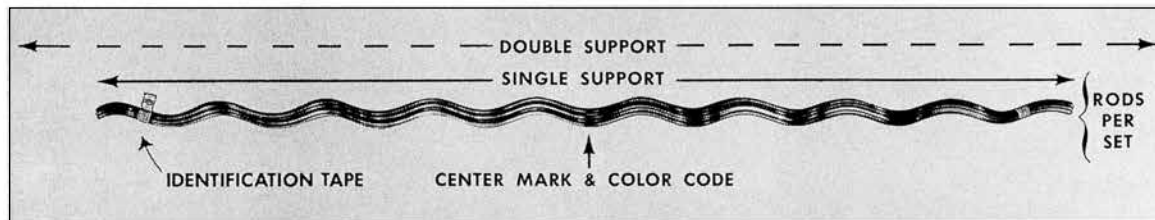


# Armor Rods

## NOMENCLATURE



**Single Support and Double Support Length:** Identified by “S” and “D” appearing in the length column on the catalog page. Should the maximum distance between tied supports exceed 12 inches on double crossarm construction, consult PLP.

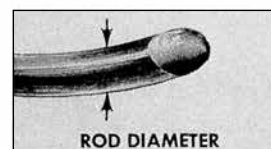
**Rod Diameter:** Added to conductor O.D., assists in arriving at applied overall diameter.

**Rods Per Set:** Indicate the proper number of rods for each application.

**Center Mark:** Establishes recommended alignment of rods during application.

**Color Code and Length:** Assist in identification of conductor size, corresponding to tabular information appearing on catalog page.

**Identification Tape:** Shows catalog number, nominal sizes.



**Thermal Rating (Continuous)**  
**Within a high temperature**  
**Suspension Clamp 250°C**  
**ACSS Repair 250°C**  
**ACSR Repair 125°C**

## GENERAL RECOMMENDATIONS

**PROTECTION.** PREFORMED™ Armor Rods are intended to protect against bending, compression, abrasion, arc-over, and to provide repair. The degree of protection needed on a specific line depends upon a number of factors such as line design, temperature, tension, exposure to wind flow, and vibration history on similar construction in the same area. As a general guide, the following recommendations may be adopted to the specific conditions.

*Armor Rods* are recommended as minimum protection for clamp-type supports or suspensions.

*Line Guards* are recommended as minimum protection for hand-tied spans.

The use of supplementary damping devices, such as Spiral Vibration Dampers, should be considered when conductor vibration is present or expected.

**PLP® Factory Formed Ties are recommended as being superior to armor-hand tie combinations** in providing protection from abrasion, and equivalent in providing protection from vibration fatigue.

*ARMOR-GRIP® Suspension* is recommended as being superior to armor-clamp combinations in providing protection from bending stress, compression stress and abrasion.

**ARMOR RODS RESTORATIVE-REPAIR.** Armor Rods may be used to restore full conductance and strength to ACSR and aluminum conductors where damage does not exceed approximately 50 percent of the outer strand layer. Consult Factory for repair capability of specific strandings.

For standard catalog numbers damage should be located at the “point of support” or within the “midspan area”. For damage 6” to 36” (152 to 914 mm) from the support point contact PLP for recommendations.

**NOTE:** When Armor Rods are used to repair damaged aluminum-based conductors, the following application steps are required for optimum **electrical** repair:

- Step 1:** Thoroughly wire-brush damaged conductor for the full length of the Armor Rods to be applied.
- Step 2:** Apply a gritted inhibitor to the full length of this area before applying the Armor Rods.



# Armor Rods

## GENERAL RECOMMENDATIONS CONTD.

**TAPPING.** Tapping over applied aluminum *Armor Rods* is permissible. Where it is known that tapping clamps will be installed over *Armor Rods*, it is recommended that the conductor be thoroughly wire brushed clean, then an inhibitor be applied.

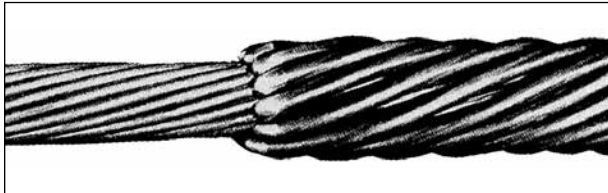
**APPLICATION-INSPECTION.** After application of the correct number of rods per set, a slight gap between rods should be present. Consult the General Information Section for detailed explanation.

Apply no more than one-half the number of rods per set at a time on smaller sizes. On conductors 4/0 and larger, do not attempt to apply more than 4 rods at a time. The alignment of the ends of the rods should be maintained within 2 inches for voltages of 230 KV and lower.

**MATERIAL SELECTION.** For copper or Copperweld® conductor, Copperweld® or Phosphor Bronze, Armor Rods are recommended when electrical requirements such as tapping or repair are not involved.

