

## FEDERAL SPECIFICATION

## SOCKETS, WIRE ROPE

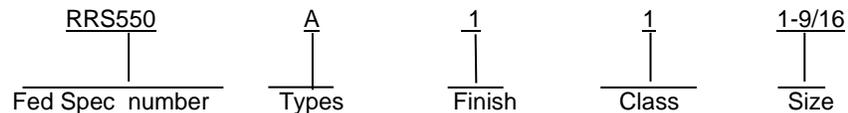
The General Services Administration has authorized the use of this federal specification, by all federal agencies.

## 1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers mechanical sockets for mechanical wire ropes used in rigging, hoisting, towing, stowage, excavating, logging and stump removing equipment, and marine applications.

1.1.1 Federal specification coverage. This federal specifications do not include all types, finishes and classes of the commodities indicated by the title of the specification, or which are commercially available, but are intended to cover the types, finishes, and classes which are suitable for Federal Government requirements.

1.2 Classification: This federal specification classification uses a Part or Identifying Number (PIN) system as shown in the following example:

1.2.1. Types (see [3.2](#)).

- A – Open sockets.
- B – Closed sockets.
- C – Wedge sockets, open.
- D – Bridge sockets, open.
- E – Bridge sockets, closed.

1.2.2 Finishes (see [3.4](#)).

- 1 – Bare (uncoated).
- 2 – Zinc-coated.

Comments, suggestions, or questions on this document should be addressed to DLA Land and Maritime, Attn: VAI, 3990 East Broad Street, Columbus, OH 43218-3990 or [fluidflow@dla.mil](mailto:fluidflow@dla.mil). Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online at <https://assist.dla.mil>.

1.2.3 Classes (see [3.2.1.1](#) and [3.6](#)).

- 1 – Not magnetic particle inspected.
- 2 – Magnetic particle inspected.

1.2.4 Sizes. Wire rope sockets specified by wire rope diameters (see [3.3](#) ).

2. APPLICABLE DOCUMENTS

2.1 Government publications. The following documents, of the issues in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

FEDERAL REGULATIONS

FAR - Federal Acquisition Regulations (FAR)

(Copies of these documents are available online at [www.acquisition.gov/comp/far/index.html](http://www.acquisition.gov/comp/far/index.html) or from U.S Government Printing Office, 732 North Capital Street, NW, Washington D.C. 20401.)

DEPARTMENT OF DEFENSE SPECIFICATION

Federal Specifications.

- FF-N-836 – Nut: Square, Hexagon, Cap, Slotted, Castle, Knurled, Welding and Single Ball Seat.
- FF-P-386 – Pins, Cotter (Split).

DEPARTMENT OF DEFENSE STANDARDS

Federal Standards.

- FED-STD-H28 – Screw Thread Standards for Federal Services.

Military Standards.

- MIL-STD-129 – Marking for Shipment and Storage.

(Copies of these documents are available online at <https://assist.dla.mil/quicksearch/> or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.2 Non-Government publication. The following documents form a part of this document to the extent specified herein. Unless otherwise indicated, the issues of these documents are cited in the solicitation or contract.

ASTM INTERNATIONAL

- ASTM A153/A153M – Zinc Coating (Hot-Dip) on Iron and Steel Hardware
- ASTM A275/A275M – Standard Practice for Magnetic Particle Examination of Steel Forgings
- ASTM A370 – Mechanical Testing of Steel Products, Methods and Definitions for

ASTM A653/A653M – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process

(Copies of these documents are available online at <http://www.astm.org> or from the ASTM International, P.O. Box C700, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.)

SAE INTERNATIONAL

SAE AIR4127 – Steel: Chemical Composition and Hardenability

(Copies of these documents are available on line at [www.sae.org](http://www.sae.org) from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, and Tel: 877-606-7323 [inside USA and Canada] or 724-776-4970 [outside USA], email at [CustomerService@sae.org](mailto:CustomerService@sae.org).)

3. REQUIREMENTS

3.1 First article. When specified (see 6.2), a sample shall be subjected to first article inspection in accordance with 4.1.

3.1.1 Material.

3.1.1.1 The socket body. The socket body (basket, wedge, and bridge) shall be made of carbon steel of compositions 1030, 1035 or 1038, as specified in SAE AIR4127. The steel shall have a minimum tensile strength (normalized) of 70,000 pounds per square inch (lb/in<sup>2</sup>) and a minimum elongation of 15 percent.

3.1.1.2 Eyebolts. Eyebolts U-bolts, nuts and pins shall be of the same steel compositions or of any other steel having identical tensile strength.

3.2 Fabrication.

3.2.1 Wire rope sockets, types A and B. Wire rope sockets for wire rope sizes 1/4-inch through 1-1/2 inches Inches diameter, shall be steel, forged, without welding.

