INCH- POUND

RR-S-550F
7 November 2018
SUPERSEDING
RR-S-550E
10 October 2012

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 specification does 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:

RRS550	A	1	1	1-9/16
Fed Spec number	Types See 1.2.1	Finish See 1.2.2	Class See 1.2.3	Size See 1.2.4

1.2.1. Types (see 3.2).

A - Open sockets, see figure 1.
B - Closed sockets, see figure 2.
C - Wedge sockets, open, see figure 3.
D - Bridge sockets, open, see figure 4.
E - Bridge sockets, closed, see figure 5.

1.2.2 Finishes (see 3.5).

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. 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.

AMSC N/A

FSC 4030

1.2.3 Classes (see 3.3.1.1 and 3.7).

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 General. The documents listed in this section are specified in sections 3 or 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 or 4 of this specification, whether or not they are listed.

2.2 Government publications.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

FEDERAL REGULATIONS

FAR - Federal Acquisition Regulations (FAR)

(Copies of these documents are available online at www.acquisition.gov/comp/far/index.html.)

DEPARTMENT OF DEFENSE SPECIFICATION

Federal Specifications.

FF-N-836 - Nut: Square, Hexagon, Cap, Slotted, Castle, Knurled, Welding and Single Ball Seat.

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://quicksearch.dla.mil.)

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

ASME INTERNATIONAL

ASME B18.8.1 - Clevis Pins and Cotter Pins (Inch Series)

(Copies of these documents are available online at http://www.asme.org.)

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

(Copies of these documents are available online at http://www.astm.org.)

SAE INTERNATIONAL

SAE AIR4127 - Steel: Chemical Composition and Hardenability

(Copies of these documents are available on line at www.sae.org.)

2.4 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein, (except for related specification sheets), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

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 Recycled, recovered, environmentally preferable, or biobased materials. Recycled, recovered, environmentally preferable, or biobased materials should be used to the maximum extent possible provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

3.1.1.1 Recovered materials. The term “recovered materials” means materials, which have been collected or recovered from solid waste and reprocessed to become a source of raw materials, as opposed to virgin raw materials. Unless otherwise specified, none of the above shall be interpreted to mean that the use of used or rebuilt products is allowed under this specification.

3.1.1.2 Used, rebuilt, or remanufactured components. No used, rebuilt, or remanufactured components, pieces, or parts shall be incorporated in the fittings.

3.1.2 Ozone depleting substances (ODS). Class I and II ozone depleting substances (ODS) shall not be used in MIL-DTL-32372 or any referenced procedures.

3.2 Materials.

3.2.1 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^2) and a minimum elongation of 15 percent.

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

3.2.3 Chemical analysis (see 4.5.2.3). When requested by the acquiring activity, certification-showing conformance with the applicable material specification shall be made available. If certification is not available chemical analysis in accordance with paragraph 4.5.2.3 shall be performed.

3.3 Fabrication.

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

3.3.1.1 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.

3.3.2 Wire rope sockets, type C. These sockets shall be steel, cast, and the wedges shall be drop forged, cast or cut from plate, see figure 3.

3.3.3 Wire rope sockets, types D and E. Bridge bowls in these sockets shall be steel, cast, see figures 4 and 5.

3.3.3.1 Eyebolts. Eye bolts in open bridge sockets, type D, shall be steel, forged, without any welding, see figure 5.

3.3.3.2 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.

3.3.3.3 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.

3.3.3.4 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.

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

3.3.4.1 Cotter pins. Cotter pins shall conform to type B pins of ASME B18.8.1.

3.3.5 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)."

3.4 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.

