SAFETY AND MAINTENANCE INSTRUCTIONS

GLOBAL ROPE FITTINGS

AQUALLINE PRODUCTS

SAFETY AND MAINTENANCE INSTRUCTIONS

This document provides essential safety information and guidance on the safe use and maintenance of our products. For installation procedures, refer to the applicable product-specific Installation Instructions.

Always check the Product Downloads page on our website at globalropefittings.com/product-downloads to ensure you are using the latest version of this document. If you require additional technical guidance, please consult Global Rope Fittings.

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GENERAL REQUIREMENTS

The installation, operation, inspection and maintenance of our products shall only be carried out by qualified and competent personnel. The user is solely responsible for ensuring that these activities are carried out correctly.

The safety and maintenance instructions in this document shall be strictly followed. Failure to comply with these instructions may result in unsafe conditions, equipment damage, serious injury or death.

These general requirements shall be followed in conjunction with the applicable product-specific requirements and instructions in this document.

UNLESS OTHERWISE SPECIFIED, THE FOLLOWING REQUIREMENTS APPLY TO ALL AQUALLINE PRODUCTS:

- Always carefully inspect all products, components and spare parts before use.
- Products shall be inspected at regular intervals during service. The inspection intervals shall be determined based on operating conditions, environmental conditions and frequency of use. More frequent inspections shall be carried out where necessary.
- Global Rope Fittings recommends non-destructive testing (NDT), specifically magnetic particle inspection (MPI), as part of regular product inspections.
- Never use a product showing nicks, gouges, cracks, sharp edges, discolouration caused by excessive heating or any signs of wear exceeding 5% of the nominal dimensions of the bow, pin holes, pins, bolts or any other component.
- Ensure that all markings remain legible, as they contain essential information such as the wire rope size and product traceability (e.g. heat number).
- Never use a product that has been overloaded, side-loaded or shock-loaded.
- Only original AqualLine components and spare parts (e.g. wedges, pins and bolts) shall be used in an AqualLine socket assembly, except for the connector fitting of the AqualLine Universal Connector Socket (UCS).
- Never interchange AqualLine products or components with those from other manufacturers, except for the connector fitting of the AqualLine Universal Connector Socket (UCS).
- Do not modify, repair, reshape, weld or reuse any component without first consulting Global Rope Fittings.

SOCKETING REQUIREMENTS

The following socketing requirements apply to all AqualLine products incorporating a spelter termination.

- Socketing shall only be carried out by qualified and competent specialists.
- Global Rope Fittings recommends using a resin specifically designed and approved for wire rope socketing.
- Always read and fully understand the instructions and warnings provided by the resin manufacturer.
- Where possible, proof test the assembly at 40% of the Minimum Breaking Load (MBL) of the wire rope at least one hour after the resin has gelled.

For further requirements and guidance on wire rope socketing, refer to **DIN EN 13411-4:2011-06 and ISO 17558:2006-09.**

SPELTER SOCKETS

TECHNICAL DATA

Our AqualLine spelter socket terminations have an efficiency rating of 100%, based on the nominal strength of the wire rope. The achievable efficiency is limited by the Minimum Breaking Load (MBL) of the socket. The applicable MBL values and other technical specifications are provided in the product datasheets, which can be downloaded from the Product Downloads page on our website at **globalropefittings.com/product-downloads** or requested by email at **sales@globalropefittings.com.**

All our spelter sockets are manufactured from high-quality cast steel and are suitable for low-temperature environments. The minimum operating temperature for general applications is −46 °C, except for Anchor Pendant Sockets, which have a minimum operating temperature of −40 °C.

SAFETY REQUIREMENTS

Select the appropriate AqualLine spelter socket based on the wire rope diameters specified in the applicable product datasheet. If the wire rope diameter falls between two listed sizes, always select the next larger socket.

> **The Socketing Requirements outlined in this document and the applicable product-specific Installation Instructions shall be followed. If these instructions were not supplied with the product, please request a copy from Global Rope Fittings before installation.**