3.2.1.1 Wire rope sockets for wire rope sizes 1-5/8 inches and larger. Wire rope sockets for wire rope sizes 1-5/8 inches and larger shall be steel, forged, without welding or shall be cast alloy steel. Cast alloy steel sockets shall meet class 2 requirements.

3.2.2 Wire rope sockets, type C. These sockets shall be steel, cast, and the wedges shall be drop forged, cast or cut from plate.

3.2.3 Wire rope sockets, types D and E. Bridge bowls in these sockets shall be steel, cast.

3.2.3.1 Eyebolts. Eye bolts in open bridge sockets, type D, shall be steel, forged, without any welding.

3.2.3.2 U-bolts. U-bolts in closed bridge sockets, type E, shall be made from steel bar stock, rolled or forged, at the contractor's option.

3.2.3.3 Nuts. The eyebolts and U-bolts shall carry at each end either single, finished, thick, or double heavy semi-finished hexagon nuts at the contractor's option, and shall be as specified in FF-N-836.

3.2.3.4 Threads. Threads shall be of the Unified or American National Coarse-Thread Series, class 2A for bolts and class 2B for nuts, in accordance with FED-STD-H28. The threads in the eyebolts and U-bolts shall be rolled or cut at the contractor's option.

3.2.4 Pins. Pins shall be made from bar stock, rolled or forged.

3.2.4.1 Cotter pins. Cotter pins shall conform to type B pins of FF-P-386.

3.2.5 Recovered materials. The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR).”

3.3 Constructional and dimensional requirements. Wire rope sockets are sized by the diameter of wire rope on which the sockets will be used, see following tables.

3.3.1 Wire rope open sockets, type A. These sockets shall be of the shape shown on figure 1, and dimensions given in table I, as specified.

TABLE I. Wire rope open sockets, type A (all dimensions in inches). 1/ 2/ 3/

Size (rope diameter)	Basket				Jaws						
	Length	Diameters			Sides		Eyes				
		Top	Bottom		Width	Thick- ness	Out- side diam- eter	Thick- ness	Width between eyes	C/L eye to	
			OD	ID						Basket top	Jaw top
J	H	G	F	K	E	M	N	C	L	B	
1/4	2-1/4	1-	11/16	3/8	3/4	1/4	1-	5/16	11/16	1-9/16	3/4
5/16 - 3/8	2-1/4	9/16	13/16	1/2	13/16	5/16	5/16	7/16	13/16	1-3/4	7/8
7/16 - 1/2	2-1/2	1-	15/16	9/16	1	3/8	1-1/2	1/2	1	2	1-1/16
9/16 - 5/8	3	11/16	1-1/8	11/16	1-1/4	7/16	1-7/8	9/16	1-1/4	2-1/2	1-1/4
3/4	3-1/2	1-7/8	1-1/4	13/16	1-1/2	1/2	2-1/4	5/8	1-1/2	3	1-7/16
7/8	4	2-1/4	1-1/2	15/16	1-3/4	5/8	2-5/8	3/4	1-3/4	3-1/2	1-3/4
1	4-1/2	2-5/8	1-3/4	1-1/8	2	11/16	3-1/8	7/8	2	4	2-1/16
1-1/8	5	3-1/4	2	1-1/4	2-3/8	13/16	3-3/4	1	2-1/4	4-1/2	2-5/16
1-1/4 - 1-3/8	5-1/2	3-3/4	2-1/4	1-1/2	2-3/4	15/16	4-1/8	1-1/8	2-1/2	5	2-
1-1/2	6	4-1/8	2-3/4	1-5/8	3	1	4-3/4	1-3/16	3	6	11/16
1-5/8	6-1/2	4-3/4	3	1-3/4	3-1/4	1-1/8	5-3/8	1-5/16	3	6-1/2	3-1/8
1-3/4 - 1-7/8	7-1/2	5-1/4	3-1/8	2	3-7/8	1-5/16	5-3/4	1-9/16	3-1/2	7	3-1/4
2- 2-1/8	8-1/2	5-1/2	3-3/4	2-1/4	4-1/4	1-7/16	6-1/2	1-	4	9	3-3/4
2-1/4 - 2-3/8	9	6-3/8	4	2-1/2	4-3/8	1-5/8	7	13/16	4-1/2	10	4
2-1/2 - 2-5/8	9-3/4	7-3/8	4-1/2	2-7/8	4-5/8	1-7/8	7-3/4	2-1/8	5	10-3/4	4-1/2
		8-1/4					8-1/2	2-3/8			5
		9-1/4									

TABLE I. Wire rope open sockets, type A (all dimensions in inches) – Continued. 1/ 2/ 3/

Pin		Cotter pin diameter	Approximate weight, lbs.
Diameter	Length		
D	O	P	
11/16	1-3/4	3/16	1.1
13/16	2-1/16	3/16	1.3
1	2-7/16	3/16	2.3
1-3/16	2-7/8	1/4	3.8
1-3/8	3-1/4	1/4	6
1-5/8	3-7/8	5/16	10
2	4-1/2	3/8	15.5
2-1/4	5	3/8	22
2-1/2	5-5/8	7/16	32
2-3/4	6-3/8	1/2	46
3	6-5/8	1/2	55
3-1/2	7-5/8	1/2	85
3-3/4	8-3/4	1/2	125
4-1/4	10	1/2	165
4-3/4	11	1/2	252

See notes on next page.