3.4.1 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			
	Length	Diameters		
		Top	Bottom	
			OD	ID
	J	H	G	F
1/4	2-1/4	1-9/16	11/16	3/8
5/16 - 3/8	2-1/4	1-11/16	13/16	1/2
7/16 - 1/2	2-1/2	1-7/8	15/16	9/16
9/16 - 5/8	3	2-1/4	1-1/8	11/16
3/4	3-1/2	2-5/8	1-1/4	13/16
7/8	4	3-1/4	1-1/2	15/16
1	4-1/2	3-3/4	1-3/4	1-1/8
1-1/8	5	4-1/8	2	1-1/4
1-1/4 - 1-3/8	5-1/2	4-3/4	2-1/4	1-1/2
1-1/2	6	5-1/4	2-3/4	1-5/8
1-5/8	6-1/2	5-1/2	3	1-3/4
1-3/4 - 1-7/8	7-1/2	6-3/8	3-1/8	2
2- 2-1/8	8-1/2	7-3/8	3-3/4	2-1/4
2-1/4 - 2-3/8	9	8-1/4	4	2-1/2
2-1/2 - 2-5/8	9-3/4	9-1/4	4-1/2	2-7/8

Size (rope diameter)	Jaws						
	Sides		Eyes				
	Width	Thickness	Outside dia.	Thickness	Width between eyes	C/L eye to	
						Basket top	Jaw top
	K	E	M	N	C	L	B
1/4	3/4	1/4	1-5/16	5/16	11/16	1-9/16	3/4
5/16 - 3/8	13/16	5/16	1-1/2	7/16	13/16	1-3/4	7/8
7/16 - 1/2	1	3/8	1-7/8	1/2	1	2	1-1/16
9/16 - 5/8	1-1/4	7/16	2-1/4	9/16	1-1/4	2-1/2	1-1/4
3/4	1-1/2	1/2	2-5/8	5/8	1-1/2	3	1-7/16
7/8	1-3/4	5/8	3-1/8	3/4	1-3/4	3-1/2	1-3/4
1	2	11/16	3-3/4	7/8	2	4	2-1/16
1-1/8	2-3/8	13/16	4-1/8	1	2-1/4	4-1/2	2-5/16
1-1/4 - 1-3/8	2-3/4	15/16	4-3/4	1-1/8	2-1/2	5	2-11/16
1-1/2	3	1	5-3/8	1-3/16	3	6	3-1/8
1-5/8	3-1/4	1-1/8	5-3/4	1-5/16	3	6-1/2	3-1/4
1-3/4 - 1-7/8	3-7/8	1-5/16	6-1/2	1-9/16	3-1/2	7	3-3/4
2- 2-1/8	4-1/4	1-7/16	7	1-13/16	4	9	4
2-1/4 - 2-3/8	4-3/8	1-5/8	7-3/4	2-1/8	4-1/2	10	4-1/2
2-1/2 - 2-5/8	4-5/8	1-7/8	8-1/2	2-3/8	5	10-3/4	5

See notes at end of table.

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

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.

3.4.1.1 Pins. Type A sockets shall be supplied with pins. The diameters of the pinhole (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

3.4.1.2 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

3.4.2 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.

3.4.2.1 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.

3.4.3 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	Pounds
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

3.4.3.1 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.

3.4.4 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	401/2	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

3.4.4.1 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.

3.4.5 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)	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		
Inches	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

3.5 Galvanizing.

3.5.1 Finish 1. Wire rope sockets with finish 1 shall be Bare (uncoated).

3.5.2 Finish 2. Wire rope sockets with finish 2 shall be galvanized (zinc-coated) by the hot-dip galvanizing process ASTM A153/A153M.

3.5.3 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.

3.6 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.

3.7 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 4.5.2.2.

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

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

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

3.8.3 Grinding depth. The maximum depth of grinding shall be in accordance with 3.9.3 and 3.9.4.

3.9 Rejection criteria.

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

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

3.9.3 Rejecting sockets. Sockets shall be considered defective if the depth of any individual discontinuity extends below the minimum allowable dimension as specified table I or table IV.