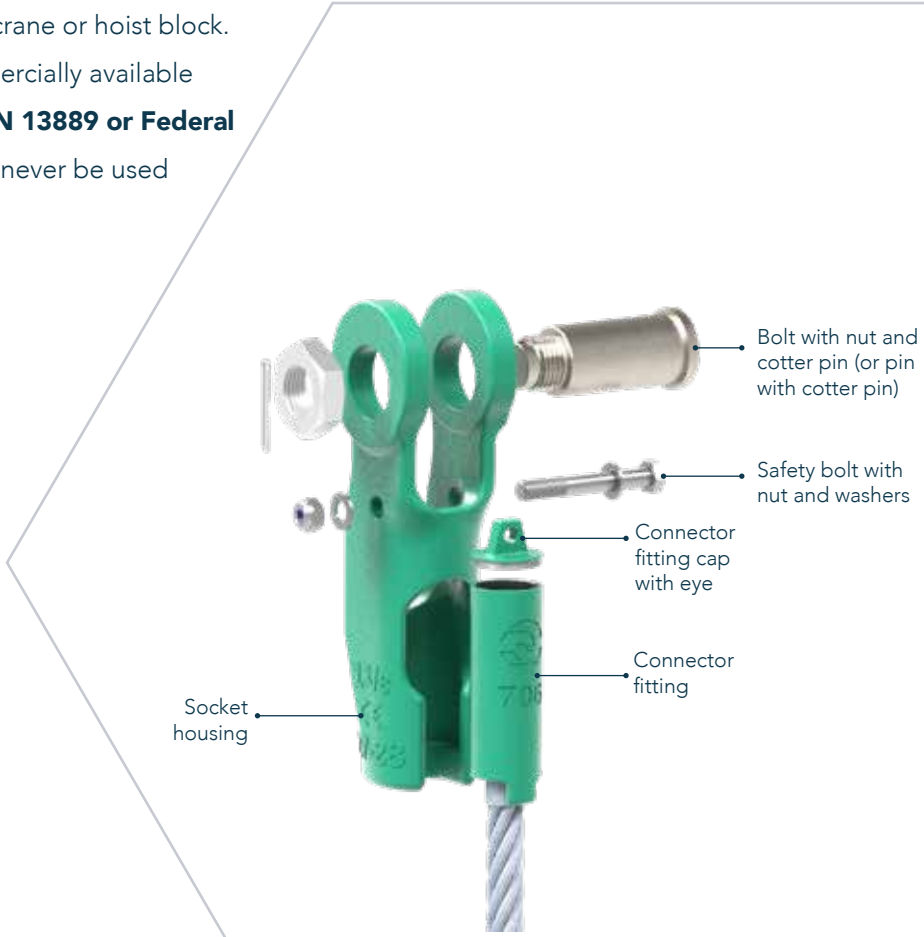
ADDITIONAL INSTRUCTIONS

FAST CONNECTOR SOCKETS

The following additional instructions apply to AqualLine Fast Connector Sockets (FCS):

- Before use, always ensure that the connector fitting is fully seated in the socket housing. The protrusion at the bottom of the connector fitting must be positioned in the opening, with the company logo clearly visible. If the safety bolt does not fit correctly, the connector fitting is not properly seated in the socket housing.

- The eye on the connector fitting cap is intended solely to facilitate reeving the connector fitting with the attached wire rope into the crane or hoist block. It is designed for use with commercially available bow shackles that comply with **EN 13889 or Federal Specification RR-C-271.** It shall never be used as a lifting point.



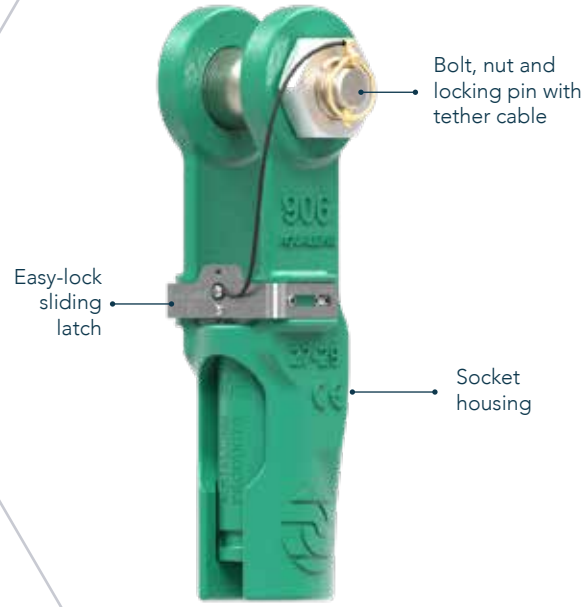
Fast Connector Socket

ADDITIONAL INSTRUCTIONS

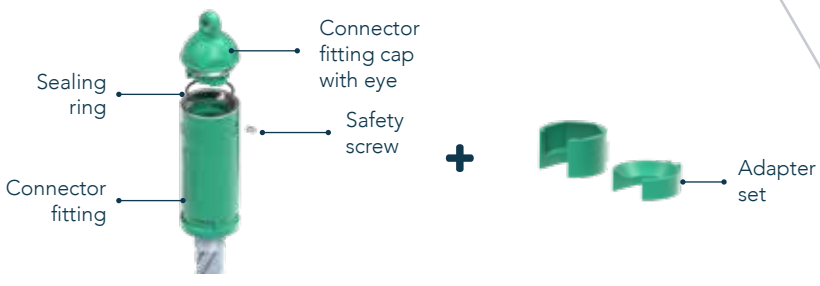
UNIVERSAL CONNECTOR SOCKETS

The following additional instructions apply to AqualLine Universal Connector Sockets (UCS):