## DESIGN MODIFICATION

### Armor Rods: PARROT-BILL® Ends



To meet the corona onset and RIV requirements for most extra-high-voltage applications, PARROT-BILL® Ends are to be used instead of the standard ball-end rods. Consult the Factory for an engineering recommendation.

## O.D. CALCULATIONS

Applied overall diameter computed as follows:

The rod diameter can be obtained from the catalog page tables. Conductor/Strand O.D. can be found in the Conductor Chart, General Information Section.

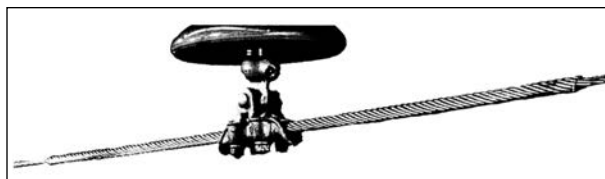
Rod Diam.,	.167" x 2 =	.334"
Conductor Diam.		+ .398"
Total Applied O.D.		.732"

## SAFETY CONSIDERATIONS

1. This product is intended for a single (one-time) use and for the specified application. CAUTION: DO NOT REUSE OR MODIFY THIS PRODUCT UNDER ANY CIRCUMSTANCES.
2. This product is intended for use by trained craftspeople only. This product SHOULD NOT BE USED by anyone who is not familiar with and trained in the use of it.
3. When working in the area of energized lines with this product, EXTRA CARE should be taken to prevent accidental electrical contact.
4. For PROPER PERFORMANCE AND PERSONAL SAFETY be sure to select the proper size PREFORMED™ Armor Rods before application.
5. PREFORMED Armor Rods are precision devices. To insure proper performance, they should be stored in cartons under cover and handled carefully.

# Armor Rods: Aluminum

**For use on:**  
**ACSR, Compacted ACSR,**  
**Aluminum Alloy All-Aluminum,**  
**AWAC® Compacted All-Aluminum,**  
**ACAR, ACSS (AW & TW)**



Catalog Number	Diameter Range (Inches)		Nominal Conductor Size	Units	Wt/Lbs	Length (Inches)	Rod Diameter (Inches)	Rods Per Set	Color Code
	Min.	Max.		Per Carton					
AR-0106 AR-0306	.194	.207	#6, 7W Alum. Alloy #6, 6/1	100 100	35 45	40(S) 52(D)	.121	7	Blue
AR-0107 AR-0307	.208	.219	#4, 7W, Comp.	100 100	35 45	40(S) 52(D)	.121	7	Black
AR-0108 AR-0308	.220	.228	#5, 3-7W Alum. Alloy #5, 6/1	100 100	40 51	40(S) 52(D)	.121	8	White
AR-0109 AR-0309	.229	.243	#4, 7W All-Alum. #4, 6/1-7/1 Comp.	100 100	40 51	40(S) 52(D)	.121	8	Brown
AR-0110 AR-0310	.244	.259	#4, 6/1, 7/1 #4, 7W, Alum. Alloy	50 50	25 32	40(S) 52(D)	.146	7	Orange
AR-0111 AR-0311	.260	.273	#3, 7W All-Alum. #2, 7W Comp.	50 50	26 34	42(S) 54(D)	.146	7	Green
AR-0112 AR-0312	.274	.289	#3, 7W, Alum. Alloy	50 50	30 38	42(S) 54(D)	.146	8	Yellow
AR-0113 AR-0313	.290	.308	#2, 7W All-Alum. #2, 6/1 Comp.	50 50	30 38	42(S) 54(D)	.146	8	Purple
AR-0114 AR-0314	.309	.326	#2, 6/1, 7/1 #2, 7W Alum. Alloy	50 50	32 40	44(S) 56(D)	.136	9	Red
AR-0115 AR-0315	.327	.346	#1, 7W All-Alum. #1/0, 7W-19W Comp.	50 50	38 46	46(S) 58(D)	.146	9	Blue
AR-0116 AR-0316	.347	.366	#1, 6/1 #1, 7W Alum. Alloy	50 50	40 49	48(S) 60(D)	.146	9	Green
AR-0117 AR-0317	.367	.389	1/0, 7W All-Alum. 2/0, 7W Comp.	50 50	45 55	50(S) 62(D)	.146	10	Black
AR-0118 AR-0318	.390	.413	1/0, 6/1 1/0, 7W Alum. Alloy	50 50	55 67	52(S) 64(D)	.167	9	Yellow
AR-0119 AR-0319	.414	.436	2/0, 7W-19W All-Alum. 3/0, 7W Comp.	50 50	48 58	52(S) 64(D)	.146	10	Brown
AR-0120 AR-0320	.437	.463	2/0, 6/1 3/0, 6/1 Comp.	50 50	64 76	54(S) 66(D)	.167	10	Blue
AR-0121 AR-0321	.464	.490	3/0, 7W-19W All Alum.	50 50	64 76	54(S) 66(D)	.167	10	Green
AR-0122 AR-0322	.491	.521	3/0, 6/1 3/0, 7W Alum. Alloy 4/0, 6/1 Comp.	25 25	37 46	56(S) 68(D)	.167	11	Orange
AR-0123 AR-0323	.522	.551	4/0, 7W-19W All-Alum.	25 25	38 46	58(S) 70(D)	.167	11	Black