3.9.4 Rejecting sockets. Sockets shall be considered defective 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.

3.10 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 coating, finish 2, on wire rope sockets shall meet the workmanship requirements of ASTM A153/A153M. Repaired sockets shall meet the requirements of 3.8.

4. QUALITY ASSURANCE PROVISIONS

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

a. First article inspection (see 4.3).
b. Conformance inspection (see 4.4).

4.2 Inspection conditions. Unless otherwise specified, all inspections shall be performed in accordance with the applicable test procedures specified in 4.4.3.

4.2.1 Responsibility for compliance. All items shall meet all requirements of sections 3 and 4. 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.

4.2.2 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.

4.3 First article inspection. First article inspection shall be performed at a laboratory acceptable to the Government on sample units produced with equipment and procedures used in production.

4.3.1 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.

4.3.2 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 4.3.4

4.3.3 First article samples. 10 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).

4.3.3.1 Sampling for chemical analysis. One sample shall be taken several sockets selected at random from the lot. The sample shall consist of not less than 2 ounces of fine, clean (free from oil and dirt, grit, or other foreign material) drillings, millings, or shavings, properly packed, marked and sent to the laboratory designed by the contracting agency.

4.3.4 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	Sample size
Visual and mechanical inspections	3.10	4.5.2.1	10
Magnetic particle inspection 1/	3.7	4.5.2.2	All
Chemical analysis certification	3.2.3	4.5.2.3	see 4.3.3.1
Tensile test	3.4.1.1	4.5.2.4	4

1/ Type A and B, finish 1, class 2 sockets only.

4.3.5 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.

4.3.6 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.

4.3.7 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.

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

4.3.9. Successful manufacturers. Manufacturers that have successfully passed first article inspections and are continuously producing wire rope sockets 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.

4.4 Conformance inspection.

4.4.1 Inspection of product for delivery. Inspection of product for delivery shall consist of individual inspections in table IX.

TABLE IX. Conformance inspection.

Inspections	Requirement paragraph	Inspection paragraph	Number of samples
Visual and mechanical	3.10	4.5.1	4.4.2.1
Magnetic particle inspection 1/	3.7	4.5.2.2	Entire lot

1/ Type A and B, finish 1, class 2 sockets only.

4.4.2 Inspection lot.

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

4.4.2.2 Production lot. A production lot shall consist of all wire rope sockets of the same PIN, which has been manufactured under the same conditions and on the same continuous run.

TABLE X. Lot and sample size.

Production lot size	Sample size
1 to 20	2
21 to 50	4
51 to 100	6
101 to 500	8
501 to 1000	10

4.5.2 Tests.

4.5.2.1 Visual and mechanical. Perform a visual and dimensional check in accordance with 3.10.

4.5.2.2 Magnetic particle inspection. All type A and B, finish 1, class 2 sockets shall be magnetic particle inspected in accordance with 3.7.

4.5.2.3 Chemical analysis certification. Manufacturers shall supply certification of material supplied in accordance with 3.2.3.

4.5.2.4 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 3.2 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. When first article is required for inspection and approval (see 3.1,4.3.5, and 6.3).
d. Where first article test reports are to be sent (see 4.3.7)
e. Disposition of samples (see 4.3.8)
f. Chemical analysis (see 3.2.3).
g. Packaging requirements (see 5.1).

