

Socket Lock

Socketting Resin



Socket-Lock.com

A product of
Sea-Fit

斐记五金机械上海有限公司

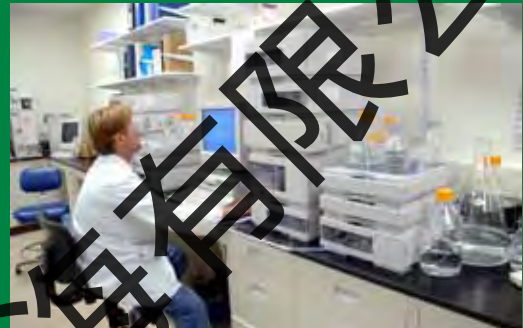
CONTENTS

Socket-Lock

Contents	2	
About Sea-Fit	2	
Product Information		
Key Features	3	
Kit Sizes	4	
Part Numbers	4	
Packaging	5	
Funnels	5	
Quality Process		
Technical Specifications	6	
Approvals	6	
Manufacturing	6	
Testing	7	
Socketing Procedures		
How Socket Lock Works	8	
Recommended Tools	9	
Warnings	10	
Safety Information	10	
Temperature and Times	11	
Step-by-Step Socketing Instructions	12-18	
Contact Information		19
Free Socketing Procedure Poster Offer	19	



Made In USA



ABOUT Sea-Fit

Sea-Fit, Inc. was created to develop innovative products of the highest quality to meet the growing demands of the lifting and mooring industry. With direct input from knowledgeable, experienced rigging shops and field operators, Sea-Fit is developing an extensive line of heavy-lift and offshore mooring products dedicated to increase material traceability and quality for niche, hard-to-locate items.

Material traceability, quality, innovation and inventory are the core of Sea-Fit's commitment to its customers; accordingly, Sea-Fit has implemented solutions to solve the problems customers were facing. Material traceability is no longer a hassle with Sea-Fit's RFID and Sea-Cert online certification system. Designed to be easily accessible anywhere and online 24 hours a day, this certificate retrieval system will increase efficiency for everyone involved. Quality is achieved by partnering with well-respected and experienced manufacturers such as The Ulven Companies, and ITW Polymer Technologies who share Sea-Fit's goals of innovative and quality products. Industry wide inventory levels have not been able to keep up with the substantial growth of the lifting and mooring industry, which forced lead times and product availability to become unfavorable; therefore, Sea-Fit is committed to substantial inventory levels with a focus on customer service.

Socket Lock's development has followed the same path as Sea-Fit's other quality products. Input from end users, and extensive lab and field testing has made Socket Lock the easiest and most efficient socketing resin to work with today. Innovative packaging, pre measured kits, and the fast funnel are just a few of the reasons end-users will find that Socket-Lock makes their job easier.

Key Features

Newly formulated after extensive testing for better wire rope grip.

Packaged in environmentally protected pouches and rust-free plastic pails to ensure product freshness.

Disposable pouring funnel included in each kit eliminates spills.

Bright green resin and white hardener makes mixing easy to verify.

Packaged in CCs and individually sized kits to minimize waste and aid in easy mixing.

Non-dusting, safe-to-use formula contains no dry powders that become airborne health hazards.



PRODUCT INFORMATION

Socket-Lock

Kit Sizes

General Kits



250 cc

500 cc

1000 cc

Kits for Individual Sizes



2" - 2 1/8"
2 1/4" - 2 3/8"
2 1/2" - 2 5/8"

2 3/4" - 2 7/8"
3" - 3 1/8"
3 1/4" - 3 3/8"

3 1/2" - 3 5/8"
3 3/4" - 4"

Socket Size		ccs
inches	mm	
1/4"	6-7	9
5/16" - 3/8"	8-10	17
7/16" - 1/2"	11 - 13	35
9/16" - 5/8"	14 - 16	52
3/4"	19	86
7/8"	22	131
1"	25	164
1 1/8"	29	210
1 1/4" - 1 3/8"	32 - 35	361
1 1/2"	37	426
1 5/8"	42	495
1 3/4" - 1 7/8"	43 - 48	737
2" - 2 1/8"	51 - 54	1,265
2 1/4" - 2 3/8"	55 - 60	1,475
2 1/2" - 2 5/8"	61 - 68	1,966
2 3/4" - 2 7/8"	69 - 75	2,294
3" - 3 1/8"	76 - 80	3,277
3 1/4" - 3 3/8"	81 - 87	3,933
3 1/2" - 3 5/8"	88 - 93	4,920
3 3/4" - 4"	94 - 103	7,784

Note: Socket volumes are approximate and may vary according to manufacturer.