- **When using an original AqualLine connector fitting:** Before use, always ensure that the connector fitting is fully seated in the socket housing. The connector fitting may be positioned with the logo facing either forwards or backwards.
- **When using a third-party connector fitting:** Always use the appropriate supplied adapter. The opening in the adapter must be aligned with the opening in the socket housing, and both the adapter and connector fitting must be fully seated.
- **For both configurations:** Always ensure that the easy-lock sliding latch is fully closed before use. If the latch cannot be closed correctly, the connector fitting and/or adapter may not be properly seated.
- The eye on the connector fitting cap is intended solely to facilitate reeving the connector fitting with the attached wire rope into the crane or hoist block. It is designed for use with commercially available bow shackles that comply with **EN 13889 or Federal Specification RR-C-271.** It shall never be used as a lifting point.



Universal Connector Socket



WEDGE SOCKETS

TECHNICAL DATA

Our AqualLine wedge socket terminations have an efficiency rating of 80-100% based on the nominal strength of the wire rope. The achievable efficiency is limited by the Minimum Breaking Load (MBL) of the socket. The applicable MBL values and other technical specifications are provided in the product datasheets, which can be downloaded from the Product Downloads page on our website at **globalropefittings.com/product-downloads** or requested by email at **sales@globalropefittings.com.**

All our wedge sockets are manufactured from high-quality cast steel and are suitable for low-temperature environments. The minimum operating temperature for general applications is -46 °C.

SAFETY REQUIREMENTS

Select the appropriate AqualLine wedge socket based on the wire rope diameters specified in the applicable product datasheet. If the wire rope diameter falls between two listed sizes, always select the next larger socket.

- The loaded wire rope shall always be aligned with the centreline of the bolt or pin.
- The tail end of the wire rope shall be secured using the required number of AqualLine Wire Rope Clips. The tail end shall not be attached to the loaded wire rope or to any other part of the assembly. Refer to the applicable AqualLine product datasheet and **EN 13411-5** for the requirements concerning Wire Rope Clips.
- For conventional 6- and 8-strand wire ropes, the tail end shall have a minimum length of 6 × the wire rope diameter, but never less than 150 mm (6”). For rotation-resistant wire ropes, the minimum length shall be 20 × the wire rope diameter, but never less than 150 mm (6”). For further guidance on the safe use and inspection of asymmetric wedge sockets, refer to **EN 13411-6.**
- The socket shall be secured to prevent rotation during operation.
- Before use, ensure that the wire rope and wedge are fully seated in the socket. Improper seating of the wedge may cause the wire rope to slip.
- Before each subsequent use, verify that the tail end of the wire rope remains correctly positioned and meets the minimum length requirements specified above. Also verify that the Wire Rope Clip nuts are tightened to the specified torque and retighten them as necessary.

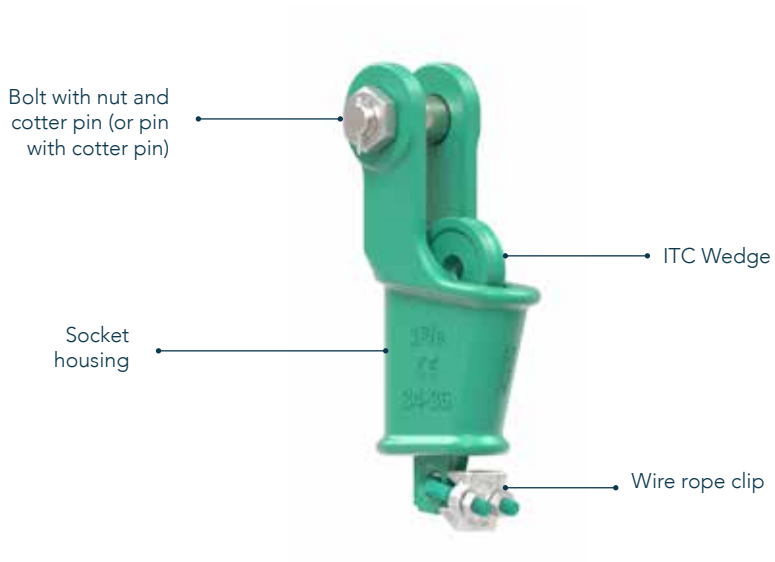
The applicable Installation Instructions shall be followed when assembling or installing the wedge socket.
If these instructions were not supplied with the product, please request a copy from Global Rope Fittings before installation.