TABLE I. Wire rope open sockets, type A (all dimensions in inches) – Continued. 1/ 2/ 3/

1/ All dimensions (except D and G) under 4 inches to have a tolerance plus and minus 1/8-inch. All dimensions (except D and G) 4 inches and over to have a tolerance plus and minus 1/4-inch. Dimension D shall have a tolerance plus 0 minus 1/32-inch in uncoated sockets and plus and minus 1/32-inch in zinc-coated sockets. Dimension E, socket sizes 1-3/4 inches and larger, shall have a tolerance of plus and minus 1/4-inch. Dimension G is minimum.

2/ All dimensions are to be measured at the high point of all drafts, except at the basket where both lineal and diameter dimensions are to the outside edge of the basket.

3/ The pin hole (eye) diameter in sockets supplied with pins shall be in accordance with table II.

3.3.1.1 Pins. Type A sockets shall be supplied with pins. The diameters of the pin hole (eye) shall be as given in table II.

TABLE II. Diameters of pin hole (eye).

Socket size Inches	Pin hole (eye) diameter: maximum over the diameter of the pin Inch
1/4 – 5/8	1/16
3/4 – 1-3/8	3/32
1-1/2 – 2-1/8	1/8
2-1/4 – 2-3/8	1/4

3.3.1.2 Grooves. The basket in these sockets shall have one or more circumferential grooves of the inside surface, as shown on figure 1. The number and depth of the grooves shall be as specified in table III.

TABLE III. Number and the size of the grooves in wire rope sockets.

Socket size Inches	Grooves	
	Number	Depth (approximately) inch
1/4 to 3/4, inclusive	1	1/16
7/8 to 1-1/2, inclusive	2	1/8
1-5/8 and over	3	3/16

3.3.2 Wire rope closed sockets, type B. These sockets shall be of the shape shown on figure 2 and of dimensions given in [table IV](#), as specified.

TABLE IV. Wire rope closed sockets, type B (all dimensions in inches). 1/ 2/

Size (rope diameter)	Basket				Loop (bail)						Approximate weight, lbs.
	Length	Diameters			Width	Depth	Opening thickness				
		Top	Bottom				Width	Length	Sizes	Top curve	
			OD	ID							
J	H	G	F	C	K	D	L	E	B		
1/4	2-1/4	1-9/16	11/16	3/8	1-1/2	1/2	13/16	1-3/4	5/16	1/2	0.7
5/16 – 3/8	2-1/4	1-11/16	13/16	1/2	1-11/16	11/16	15/16	2	3/8	5/8	1.1
7/16 – 1/2	2-1/2	1-7/8	15/16	9/16	2	7/8	1-1/8	2-1/4	7/16	11/16	1.5
9/16 – 5/8	3	2-3/8	1-1/8	11/16	2-5/8	1	1-3/8	2-1/2	5/8	13/16	3
3/4	3-1/2	2-3/4	1-1/4	13/16	3	1-1/4	1-5/8	3	11/16	1-1/16	4.5
7/8	4	3-1/4	1-1/2	15/16	3-5/8	1-1/2	1-7/8	3-1/2	7/8	1-1/4	7
1	4-1/2	3-3/4	1-3/4	1-1/8	4-1/8	1-3/4	2-1/4	4	15/16	1-3/8	11
1-1/8	5	4-1/8	2	1-1/4	4-1/2	2	2-1/2	4-1/2	1	1-1/2	16
1-1/4 – 1-3/8	5-1/2	4-3/4	2-1/4	1-1/2	5	2-1/4	2-3/4	5	1-1/8	1-5/8	22
1-1/2	6	5-1/4	2-3/4	1-5/8	5-3/8	2-1/2	3-1/8	6	1-1/8	1-15/16	28
1-5/8	6-1/2	5-1/2	3	1-3/4	5-3/4	2-3/4	3-1/4	6-1/2	1-1/4	2-1/8	36
1-3/4 – 1-7/8	7-1/2	6-3/8	3-1/8	2	6-3/4	3	3-17/32	7-9/16	1-1/2	2-3/16	58
2 – 2-1/8	8-1/2	7-3/8	3-3/4	2-1/4	7-5/8	3-1/4	3-25/32	8-9/16	1-5/8	2-7/16	80
2-1/4 – 2-3/8	9	8-1/4	4	2-1/2	8-1/2	3-5/8	4-9/32	9-1/2	1-3/4	2-5/8	105
2-1/2 – 2-5/8	9-3/4	9-1/4	4-1/2	2-7/8	9-1/2	4	5-1/2	10-5/8	2	3-1/8	140

1/ All dimensions, except, D, G, and L, under 4 inches to have a tolerance plus and minus 1/8-inch. All dimensions, except B, D, G, and L, 4 inches and over, to have a tolerance plus and minus 1/4-inch. Dimensions B 4 inches and over, to have a tolerance plus or minus 1/8 inch. Dimension E, socket sizes 1-3/4 inches and larger, to have a tolerance of plus and minus 1/4-inch.