Part Numbers

Resin Kit P/N	Kit Size	Kits/Case	Booster Pack P/N (Sold Individually)
10900010	250 cc	9	10901010
10900020	500 cc	8	10901020
10900030	1000 cc	4	10901030
10900040	2" - 2 1/8" Socket	each	10901040
10900050	2 1/4" - 2 3/8" Socket	each	10901050
10900060	2 1/2" - 2 5/8" Socket	each	10901060
10900070	2 3/4" - 2 7/8" Socket	each	10901070
10900080	3" - 3 1/8" Socket	each	10901080
10900090	3 1/4" - 3 3/8" Socket	each	10901090
10900100	3 1/2" - 3 5/8" Socket	each	10901100
10900110	3 3/4" - 4" Socket	each	10901110

Always Store Product in a Cool Dry Place

When stored at 70°F (21°C) or below, the shelf life of product is 18 months. An expiration date is printed on all packaging. Never use product beyond the expiration date. Storage at higher temperatures may reduce shelf life of product.

Packaging

Socket Lock's packaging was engineered to protect the product from the harshest conditions such as those found in offshore salt-water environments. We start by packaging resin and hardener in sealed foil pouches to isolate product from environmental factors and ensure product freshness. Kit contents are then placed in rust-free plastic pails to prevent contamination from corrosion commonly found in products that are packed in metal containers.

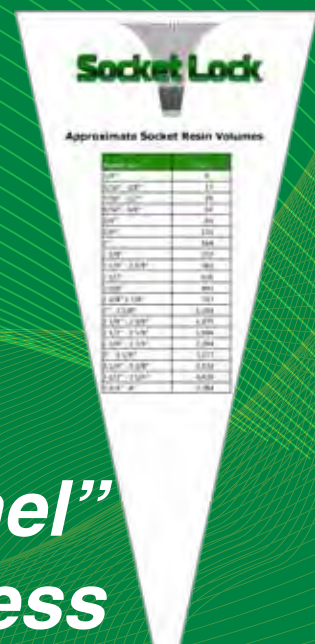
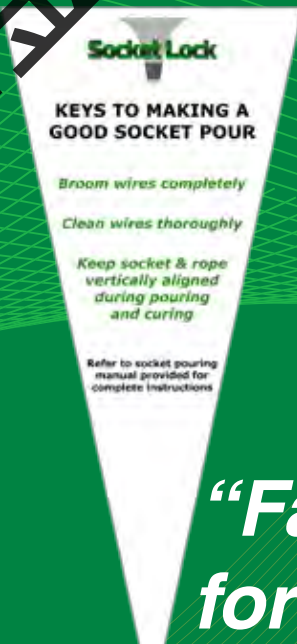


Ensures Product Freshness

Funnels

Many professionals who frequently pour sockets complain of the complications and inconsistency when it comes to pouring the resin into the socket bowl. We listened to your concerns, and developed the patented "Fast Funnel" for easy pouring and less mess.

The Fast Funnel is provided with each kit and includes useful information to assist in a good socket pour, and approximate socket resin volumes to minimize waste.