ADDITIONAL INSTRUCTIONS

OPEN WEDGE SOCKETS WITH INTEGRATED TAIL CLAMP

The following additional instructions apply to AqualLine Open Wedge Sockets with Integrated Tail Clamp (OWS ITC):

- Existing AqualLine Open Wedge Sockets can be retrofitted with the AqualLine ITC wedge.

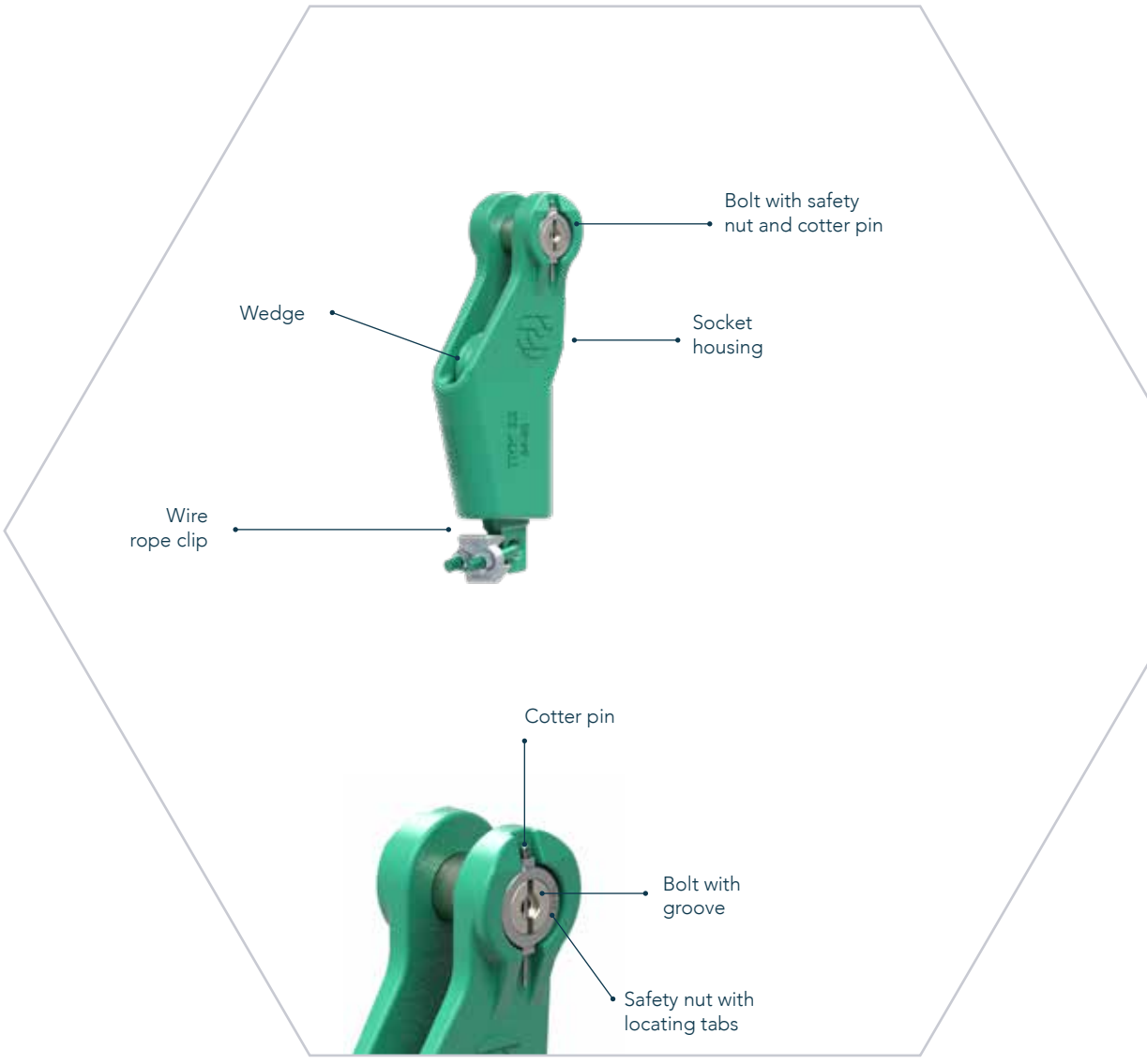


Open Wedge Socket with Integrated Tail Clamp

TIEFBAU KEILENDKLEMMEN

The following additional instructions apply to AqualLine Tiefbau Keilendklemmen (TKK):