2/ All dimensions are to be measured at the high point of all drafts except at the basket, where both lineal and diameter dimensions are to the outside edge of the basket.

3.3.2.1 Grooves. The basket in these sockets shall have one or more circumferential grooves on the inside surface as shown on figure 2 and specified in table III.

3.3.3 Wire rope open wedge sockets, type C. These sockets shall be of the shape shown on figure 3 and of dimensions specified in table V. The baskets may be provided at the contractor's option, with ways for directing the sliding action of the wedge made with corresponding gibs. The wedge shall be grooved to suit the wire rope.

TABLE V. Wire rope wedge sockets, type C.

Size (rope diameter)	Minimum dimensions (inches)				Approximate Weight
	Pin hole center to socket end	Distance between jaws	Thickness of jaws	Pin hole diameter, minimum	
	Inches	A	B	C	D
3/8	4-3/4	5/8	3/8	13/16	2.5
1/2	5-1/2	5/8	1/2	1-1/16	3.5
5/8	6-7/8	1-1/4	1/2	1-3/16	5
3/4	7-1/2	1-3/8	5/8	1-1/4	9
7/8	9	1-1/2	3/4	1-5/8	15
1	9-3/4	1-5/8	7/8	1-5/8	20
1-1/8	10-5/8	1-5/8	1	1-5/8	23
1-1/4	11-3/4	1-3/4	1-1/8	2-1/8	32
1-3/8	11-3/4	1-3/4	1-1/8	2-1/8	32
1-1/2	13-1/4	2-1/2	1-1/4	3-1/8	52
1-5/8	13-1/4	2-1/2	1-1/4	3-1/8	52

3.3.3.1 Type C sockets shall be supplied with pins. The diameters of the pins shall be smaller than the diameters of corresponding eye holes, specified in table V, by 1/32-inch in uncoated sockets and by 1/16-inch in coated (galvanized) sockets.

3.3.4 Wire rope open bridge sockets, type D. These sockets shall be of the construction shown on figure 4, and of dimensions specified in table VI.

TABLE VI. Wire rope open bridge sockets, type D.

Size (rope diameter)	Minimum dimensions (inches)							Approximate weight in pounds	
	Depth: zinc bowl	Eye bolts						Assembled socket only	Additional foot of bolt length
		Diameter	Length	Take up	C/C Distance	Eye hole diameter	Opening between eyes		
Inches	A	B	C	D	E	F	G		
5/8	3-1/4	7/8	20	8	3-1/2	1-3/16	1-1/4	25	5.5
3/4	3-3/4	1	21	9	4	1-3/8	1-1/2	30	5.5
7/8	4-1/4	1-1/8	23	9	4-1/2	1-1/2	1-3/4	37	7
1	5	1-1/4	24	11	5	1-3/4	2	55	7
1-1/8	5-1/2	1-3/8	27	12	5-1/2	2	2-1/4	80	10
1-1/4	6	1-1/2	27	12	6	2-1/4	2-1/4	110	12
1-3/8	6-1/2	1-3/4	28	12	6-1/2	2-1/2	2-3/4	150	16
1-1/2	7	2	31	15	7-1/8	2-1/2	3	190	21
1-5/8	7	2	32	15	7-1/8	2-3/4	3-1/4	240	21
1-3/4	8	2-1/4	36	18	8-1/4	3	3-1/2	290	27
1-7/8	8	2-1/2	38	18	8-1/4	3	3-3/4	340	33
2	9	2-1/2	38	18	9-1/2	3-1/4	3-3/4	400	33
2-1/8	10	2-3/4	40	18	10-1/4	3-3/4	4	460	40
2-1/4	10	2-3/4	40	18	10-1/4	3-3/4	4	520	40
2-3/8	11	3	42	18	11-1/4	4-1/4	4-1/2	600	48
2-1/2	11	3	42	18	11-1/4	4-1/2	4-1/2	700	48
2-5/8	12	3-1/4	42	18	12	4-3/4	5	800	56
2-3/4	12	3-1/4	42	18	12	4-3/4	5	900	56
2-7/8	12-1/2	3-1/2	42	18	13-1/2	5	5-1/2	1000	66
3	13	3-1/2	44	18	13-1/2	5-1/4	5-1/2	1100	66

3.3.4.1 Pins. Type D sockets shall be supplied with pins. The diameters of the pins shall be smaller than the diameters of corresponding eye holes, specified in table VI, by 1/32-inch in uncoated sockets and by 1/16-inch in coated (galvanized) sockets.