Use the "Fast Funnel" for Less Mess

Technical Specifications

Physical Property	Standard	Value
Viscosity	ASTM D2196	7,000 - 12,000 centipoise
Density	ASTM D792	1.6 g/cc (.0925 oz/in ³)
Linear Curing Shrinkage	ASTM D2566	1.40%
Compressive Strength	ASTM D695	>20,000 psi (138 MPa)
Compressive Modulus	ASTM D695	>1.03 M psi (7,102 MPa)
Compressive Strain	ASTM D695	9.3% at failure
Retention of Compressive Strength After Immersion	ASTM D695	99%
Barcol Hardness	ASTM D2583	45 - 60
Heat Deflection Temperature	ASTM D648	506°F (267°C)
Flexural Strength	ASTM D790	>10,000 psi (69 MPa)
Flexural Modulus	ASTM D790	>1.04 M psi (7,171 MPa)
Flexural Strain	ASTM D790	1.26%
Tensile Strength	ASTM D638	>6,000 psi (41 MPa)
Tensile Modulus	ASTM D638	>1.15 M psi (7,929 MPa)

Approvals



Socket Lock meets or exceeds the requirements of the world's top standards organizations.

Manufacturing

Socket Lock's quality begins at the lab where chemists formulate the resin and hardener combination to focus on key areas important to users: wire grip, shelf life, ease of mixing and pouring, and resistance to environmental conditions. They work continuously, aiming to ensure product consistency and quality control.



Testing

DYNAMICALLY TESTED

Socket Lock's new and improved formula has been dynamically tested to EN 13411.3 standards, in which socket assemblies were cycled 75,000 times at 30% of the breaking strength of the rope. Following the dynamic testing, assemblies were then break load tested.

SHOCK LOAD TESTED

Large weights were attached to socket assemblies then dropped to prove resin would hold and rope would break.

STATIC BREAK LOAD TESTED

Assemblies up to 3 1/2 inches were destructive tested to verify **Socket Lock's** performance on high-strength mooring lines.

Dynamic and Shock load testing was conducted at Wirop's rigging testing facilities.