Right-hand lay standard

(Continued on next page)

#### EXPLANATORY NOTES:

- (1) Nominal Conductor size indicates one of various conductors within each range.
- (2) Single Support Length (S) and Double Support Length (D) are described on the first page of the Armor Rod section.
- (3) Reference O.D. Calculations for: APPLIED O.D. Calculations.
- (4) AWAC is a registered trademark of the Copperweld Co.



# Armor Rods: Aluminum

Catalog Number	EHV Armor Rod Catalog Number	Diameter Range (Inches)		Nominal Conductor Size	Units	Wt/Lbs	Length (Inches)	Rod Diameter (Inches)	Rods Per Set	Color Code
		Min	Max		Per Carton					
AR-0124		.552	.585	4/0, 6/1	25	46	60(S)	.182	11	Red
AR-0324					25	55	72(D)			
AR-0125		.586	.606	266.8 kcmil, 19W	25	52	62(S)	.182	12	Black
AR-0325					25	61	74(D)			
AR-0126		.607	.630	266.8 kcmil, 18/1	25	54	64(S)	.182	12	Purple
AR-0326					25	63	76(D)			
AR-0127		.631	.655	266.8 kcmil, 26/7	25	54	64(S)	.182	12	Yellow
AR-0327					25	63	76(D)			
AR-0128		.656	.679	336.4 kcmil, 19W	18	43	66(S)	.182	13	Brown
AR-0328					18	51	78(D)			
AR-0129		.680	.703	300 kcmil, 26/7	18	52	68(S)	.204	12	Blue
AR-0329					18	60	80(D)			
AR-0130		.704	.740	336.4 kcmil, 26/7	18	54	72(S)	.204	12	Green
AR-0342					18	64	84(D)			
AR-0131		.741	.782	397.5 kcmil, 18/1	18	59	72	.204	13	Orange
AR-0132		.783	.814	397.5 kcmil, 26/7	15	66	76	.250	11	Purple
AR-0133		.815	.845	636 kcmil, 19W Comp.	15	66	76	.250	11	Red
AR-0134		.846	.907	477 kcmil, 26/7	15	74	78	.250	12	Blue
AR-0135		.908	.929	636 kcmil, 37W	12	66	80	.250	13	Green
AR-0136		.930	.976	605 kcmil, 26/7	12	72	88	.250	13	White
AR-0137	AR-0500	.977	1.016	636 kcmil, 26/7	9	50	92	.310	11	Yellow
AR-0138	AR-0501	1.017	1.035	795 kcmil, 37-61W	6	55	94	.310	12	Brown
AR-0139	AR-0502	1.036	1.064	715.5 kcmil, 26/7	6	56	96	.310	12	Blue
AR-0140	AR-0503	1.065	1.098	795 kcmil, 24/7	6	56	96	.310	12	Green
AR-0141	AR-0504	1.099	1.139	795 kcmil, 26/7	6	62	100	.310	12	Orange
AR-0142	AR-0505	1.140	1.161	954 kcmil, 36/1	6	63	100	.310	13	Purple
AR-0143	AR-0506	1.162	1.208	954 kcmil, 45/7 954 kcmil, 54/7 1033.5 kcmil, 37-61W	6	69	100	.310	13	Red
AR-0144	AR-0507	1.209	1.269	1113 kcmil, 45/7	6	81	100	.365	12	Black
AR-0145	AR-0508	1.270	1.327	1192.5 kcmil, 45/7	6	81	100	.365	12	White
AR-0146	AR-0509	1.328	1.390	1272 kcmil, 45/7	3	45	100	.365	13	Yellow
AR-0147	AR-0510	1.391	1.440	1431 kcmil, 45/7	3	54	100	.436	11	Brown
AR-0163	AR-0511	1.441	1.508	1590 kcmil, 45/7	3	58	100	.436	12	Blue
AR-0164	AR-0512	1.509	1.578	1590 kcmil, 54/19	3	58	100	.436	12	Green
AR-0165	AR-0513	1.579	1.651	1780 kcmil, 84/19	3	60	100	.436	13	Orange
AR-0166	AR-0514	1.652	1.728	2000 kcmil, 9/W	3	60	100	.436	13	Purple
AR-0167	AR-0516	1.729	1.809	2156 kcmil, 84/19	3	64	100	.436	14	Red
AR-0168	AR-0517	1.810	1.898	2500 kcmil, 91W	3	64	100	.436	14	Black
AR-0169	AR-0518	1.899	1.991		3	68	100	.436	15	White
AR-0170	AR-0519	1.992	2.090	3500 kcmil, 127W	3	68	100	.436	15	Yellow
AR-0171	AR-0520	2.091	2.193	3500 kcmil, 127W	3	80	100	.468	15	Brown