3.3.5 Wire rope closed bridge sockets, type E. These sockets shall be of the construction shown on figure 5 and of dimensions as specified in table VII.

TABLE VII. Wire rope closed bridge sockets, type E.

Size (rope diameter)  Inches	Minimum dimensions (inches)					Approximate weight, in lbs.	
	Depth of zinc bowl	U-bolts				Assembled socket only	Additional foot of bolt length
		Diameter	Length	Take-up	C/C distance		
	A	B	C	D	E		
5/8	3-1/4	7/8	15	8	3-1/2	16	5.5
3/4	3-3/4	1	16	9	4	20	5.5
7/8	4-1/4	1-1/8	17	9	4-1/2	28	7
1	5	1-1/4	18	9	5	38	7
1-1/8	5-1/2	1-3/8	22	12	5-1/2	55	10
1-1/4	6	1-1/2	24	12	6	75	12
1-3/8	6-1/2	1-3/4	26	12	6-1/2	97	16
1-1/2	7	2	30	15	7-1/8	125	21
1-5/8	7	2	30	15	7-1/8	145	21
1-3/4	8	2-1/4	33	15	8-1/4	185	27
1-7/8	8	2-1/2	33	18	8-1/4	220	33
2	9	2-1/2	38	18	9-1/2	290	33
2-1/8	10	2-3/4	39	18	10-1/4	320	40
2-1/4	10	2-3/4	40	18	10-1/4	380	40
2-3/8	11	3	42	18	11-1/4	450	48
2-1/2	11	3	42	18	11-1/4	525	48
2-5/8	12	3-1/4	42	18	12	580	56
2-3/4	12	3-1/4	42	18	12	630	56
2-7/8	12-1/2	3-1/2	44	18	13-1/2	690	66
3	13	3-1/2	44	18	13-1/2	750	66

3.4 Galvanizing. Wire rope sockets with finish 2 shall be galvanized (zinc-coated) by the hot-dip galvanizing process ASTM A653/A653M. The sockets shall be galvanized in accordance with the requirements of ASTM A153/A153M.

3.4.1 Galvanizing bolts and nuts. Eyebolts and U-bolts and nuts in sockets with finish 2 shall be galvanized after threading or tapping. Nuts may be re-tapped after galvanizing.

3.5 Marking for identification. Each socket shall be plainly marked or branded with its PIN, manufacturer's name or trademark in accordance with MIL-STD-129.

3.6 Magnetic particle inspection. Type A and B, finish 1, class 2 sockets shall be completely magnetic particle inspected in accordance with ASTM A275/A275M. (see 3.2.1 and 3.2.1.1).

3.6.1 Repairs. Sockets may be repaired by grinding providing the following requirements are met:

3.6.1.1 Blending repaired areas. Repaired areas shall be blended into the surrounding material.

3.6.1.2 Uniformly contoured. Changes of section shall be uniformly contoured.

3.6.1.3 Grinding depth. The maximum depth of grinding shall be in accordance with 3.6.2.3 and 3.6.2.4.

3.6.2 Rejection criteria.

3.6.2.1 Discontinuities. Indications of discontinuities 1/16-inch and larger shall be investigated by grinding to determine their depth.

3.6.2.2 Measuring depths. Depth measurements shall be made from the surface of the forging using an appropriate mechanical measuring device.

3.6.2.3 Rejecting sockets. Sockets shall be considered rejectable if the depth of any individual discontinuity extends below the minimum allowable dimension as specified [table I](#) or [table IV](#).

3.6.2.4 Rejecting sockets. Sockets shall be considered rejectable if the cumulative depth of two or more discontinuities located 180 degrees apart from each other reduce the socket dimension below the minimum allowable dimension as specified in table I or table IV.

3.7 Workmanship. All sockets shall be properly shaped without sharp edges at openings, free from flaws, seams, fins, slivers, cracks and other injurious defects which may affect their serviceability and handling. The zinc and coating, (finish 2) and galvanized coating on wire rope sockets shall be adherent, smooth, free from uncoated spots, injurious lumps, blisters, dross or flux.

4. QUALITY ASSURANCE PROVISIONS

4.1 Classification of inspections. The inspection requirements specified herein are classified as follows:

- a. First article inspection (see 4.5).
- b. Conformance inspection (see 4.3).

4.2 Inspection conditions. Unless otherwise specified, all inspections shall be performed in accordance with the applicable test procedures.

4.3 Conformance inspection. All finished shackles shall be carefully examined to determine conformance problems with the specification with respect to workmanship, form, and dimensions.