HD video of the 3 1/2" High-Strength Mooring Rope Break Test @ Socket-Lock.com



Shock Load Testing



Dynamic Testing

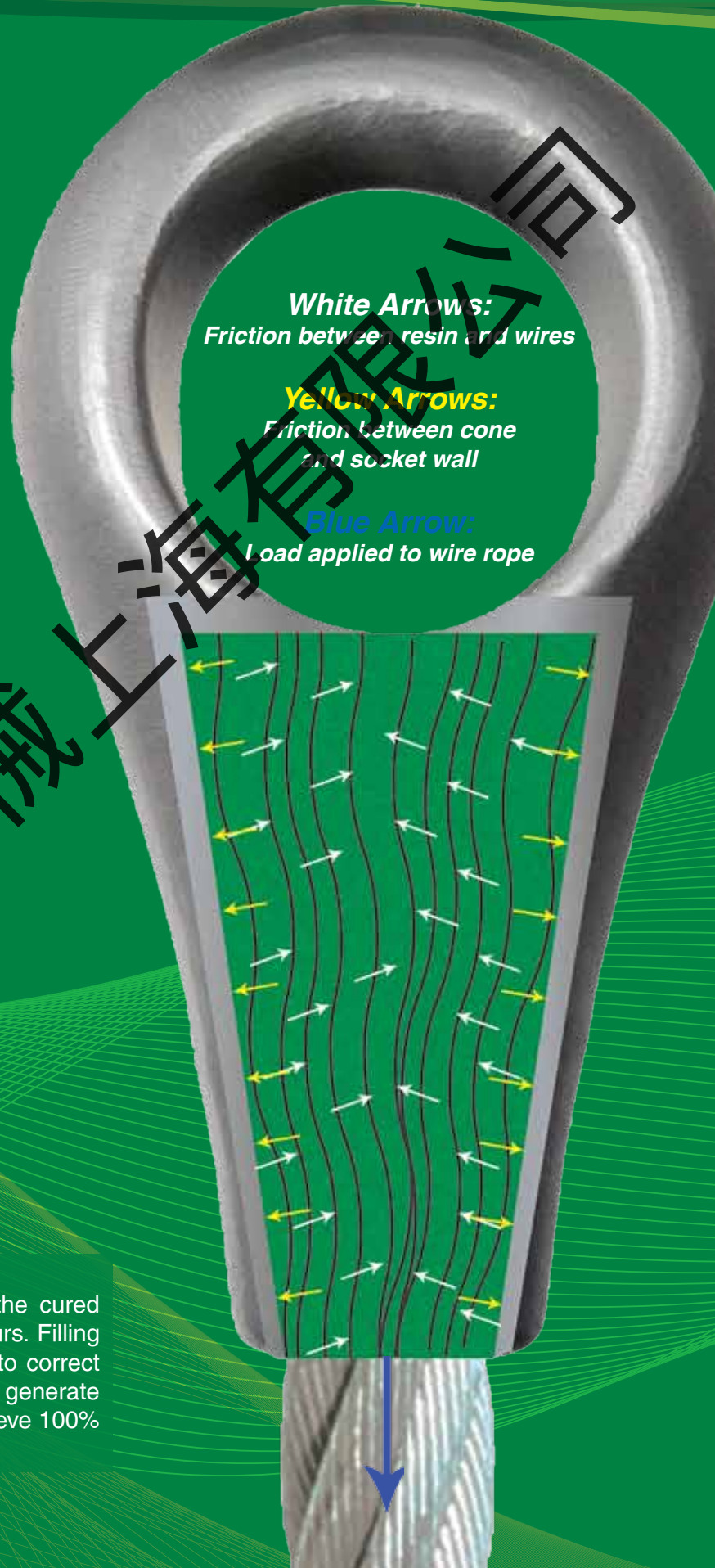
How Socket Lock Works

As the resin hardens and cures, shrinkage occurs that creates a frictional bond to the wires. Silica is blended into the resin mixture to add frictional grip properties. The silica also serves to absorb heat caused by the chemical reaction that results when hardening agent is added to the resin.

As load is applied to the rope, the resin cone is pulled downward in the bowl of the socket. As this is happening, the cone shape forces compression of the hardened resin cone against the individual wires and the socket walls. This compression then generates a tremendous frictional grip between the wires and resin resulting in a strength that exceeds the breaking strength of the rope.

Note.

Some sockets have grooves that may prevent the cured resin cone from seating properly as loading occurs. Filling the grooves with putty is an acceptable method to correct this situation. Seating of the cone is necessary to generate compression and frictional forces required to achieve 100% termination efficiency of the assembly.



Recommended Tools

Available from Sea-Fit



Marlin Spike



Mixing Blade



Socketing Putty

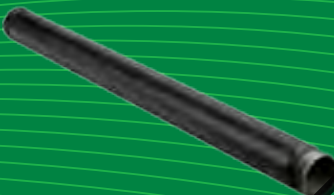


Wire Rope Lubricant



De-Greaser

Available from most retailers



Pipe



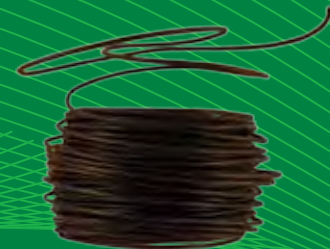
Nippers



Marking Crayon



Electrical Tape



Seizing Wire



Tape Measure



Drill

SOCKETING PROCEDURES

Socket-Lock



Warnings

Determine if socket has grooves. Inspect inside of socket bowl to determine if socket has grooves. If grooves are present, fill grooves with socketing putty.

Only use soft annealed iron wire for seizing wire.

Socket Lock resin must be gelled and cured before assembly can be used.

Socket Lock is not to be used with stainless steel rope in a salt water environment.

Never use oversized sockets for wire rope.

Never use **Socket Lock** beyond the expiration date.

Never heat socket prior to pouring resin in an effort to accelerate the curing of the resin as it may cause the resin to prematurely gel prior to reaching the bottom of the socket bowl. Doing this could cause the assembly to fail.

Caution: Exposure to some strong chemicals may affect the cured polymer (hardened resin mixture) in a way that could weaken the assembly. Please contact Sea Fit, an authorized distributor or the manufacturer if this has occurred.



Safety Information

When handling the resin or hardener, goggles and protective clothing are recommended. Impervious gloves are recommended.