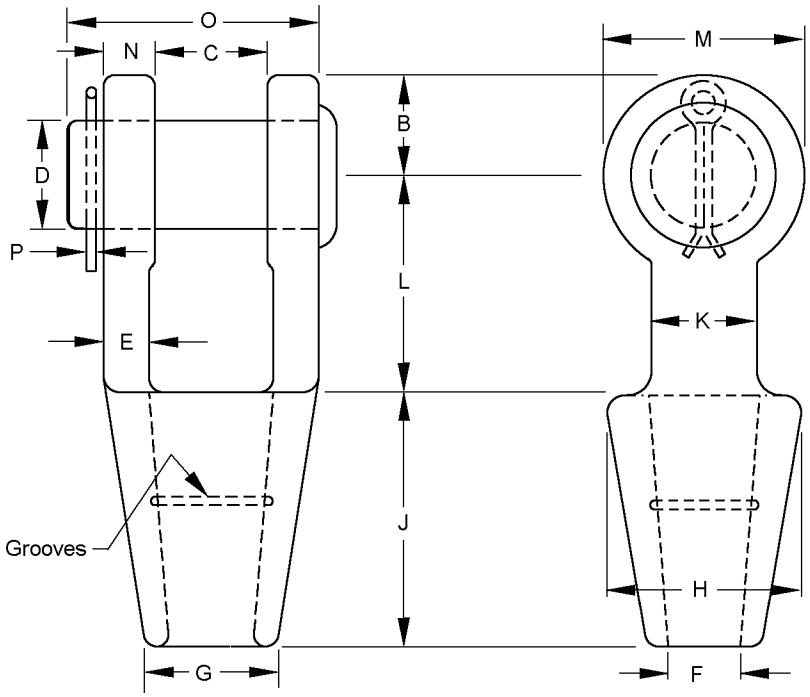
6.3 First article. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examinations, approval of first article test results, and disposition of first article samples. Invitations for bids should provide that the Government reserves the right to waive the requirement for samples for first article inspection to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such products, who wish to rely on such production or test, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending contract.

6.3.1 Defense Logistics Agency (DLA) waiver of first article test. A waiver of a first article testing will only be considered by DLA when the contractor has delivered the same item within the last 3 years, has no unfavorable quality history, has not changed processes, or changed any subcontractors. DLA will not accept first article testing results outside the stated requirements.

6.4 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.

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

6.6 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue, due to the extensiveness of the changes.