4.4 Responsibility for compliance. All items shall meet all requirements of sections 3, 4, and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.4.1 Lot records. Manufacturers shall keep lot records for 3 years minimum. Manufacturers shall monitor for compliance to the prescribed procedures, and observe that satisfactory manufacturing conditions and records on lots are maintained for these thimbles. The records, including as a minimum, an attributes summary of all quality conformance inspections conducted on each lot, shall be available to review by customers at all times.

4.5 First article inspection. First article inspection, if not done by the manufacturer, shall be performed at a laboratory acceptable to the procuring activity on sample units produced with equipment and procedures used in production.

4.6 Samples for first article. Samples for first article shall be random and representative of the products proposed to be furnished to this specification. Sampling shall be in accordance with 4.8.2.1.

4.7 First article inspection routine. All samples shall be subjected to first article testing in accordance with table VIII. Sequence is manufacturing's discretion.

TABLE VIII. First article inspection.

Inspection	Requirement	Test method
Visual and mechanical inspections	3.7	4.8.2.1
Chemical Analysis Certification	3.4	4.8.2.2
Magnetic Particle Inspection	3.6	4.8.2.3
Tensile Test	3.3.1.1	4.8.2.4

4.7.1 Acceptance of first article inspection. Required first article tests may be eliminated if documented approval has been obtained from the procuring activity. A first article test cannot be waived by DLA unless the contractor has delivered the same item within the last three years, has no unfavorable quality history, and has not proposed changes to the processes or changed any subcontractors. DLA will not accept first article test results outside the stated requirements. All waivers or deviations shall be approved by the procuring activity.

4.7.2 Failures. All samples must meet all of the contract requirements. Failure of a sample unit to pass any test shall be cause for rejection of the entire lot and to grant first article approval.

4.7.3 First article samples. Samples shall be random and representative of the construction, workmanship, components, and materials to be used during production. When a manufacturer is in continuous production of the shackles from one contract to another, submission of additional first article samples for a new contract may be waived at the discretion of the acquiring activity (see 6.2).

4.7.3.1 First article information. Upon completion of first article inspection, the Government activity responsible for conducting the inspection program (see 6.2), shall report the results of the inspection, with appropriate recommendation, to the contracting officer. Approval of the first article samples or the waiving of first article inspection does not preclude the requirements for performing conformance inspection.

4.7.3.2 Disposition of samples. First article samples shall be furnished to the Government as directed by the contracting officer (see 6.2).

4.8. Successful manufacturers. Manufacturers that have successfully passed first article inspections and are continuously producing shackles to this specification, on going inspections shall consist of conformance inspection (see table IX). If first article is waived due to prior successful first article inspection the manufacturer's in-house inspection procedures shall continue to be used. Results may be requested by government as part of a contract.

TABLE IX. Conformance.

Inspections.	Requirement paragraph	Inspection paragraph	Number of samples
Visual and mechanical	3.7	4.8.1	4.8.1.1

4.8.1 Inspection lot.

4.8.1.1 Lot and sample. The inspection lot shall be product selected at random from the production lot without regard to quality and shall be the sample size specified in table X.

TABLE X. Lot and sample size.

Production lot size	Sample size
1 to 20	2
21 to 50	10
51 to 100	15
101 to 500	20

4.8.2 Tests.

4.8.2.1 Visual and mechanical. Perform a visual and dimensional check in accordance with 3.7

4.8.2.2 Magnetic particle inspection. All type A and B, finish 1, class 2 sockets shall be magnetic particle inspected in accordance with 3.6.

4.8.2.3 Chemical analysis certification. Manufacturers shall supply certification of material supplied in accordance with 3.4

4.8.2.4 Tensile test. The preparation of the test specimens and the testing methods shall be conducted in accordance with the requirements of ASTM A370. Failure of one test specimen to conform to the required tensile strength as required in 3.1.1 shall be cause for rejection of lot.

## 5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Service or Defense Agency, or within the Military Service's system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity

## 6. NOTES

INFORMATION FOR GUIDANCE ONLY. (This section contains information of a general or explanatory nature that is helpful, but is not mandatory.)

6.1 Intended use. Shackles are intended for use with wire thimbles in assembling spliced cable terminals.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. PIN (see 1.2).
- c. First article required (see 3.1).
- d. Packaging requirements (see 5.1).

6.3 Additional reference information. American National Standard M11.1, "Wire Ropes for Mines", may be consulted as a safety standard for the proper usage of items covered by this specification.

6.4 Legacy. International Federal Specification RR-S-00550C(NAVY-SH), March 3, 1978 and Federal Specification RR-S-550B February 11, 1974.