Always work in a ventilated area.

Avoid skin or eye contact. Wash skin with soap and water and remove contaminated clothing. If contact with eyes, flush with clean water for at least 15 minutes. If irritation persists, seek medical attention.

Avoid ingestion. If ingestion occurs, DO NOT induce vomiting. Drink milk or water to dilute and call for medical attention.

Avoid inhaling vapors. If excessive vapors are inhaled, move to a fresh air area. If breathing has stopped or is labored, seek medical attention.

Never aim an open flame at **Socket Lock**. Keep away from heat. Resin is a flammable liquid.

Whenever using chemicals, always reference the MSDS sheet for safety and handling guidelines.

***NEVER EXCEED THE WORKING LOAD
LIMIT OF THE ASSEMBLY***

Temperature and Times

Cold Temperature Issues

In cold temperatures, ideally, the rope, socket and resin would be stored indoors to maintain the components of the assembly at a warmer temperature. It is best if all three components are the same temperature. Please note that if these three components are stored at room temperature, booster packs should not be used at even the coldest temperatures.

It is not recommended to aggressively apply heat (as with a flame) to the socket **prior** to pouring since the heat may cause the resin to gel prematurely and prevent the resin from reaching the bottom of the socket cone. Wrapping the socket in a heat blanket to facilitate controlled and uniform heating is a safe and effective method of accelerating the cure process.

Ambient Temperature*		Booster Packs Required	Approximate Gel Time (Working Time)*	Approximate Cure Time (Ready For Service)
°F	°C	Packs	Minutes	Minutes
110	43	None	3 - 4	20
105	41	None	4 - 6	20
100	38	None	5 - 6	25
95	35	None	6 - 8	25
90	32	None	6 - 8	30
85	29	None	7 - 9	40
80	27	None	8 - 9	45
75	24	None	9 - 10	60
70	21	None	10 - 12	60
65	18	None	11 - 13	60
60	16	None	11 - 13	60
55	13	1	12 - 14	60
50	10	1	10 - 12	60
45	7	1	12 - 15	60
40	4	1	20 - 22	90
35	2	1	25 - 35	90 - 120
30	-1	1	35 - 45	120

*NOTE: Times are approximate. The temperature of the resin, socket and wire rope can affect these times. The times above are based on the resin being at conditioned at room temperature (70F – 21C) and the socket and wire rope being at the ambient temperature indicated.

NOTE:

Thorough mixing is required to achieve approximate times listed in the table to the right.

Approximate time to gel begins once resin has been mixed.

Approximate time to cure begins once resin has gelled.



WARNING:

**HEATING SOCKET PRIOR TO POURING
MAY CAUSE PREMATURE FAILURE**

SOCKETING PROCEDURES

Socket-Lock

Step 1



Measure Socket Bowl

To determine where to apply seizing wire, measure socket from bottom of socket to the top of the bowl.

The end of the rope should be long enough so the ends of the wires after being broomed will be at or slightly below the top of the socket bowl.