- Before use, ensure that the bolt and safety nut are correctly tightened, that the two locating tabs of the safety nut are properly seated in the recesses around the bolt opening, and that the hole for the cotter pin is aligned with the groove in the bolt.
- Ensure that the cotter pin is fully inserted and secured by bending both ends. The cotter pin prevents the bolt from loosening and disengaging from the safety nut during operation.
- The tail end of the wire rope shall have a minimum length of 8 × the wire rope diameter for conventional 6- and 8-strand wire ropes, or 20 × the wire rope diameter for rotation-resistant wire ropes, but never less than 150 mm (6”).

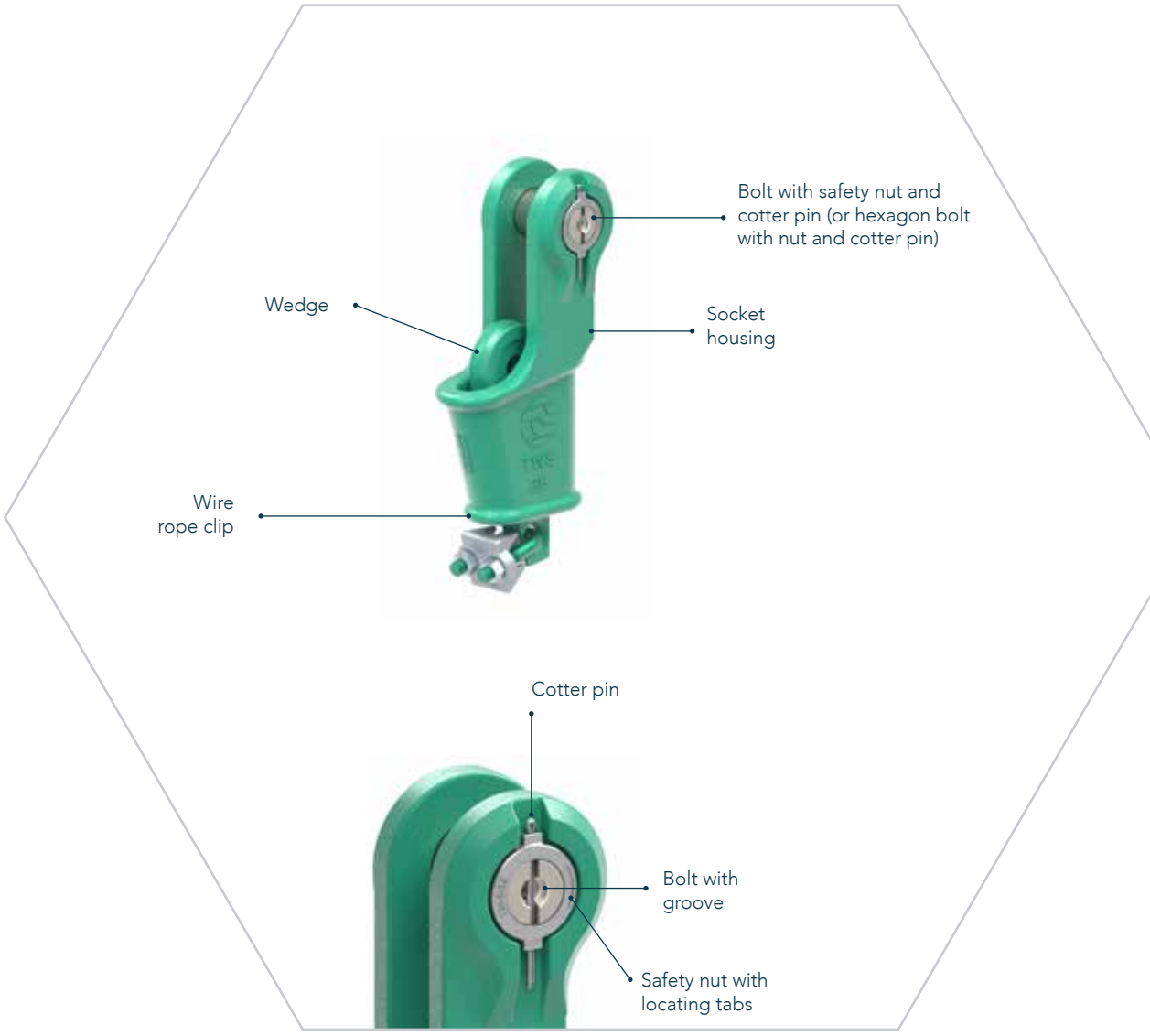


Tiefbau Keilendklemme

TIEFBAU WEDGE SOCKET

The following additional instructions apply to AqualLine Tiefbau Wedge Sockets (TWS):

