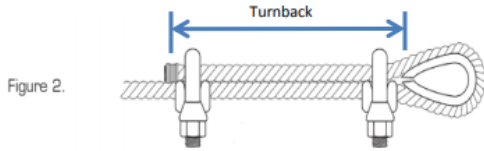
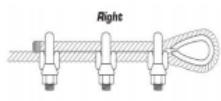


Figure 2.



Put the second clip as near the loop or thimble as possible (Figure 2). Install nuts firmly but do not yet tighten to proper torque.

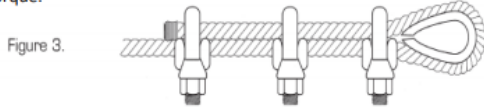
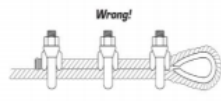


Figure 3.



Install all remaining clips equally spaced between the first two clips (Figure 3). Install nuts firmly but do not yet tighten to proper torque. Apply light tension to wire rope assembly to take up rope slack and then tighten all nuts evenly to proper torque.

The top thimble of the Hazelett System should be connected to the bottom shackle of the buoy hardware as shown below. Mooring bridal or dock lines should also be connected to the bottom shackle shown below. Both screw pin shackles should be secured with safety wire.



SYSTEM SIZING GUIDELINES

The downline (Uniline) portion of the system will need to be cut to length for each mooring location as the depths vary greatly. See image below for reference:



A simple formula below will guide the length determination:

Uniline length (distance from end of top thimble to the top of the elastic A-B above) equals:

High tide depth

Minus

Length of sub surface buoy hardware, shackles and swivel (pictured below)



Minus

Length of Hazelett elastic and shackle (about 1.6 meters)

Minus

Total Height/protrusion of the anchor

Minus

Length of uniline for thimble and loop

30cm can be added to this length to account for the wave for those sites above 2.5 meters in depth



RECCOMENDED EQUIPMENT FOR HAZELETT SYSTEM ASSEMBLY

1. Pruning shears/ heavy duty scissors (for cutting the Uniline)
2. Impact driver for the wire rope clips (15/16"/24mm socket size)
3. Safety wire for screw pin shackles
4. Plyers for safety wire
5. Extra split pins/carter pins
6. Tape measure
7. Depth sounder for depth verification

INSPECTION SCHEDULE

The Hazlett System should be inspected 3 months after initial deployment and every 6 months afterwards. Inspections should be well documented. Any visibly damaged parts should be well documented and removed immediately for replacement.

PRODUCT WARNINGS

GENERAL

- Do not cut elastics.
- Use only for the specified purpose of mooring boats or docks.
- System design is based on environmental factors and parameters signed off on by the client in the Proposal. Any changes in these parameters or forces that exceed specified conditions risk failure of system.
- Do not exceed rated capacity. System can fail if damaged, misused or overloaded.
- Do not use nylon or three strand-laid (twisted) rope for downline. Excessive elongation and twisting under tension can occur.
- Do not install any damaged elastic.

INSTALLATION, TENSIONING & INSPECTION

- Use care when handling elastics. Avoid placement and stretching on sharp surfaces.
- Use caution when stretching elastics. Elastics have a lot of stored energy when stretched and can result in catastrophic injury if released unexpectedly. Serious injury or death can occur.
- Recommended two man lift for any system bigger than a single. Injury can occur due to weight of system.
- Personnel keep out from under a raised load and out of the line of force of any load. Conduct all lifting operations responsibly to prevent injury if equipment failure. Do not ride on loads.
- Avoid impacting, jerking or swinging system abruptly during installation. Avoid shock loads. A shock load is generally significantly greater than the static load.
- Secure all components of system. Secure cotter pins on shackles. Failure to do so can result in undoing and failure of system.
- Do not twist or tangle elastics during installation.
- Install below water. Surface exposure can result in elastic damage due to unexpected forces.
- Follow installation guide and install system only per specifications.
- Complete installation with a qualified installer. Any installation performed by a non-qualified installer voids all warranties unless the installation is approved post-installation by a qualified Hazelett representative.
- Perform tensioning and inspections with a qualified installer.
- Anchor placement that deviates from design risks excessive wear and force on system not accounted for in the design. Decreased system life can occur.

LIMITED WARRANTY

What is covered by this warranty?

Hazelett warrants the hardware product and accessories against defects in materials and/or workmanship under normal installation, use, service, and maintenance over the warranty period described below.

What is not covered by this warranty?

This warranty does not cover any:

- Personal transportation costs incurred during the course of seeking repair or service
- Cosmetic damage, including but not limited to, scratches and dents
- Damage caused by improper use of the product or another product
- Damage by external causes, including but not limited to, accident, abuse, misuse, fire, or natural disasters
- Defects caused by normal wear and tear or otherwise due to normal aging of product, including consumable parts that are designed to diminish over time, unless caused by defects in materials and/or workmanship, or
- Products if any serial numbers or warnings have been altered or removed from the product.

What Hazelett will do:

If during the warranty period a valid claim is submitted to Hazelett, Hazelett will, at its discretion, (a) repair the product using new or previously used parts that are equivalent to new in performance and reliability, (b) replace the product with a functionally equivalent device, or (c) exchange the product for a refund of the purchase price.

Warranty Service Options:

A claim must be submitted to Hazelett during the warranty period by phone or email. Warranty services will be provided by Hazelett based on a valid claim through one of the following options:

- **Carry-in service.** You may return your Hazelett product to the main office as specified in the Agreement for the product to be serviced at Hazelett. Hazelett will notify you when services are complete, and your product can be retrieved from the main office or sent by common carrier.
- **Mail-in service.** If Hazelett determines that your product is eligible for mail-in service, Hazelett will supply you with packaging materials if necessary and reimburse for the cost of shipping. When service is complete, Hazelett will ship the product back to the specified destination at its own cost.
- **On-site service.** If possible, Hazelett will remotely access products and correct issues as able. Hazelett representatives may also travel to the product's location at its own cost to remedy the products issues if deemed both necessary and cost effective.

Hazelett reserves the right to change the method by which warranty services are provided and eligibility for a particular method of service, pending product type. Additionally, if a product must be shipped internationally, you must comply with all import and export laws and regulations and pay customs fees.

Warranty Limitations and Limitation of Liability:

Warranties and liabilities are limited in accordance with the Terms and Conditions of Sale.

This Warranty is effective for two (2) years from date of purchase.