Step 2

Slide Socket onto Rope

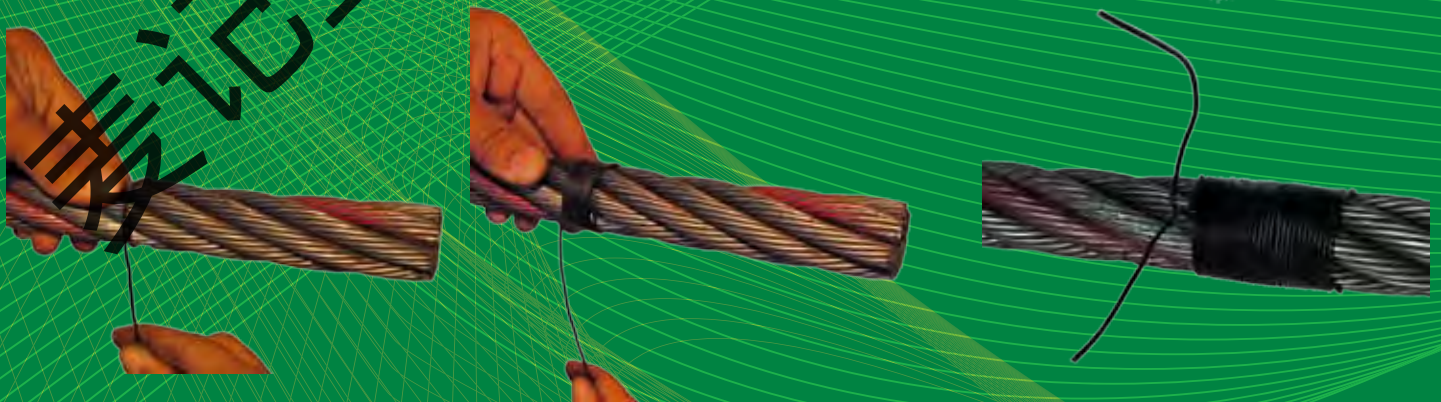


Step 3

Apply Seizing Wire at Base of Socket

Apply the seizing wire one (1) socket bowl length from the rope end and continue to apply, working away from the rope end. The seizing length must be at least two (2) rope diameters long. Additional information is available from the Wire Rope Users Manual, Wire Rope Manufacturer's Catalogues or National Standards.

Plastic coated, plastic filled wire ropes and fiber cored ropes must have all plastic material and nonmetallic materials removed from within the broomed area.



NOTE: Only use soft annealed iron wire for seizing wire.

Step 4

Broom Wire Rope End



Using a marlin spike, begin to open the strands.



Using a short piece of pipe, bend each strand open to a 60 degree included angle.



Open strands evenly as shown here. Should the rope have a plastic coated core, remove all plastic coating. For fiber core ropes, cut out the fiber core.



60°

Keys to Making a Good Socket Pour

Properly Broom Rope End

As tension is applied to a finished socket assembly, friction between the hardened resin and wires must exceed the friction between the outside of the resin cone and inner socket wall preventing the wires from pulling out, and allowing for the resin cone to seat and compress. The compression that is then generated between the wires and resin cone becomes stronger than the wire rope itself. For proper friction to occur, it is very important that the rope end be properly broomed and opened all the way down to the seating to allow resin to reach the bottom of the socket bowl. See illustration below.



Poorly Broomed



Properly Broomed

Clean Wires Thoroughly

Thoroughly cleaned wires provide greater adhesion; therefore, providing more friction that helps enable proper seating of the resin cone and generating compression to provide the required strength of the assembly.

Align Vertically When Pouring Resin

A socket assembly that was properly aligned during the pouring of the socket will allow for even distribution of forces on the wire and resin cone; therefore, possessing strength greater than the wire rope. If the rope is not properly aligned while pouring of the resin into the socket, the rope will be set at an angle. Testing has shown that when this occurs, the rope will break at the base of the socket below the catalog breaking strength of the rope.

Step 5

Clean Wire Rope End

Swish the broomed-out rope end in a solvent and make sure that the wires are clean from the very bottom of the broom up to the seizing band. After cleaning, place the broomed-out rope end pointing downward. Allowing it to remain inverted until all solvent has evaporated and the wires are dry. Solvent should never be permitted to remain on the rope or on the serving band since it will run down the wires when the rope is turned upright.

NOTE: Clean solvent is recommended to achieve best results.