- Before use, ensure that the bolt and safety nut are correctly tightened, that the two locating tabs of the safety nut are properly seated in the recesses around the bolt opening, and that the hole for the cotter pin is correctly aligned. **The requirement concerning the locating tabs does not apply to the version with a hexagon bolt.**
- Ensure that the cotter pin is fully inserted and secured by bending both ends. The cotter pin prevents the bolt from loosening and disengaging from the safety nut during operation.
- The tail end of the wire rope shall have a minimum length of 8 × the wire rope diameter for conventional 6- and 8-strand wire ropes, or 20 × the wire rope diameter for rotation-resistant wire ropes, but never less than 150 mm (6").



Tiefbau Wedge Socket

ADJUSTABLE SOCKETS

TECHNICAL DATA

The Minimum Breaking Load (MBL) values, adjustment ranges, and other technical specifications for AqualLine adjustable sockets are provided in the product datasheets, which can be downloaded from the Product Downloads page on our website at **globalropefittings.com/product-downloads** or requested by email at **sales@globalropefittings.com.**

All our adjustable sockets are manufactured from high-quality cast steel and are suitable for low-temperature environments. The minimum operating temperature for general applications is -46° C.

SAFETY REQUIREMENTS

Select the appropriate AqualLine adjustable socket based on the wire rope diameters specified in the applicable product datasheet. If the wire rope diameter falls between two listed sizes, always select the next larger socket.

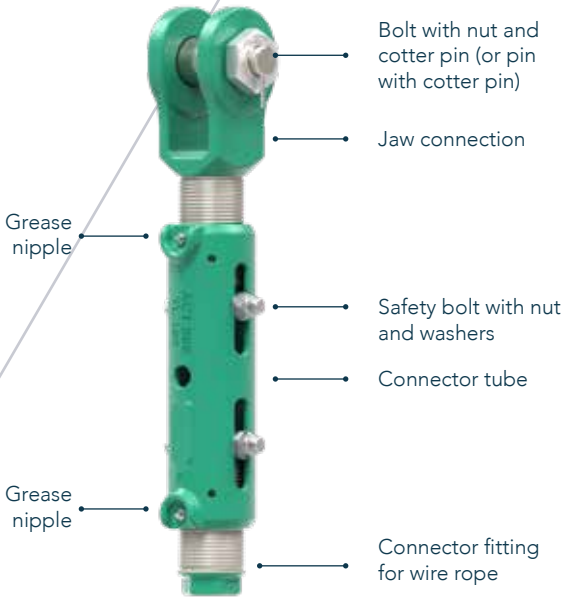
> **The Socketing Requirements outlined in this document and the applicable product-specific Installation Instructions shall be followed. If these instructions were not supplied with the product, please request a copy from Global Rope Fittings before installation.**

ADDITIONAL INSTRUCTIONS

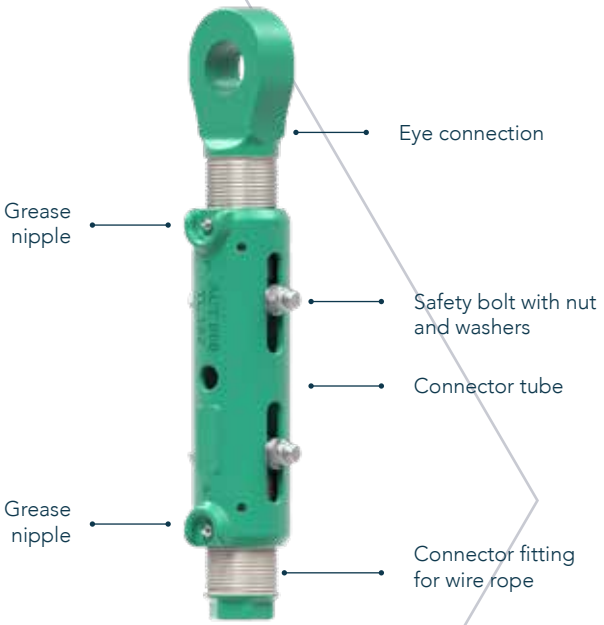
ADJUSTABLE OPEN & CLOSED TURNBUCKLE SOCKETS

The following additional instructions apply to AqualLine Adjustable Open & Closed Turnbuckle Sockets (AOTS & ACTS):