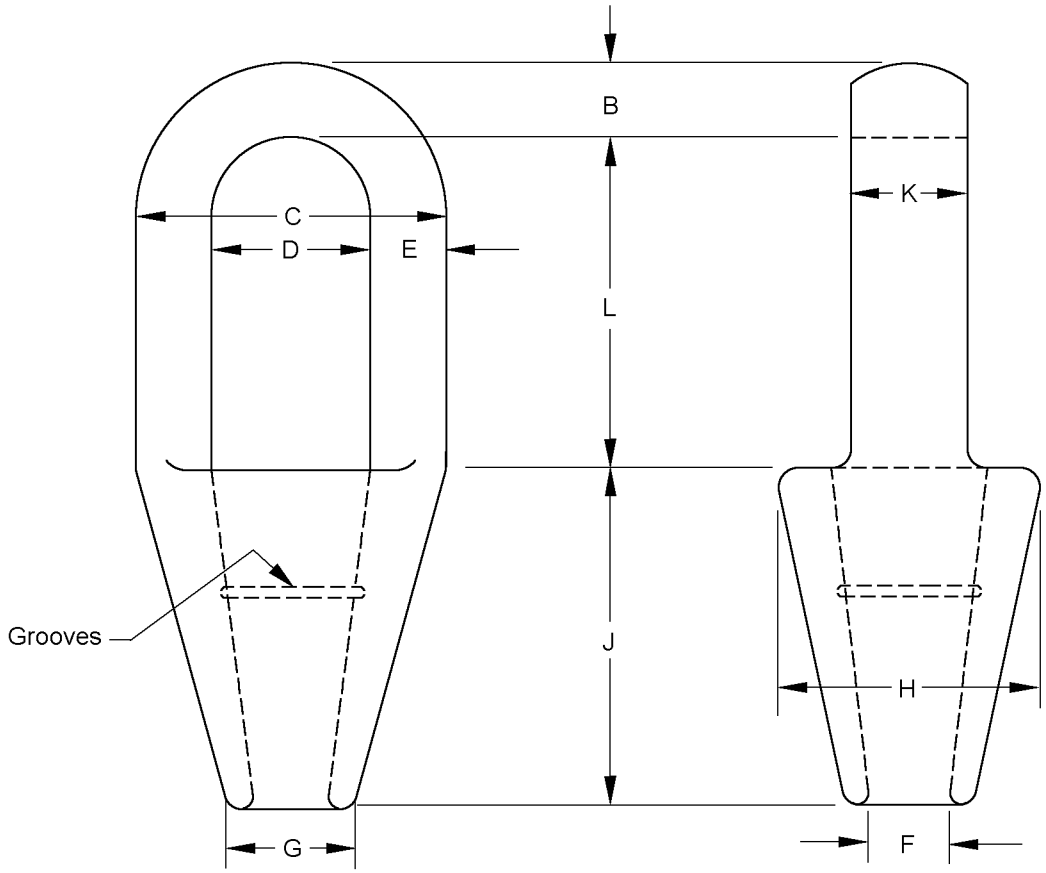


See table I for socket dimensions.

See table II for pin dimensions.

Number and depth of the grooves see table III.

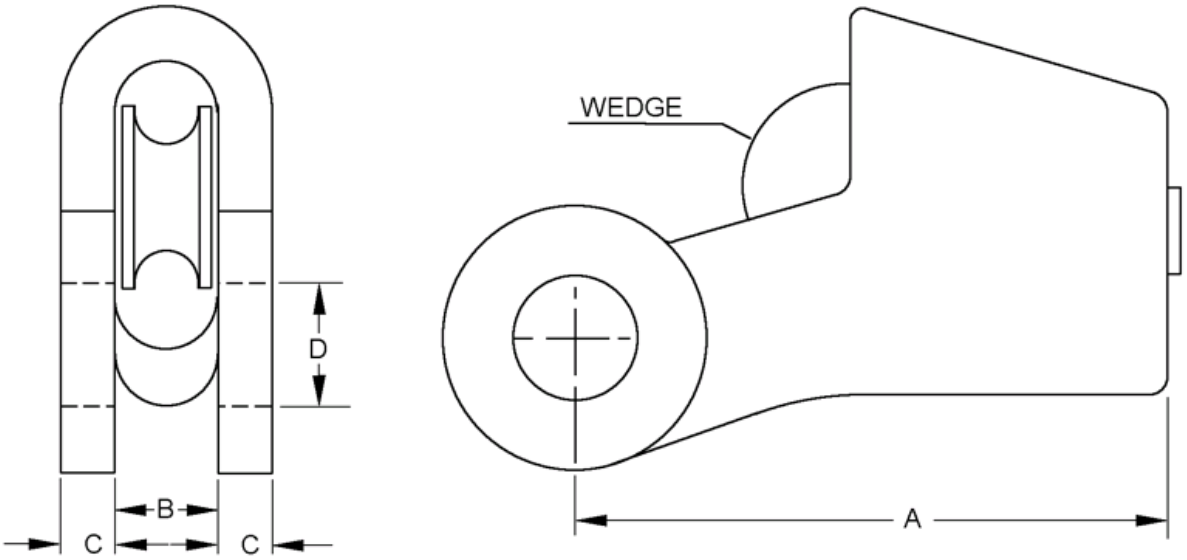
FIGURE 1. Wire rope open socket, type A.



See table IV for socket dimensions.