Step 6

Pull Broom Into Socket Bowl

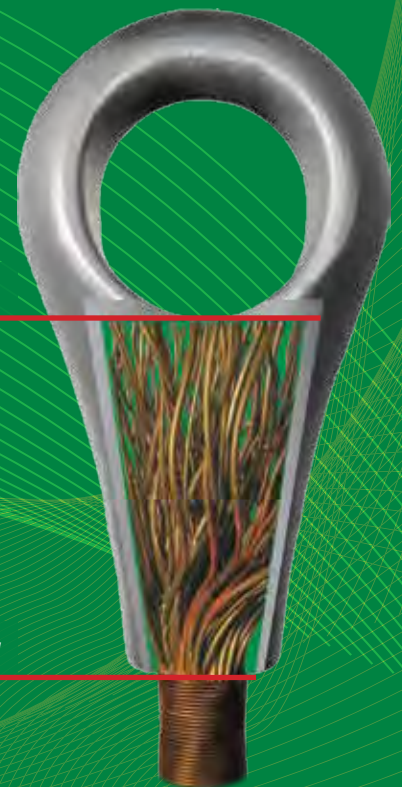
Pull the socket up over the rope broom. Make sure the rope wires are uniformly spaced in the socket bowl, with the wire ends slightly below the top edge of the bowl and the axis of the rope and the socket are aligned.

The top of the seizing should be even with the bottom of the socket. Be sure not to allow any broomed wire to extend below the base of the socket.



Top of Broom

Top of Seizing



SOCKETING PROCEDURES

Socket-Lock

Step 7

Seal Bottom of Socket

Wrap the bottom of the socket with socketing putty, being sure to press the putty into the valleys between the strands.

To provide a greater seal, wrap electrical tape over the socketing putty.



Step 8

Mix Resin

Knead resin pouch for approximately 30 seconds prior to cutting open to mix the resin/silica thoroughly.

Cut open the resin pouch and squeeze contents into mixing container provided.

Cut open the hardener pouch and squeeze contents into resin.

With a mixing paddle, thoroughly mix resin and hardener until color is uniform, then continue mixing for 30 seconds to ensure complete mixing.



***Proper Mixing is Essential to Achieve
100% Termination Efficiency***

Step 9

Pour Resin Mixture Into Socket

After mixing resin and hardener, immediately prepare to pour it into the socket.

Position the provided “Fast Funnel” so that the resin will discharge out of the funnel into the socket bowl along the socket wall. This will help the resin reach the bottom of the bowl and reduce chance of trapping air.

Fill to the top edge of the socket bowl. As resin mixture penetrates down into the bowl, it may be required to add more resin to the socket bowl. Never add more resin to the bowl after resin has begun to gel and harden.

Allow resin to firmly gel prior to moving assembly. Prematurely moving the assembly could damage the resin before it hardens; therefore, reducing the efficiency of the termination. Wait 10 to 15 minutes after the resin has gelled before moving the assembly. Please refer to Page 11 of this document for approximate gel times.



When recommended procedures are followed and resin has been allowed to fully cure, socket assemblies prepared with **Socket Lock** resin will attain **100% Termination Efficiency**

Step 10

Re-Lubricate Wire Rope

After the resin has cured, re-lubricate the wire rope to replace any lubricant that may have been removed during the cleaning process.



Step 11

Proof Test Assembly (Recommended)

It is recommended to proof load the assembly to twice the safe working load prior to putting the assembly into service per ASME B30.9.





a product of:

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Socket Lock is available worldwide. Visit **Socket-Lock.com** for a list of distributors, MSDS sheets, complete product information and news.

Socket Lock was jointly developed by **Sea-Fit** and **ITW Polymer Technologies** and is manufactured in Montgomeryville, Pennsylvania, USA by **ITW Polymer Technologies**.

ITW Polymer Technologies is the maker of Chockfast Orange and Chockfast products, long recognized around the world as the leader in the application of epoxy resins for grouting engines, gear boxes and other rotating machinery. For more information visit: **ITWPolyTech.com**

ITW Polymer Technologies
Chockfast
Shipbuilding & Repair Products
Proven Solutions to Difficult Problems

Free Socketing Procedure Poster

Sea-Fit is committed to providing the best possible product solutions, outstanding customer support, detailed information and technical resources. We would like to provide your facility with a socketing procedure poster to help remind you and your coworkers of safe socketing practices, and guidelines to help promote a safer working environment. To obtain your free socketing procedure poster please write or call **Sea-Fit** at the numbers above.



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The logo graphic consists of a series of white, curved lines that form a funnel-like shape, tapering from a wide top to a narrow bottom. The lines are closely spaced and create a sense of depth and movement.

Socket Lock

Socket-Lock.com

A product of
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