- The overall assembly length can be adjusted by up to 3 × the wire rope diameter in either direction, providing a total adjustment range of 6 × the wire rope diameter.
    - o Before making any adjustments, ensure that the threads are properly greased via the grease nipples. After adjustment, ensure that all safety bolts, nuts and washers are correctly reinstalled and securely tightened. Never operate the socket with missing, loose or incorrectly installed safety bolts, nuts and washers.
- The following inspection and maintenance activities are recommended after 25,000 lifts, 6 months or 1,000 operating hours, whichever occurs first:
    - o Re-grease the threads using EP3 or EP4 grease via the grease nipples.
    - o Check that all safety bolts, nuts and washers are correctly installed and securely tightened.
- After 100,000 lifts, 24 months or 4,000 operating hours, whichever occurs first:
    - o Have magnetic particle inspection (MPI) for cracks performed by qualified specialists.
    - o Inspect all components for wear. Components showing wear exceeding 5% of their nominal dimensions shall be replaced.



Adjustable Open Turnbuckle Socket



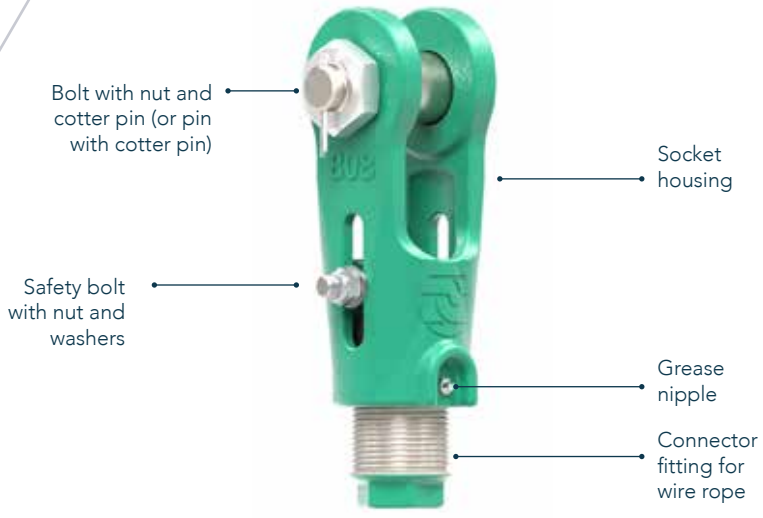
Adjustable Closed Turnbuckle Socket

ADDITIONAL INSTRUCTIONS

ADJUSTABLE OPEN SPELTER SOCKETS

The following additional instructions apply to AqualLine Adjustable Open Spelter Sockets (AOSS):

- The overall assembly length can be adjusted by up to 3 × the wire rope diameter.
  - o Before making any adjustments, ensure that the thread is properly greased via the grease nipple. After adjustment, ensure that the safety bolt, nut and washers are correctly reinstalled and securely tightened. Never operate the socket if the safety bolt, nut or washers are missing, loose or incorrectly installed.
- The following inspection and maintenance activities are recommended after 25,000 lifts, 6 months or 1,000 operating hours, whichever occurs first:
  - o Re-grease the thread using EP3 or EP4 grease via the grease nipple.
  - o Check that the safety bolt, nut and washers are correctly installed and securely tightened.
- After 100,000 lifts, 24 months or 4,000 operating hours, whichever occurs first:
  - o Have magnetic particle inspection (MPI) for cracks performed by qualified specialists.
  - o Inspect all components for wear. Components showing wear exceeding 5% of their nominal dimensions shall be replaced.



Adjustable Open Spelter Socket

TURNBUCKLES

TECHNICAL DATA

The technical specifications for our AqualLine heavy-duty turnbuckles are provided in the product datasheets, which can be downloaded from the Product Downloads page on our website at **globalropefittings.com/product-downloads** or requested by email at **sales@globalropefittings.com.**

All our heavy-duty turnbuckles are manufactured from high-quality cast steel and are suitable for low-temperature environments. The minimum operating temperature for general applications is -46° C.