6.5 Environmentally preferable material. Environmentally preferable materials should be used to the maximum extent possible to meet the requirements of this specification. As of the dating of this document, the U.S. Environmental Protection Agency (EPA) is focusing efforts on reducing 31 priority chemicals. The list of chemicals and additional information is available on their website <http://www.epa.gov/osw/hazard/wastemin/priority.htm>. Included in the EPA list of 31 priority chemicals are cadmium, lead and mercury. Use of these materials should be minimized or eliminated unless needed to meet the requirements specified herein (see Section 3).

6.6 Changes from previous issue. The margins of this specification are marked with vertical lines to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue."



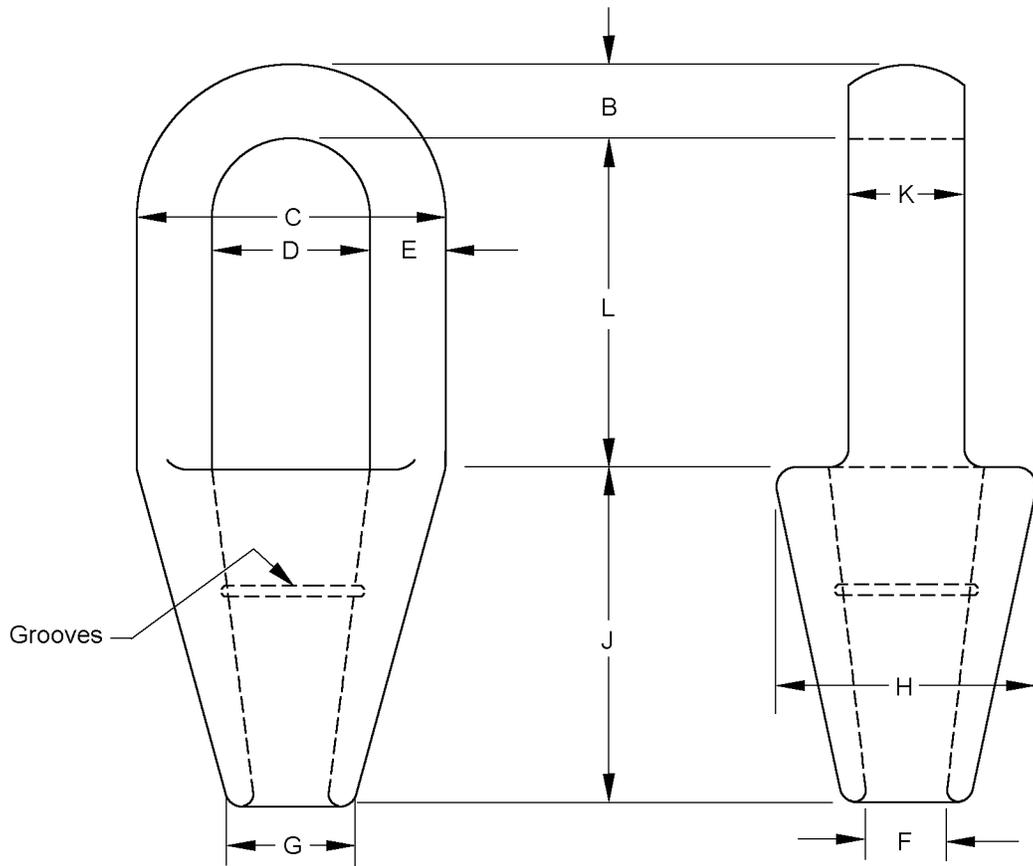


FIGURE 2. Wire rope closed socket, type B.

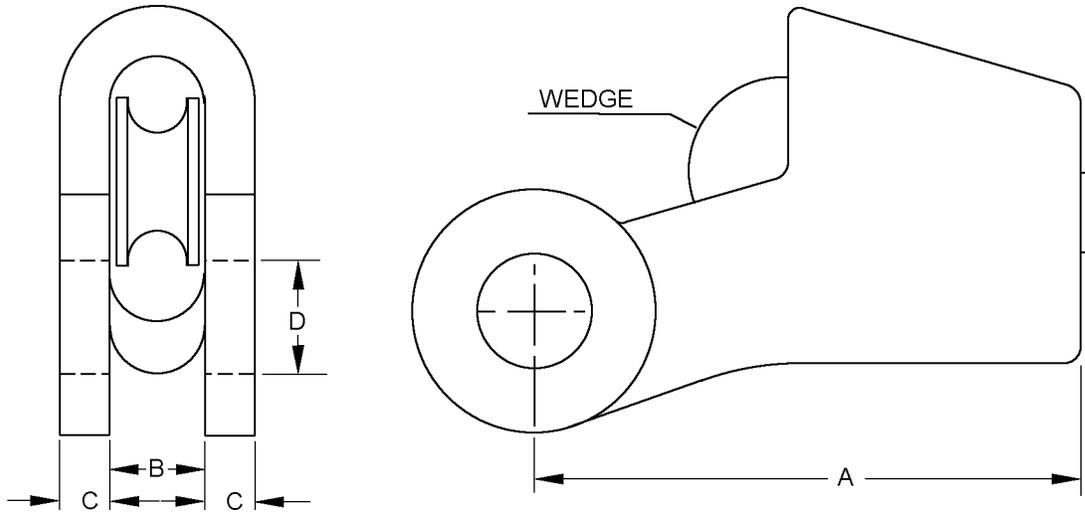


FIGURE 3. Wire rope wedge socket, type C.