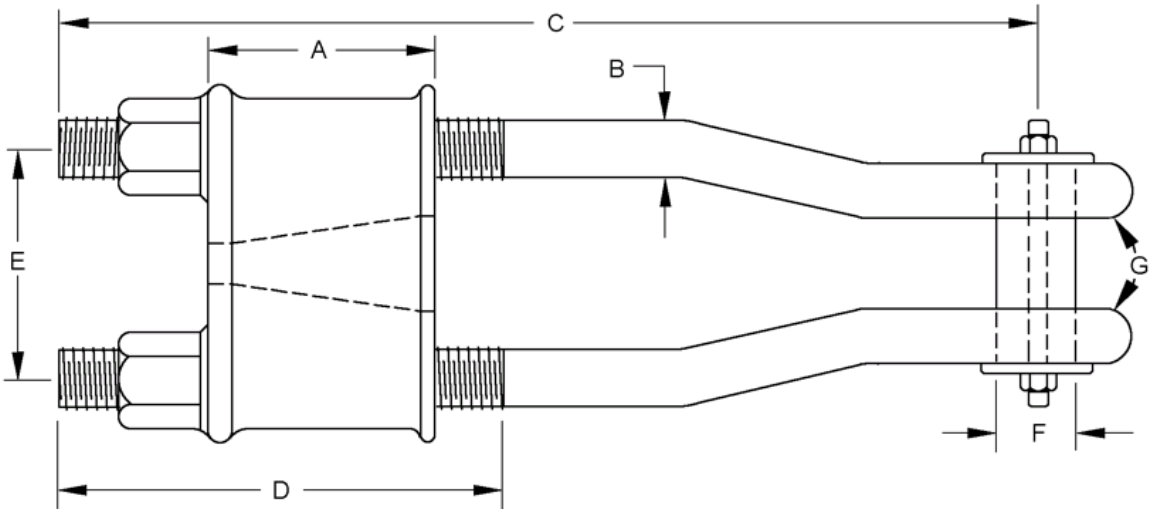
Number and depth of the grooves see table III.

FIGURE 2. Wire rope closed socket, type B.



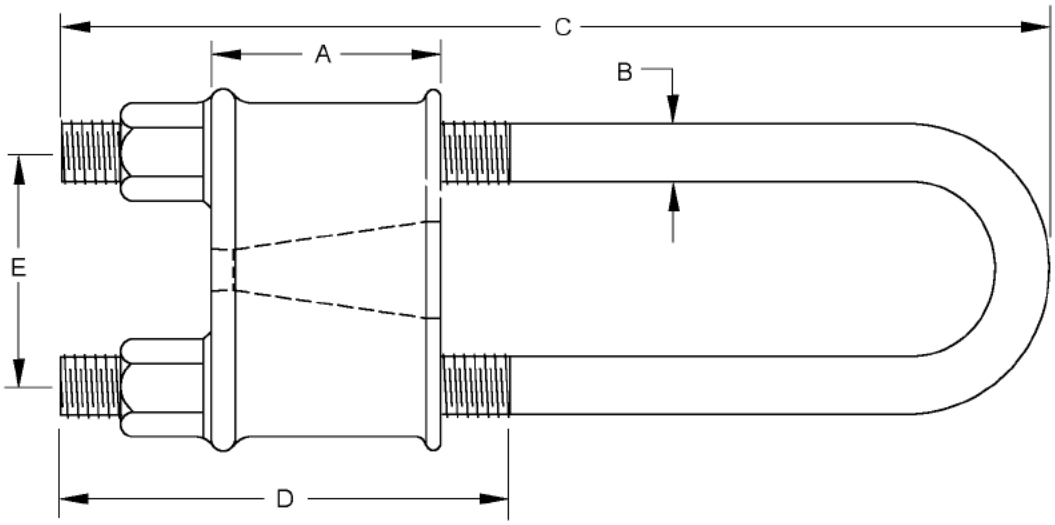
See table V for socket dimensions.

FIGURE 3. Wire rope wedge socket, type C.



See table VI for socket dimensions.

FIGURE 4. Bridge sockets, open type D.



See table VII for socket dimensions.

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, SA, YD
Air Force - 71
DLA - CQ

CIVIL AGENCY COORDINATING ACTIVITY:

GSA - FSA

Preparing activity:
DLA-CC

(Project 4030-2018-006)

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.