SAFETY REQUIREMENTS

> **The applicable Installation Instructions shall be followed when assembling or installing turnbuckles. If these instructions were not supplied with the product, please request a copy from Global Rope Fittings before installation.**

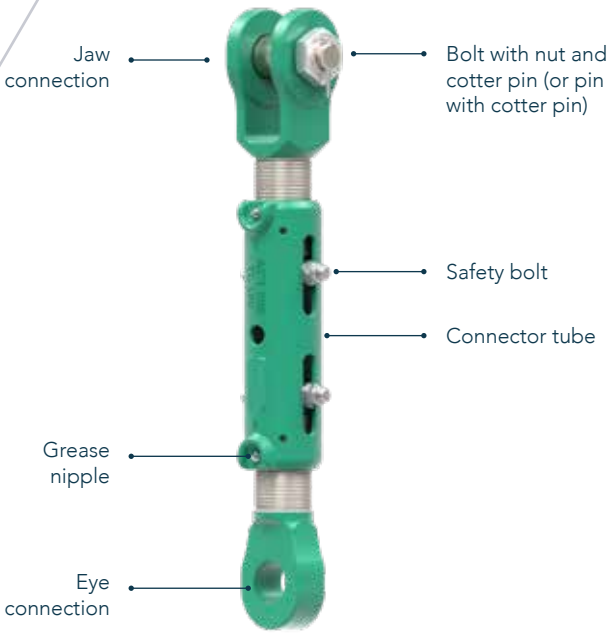
ADDITIONAL INSTRUCTIONS

TURNBUCKLES WITH EYE AND/OR JAW CONNECTIONS

The following additional instructions apply to AqualLine Turnbuckles:

- Turnbuckle Eye-Eye (TBL-EE)
- Turnbuckle Eye-Jaw (TBL-EJ)
- Turnbuckle Jaw-Jaw (TBL-JJ)

- The overall assembly length can be adjusted within the adjustment range specified in the applicable product datasheet.
    - o Before making any adjustments, ensure that the threads are properly greased via the grease nipples. After adjustment, ensure that all safety bolts, nuts and washers are correctly reinstalled and securely tightened. Never operate the turnbuckle with missing, loose or incorrectly installed safety bolts, nuts and washers.
- The following inspection and maintenance activities are recommended after 25,000 lifts, 6 months or 1,000 operating hours, whichever occurs first:
    - o Re-grease the threads using EP3 or EP4 grease via the grease nipples.
    - o Check that all safety bolts, nuts and washers are correctly installed and securely tightened.
- After 100,000 lifts, 24 months or 4,000 operating hours, whichever occurs first:
    - o Have magnetic particle inspection (MPI) for cracks performed by qualified specialists.
    - o Inspect all components for wear. Components showing wear exceeding 5% of their nominal dimensions shall be replaced.



Turnbuckle Eye-Jaw

LIFTING & RIGGING HARDWARE

TECHNICAL DATA

The technical specifications for our AqualLine lifting & rigging hardware are provided in the product datasheets, which can be downloaded from the Product Downloads page on our website at **globalropefittings.com/product-downloads** or requested by email at **sales@globalropefittings.com.**

SAFETY REQUIREMENTS

The applicable Installation Instructions shall be followed when assembling or installing lifting & rigging hardware. If these instructions were not supplied with the product, please request a copy from Global Rope Fittings before installation.

ADDITIONAL INSTRUCTIONS

HEAVY DUTY TRIANGLE PLATES

The following additional instructions apply to AqualLine Heavy Duty Triangle Plates (HDTP):

- Select the appropriate Heavy Duty Triangle Plate based on the required Working Load Limit (WLL).
- The lifting eye is designed for use with commercially available bow shackles that comply with **EN 13889 or Federal Specification RR-C-271.**
- The lifting eye and shackle supplied for handling during assembly are intended solely for this purpose and shall never be used as lifting points during operation.

SOLID WIRE ROPE THIMBLES

The following additional instructions apply to AqualLine Solid Wire Rope Thimbles (SWRT):

- Select the appropriate Solid Wire Rope Thimble based on the required wire rope diameter. Ensure that the wire rope fits properly into the groove of the thimble.

WIRE ROPE CLIPS

The following additional instructions apply to AqualLine Wire Rope Clips (WRC):

- Wire Rope Clips are intended for securing static loads only and shall never be used for lifting applications.
- Select the appropriate Wire Rope Clip size based on the wire rope diameter. If the wire rope diameter falls between two available Wire Rope Clip sizes, always select the next larger size.
- Use the required number of Wire Rope Clips for the intended application, taking into account the applicable requirements of **EN 13411-5.**
- Ensure that the Wire Rope Clip nuts are tightened to the torque specified in the AqualLine product datasheet. Check the tightening torque periodically and retighten the nuts as necessary.

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AQUALLINE PRODUCTS

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