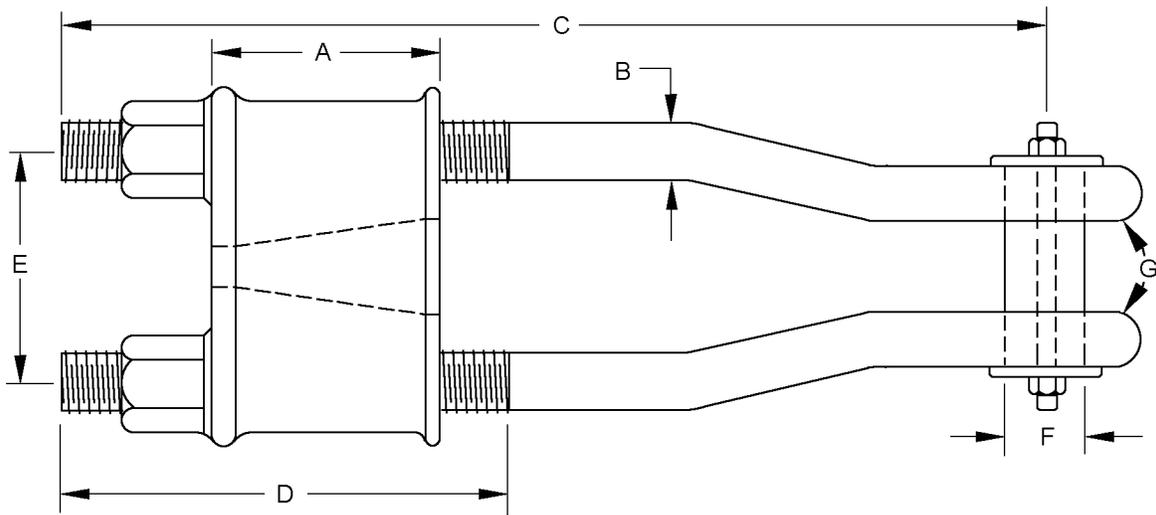


FIGURE 4. Wire rope open bridge socket, type D.

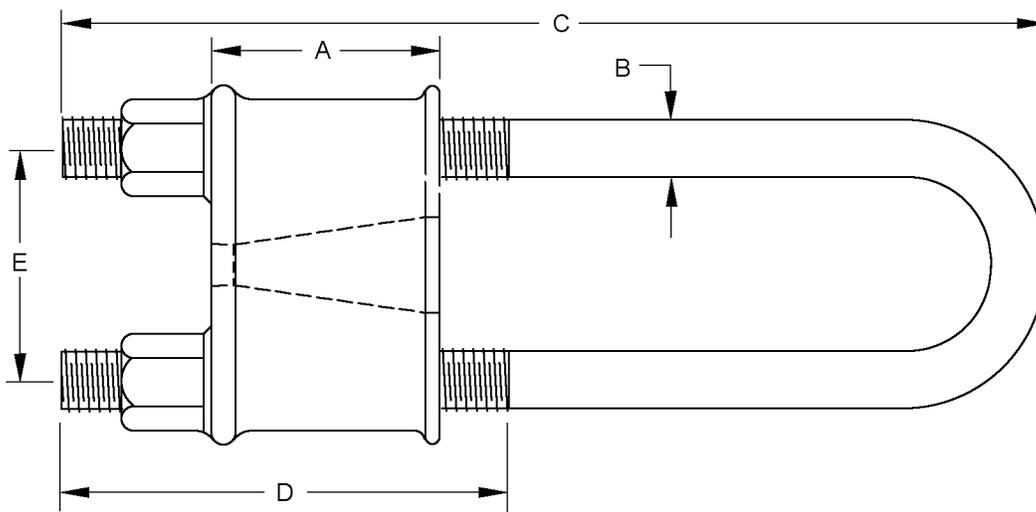


FIGURE 5. Wire rope closed bridge socket, type E.

CONCLUDING MATERIAL

MILITARY INTERESTS:

Custodians:

Army – AR  
 Navy – SH  
 Air Force-99  
 DLA-CC

Review activities:

Army – AT  
 Navy – CG,MC,SA,YD  
 Air Force-71  
 DLA – IS

CIVIL AGENCY COORDINATING ACTIVITY:

GSA – FSA

Preparing activity:

DLA-CC

(Project 4030-2012-008)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil>.