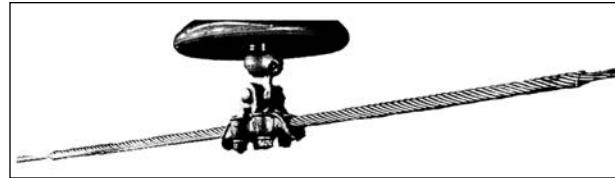
Right-hand lay standard

**EXPLANATORY NOTES:**

- (1) Nominal Conductor size indicates one of various conductors within each range.
- (2) Single Support Length (S) and Double Support Length (D) are described on the first page of the Armor Rod section.
- (3) Reference O.D. Calculations for: APPLIED O.D. Calculations.
- (4) AWAC is a registered trademark of the Copperweld Co.

# Armor Rods: Aluminum-Clad Steel

For use on:  
Aluminum-Clad Steel Strands



Catalog Number	Diameter Range (Inches)		Nominal Conductor Size	Units	Wt/Lbs	Length (Inches)	Rod Diameter (Inches)	Rods Per Set	Color Code
	Min.	Max.		Per Carton					
AR-2113 AR-2313	.169"	.178"	3#12 AW	50 50	32 40	40(S) 52(D)	.102	7	Orange
AR-2116 AR-2316	.196"	.207"	3#11 AW	50 50	32 40	40(S) 52(D)	.102	7	Black
AR-2118 AR-2318	.218"	.225"	3#10 AW 4-M AW	50 50	36 46	40(S) 52(D)	.102	8	Green
AR-2120 AR-2320	.237"	.249"	1/4", 7#12AW 6-M, AW, 3#9 AW	50 50	40 51	40(S) 52(D)	.102	9	Yellow
AR-2122 AR-2322	.264"	.277"	9/32", 7#11 AW 8-M, AW, 3#8 AW	25 25	28 35	42(S) 54(D)	.114	9	Blue
AR-2124 AR-2324	.296"	.314"	5/16", 7#10 AW 10-M, AW, 3#7 AW	25 25	30 37	46(S) 58(D)	.114	9	Black
AR-2126 AR-2326	.334"	.352"	11/32", 7#9 AW 12.5-M, AW, 3#6 AW	25 25	35 44	50(S) 62(D)	.114	10	Yellow
AR-2128 AR-2328	.373"	.392"	3/8", 7#8 AW 16-M, AW, 3#5 AW	25 25	44 54	50(S) 62(D)	.128	10	Orange
AR-2130 AR-2330	.409"	.425"	18-M AW	25 25	51 62	54(S) 66(D)	.128	11	Black
AR-2131 AR-2331	.426"	.450"	7/16" AW 7#7 AW 20M, AW	25 25	58 70	56(S) 68(D)	.128	12	Green
AR-2133 AR-2333	.477"	.504"	1/2" AW 7#6 AW	20 20	54 65	56(S) 68(D)	.144	11	Blue
AR-2135 AR-2335	.535"	.565"	9/16" AW 7#5 AW	10 10	40 48	60(S) 72(D)	.162	12	Yellow
AR-2137 AR-2337	.593"	.625"	5/8" AW 7#4 AW	10 10	46 56	60(S) 72(D)	.183	11	Black

Left-hand lay standard

#### EXPLANATORY NOTES:

- (1) Nominal Conductor size indicates one of various conductors within each range.
- (2) Single Support Length (S) and Double Support Length (D) are described on the first page of the Armor Rod section.
- (3) Reference O.D. Calculations for: APPLIED O.D. Calculations.



# Armor Rods: Copperweld®

**For use on:**  
**Copperweld Strand, Copper**  
**Copperweld®/Copper Composite**

Catalog Number	Diameter Range (Inches)		Nominal Conductor Size	Units	Wt/Lbs	Length (Inches)	Rod Diameter (Inches)	Rods Per Set	Color Code
	Min.	Max.		Per Carton					
AR-5100 AR-5300	.160	.168	#6 Solid Cu	50	35	38(S) 50(D)	.102	7	Green
AR-5101 AR-5301	.169	.178	3 #12 Cu	50	37	40(S) 52(D)	.102	7	Red
AR-5102 AR-5302	.179	.188	#5 Solid Cu	50	37	40(S) 52(D)	.102	7	Black
AR-5104 AR-5304	.196	.207	3 #11 Cw 8A Cw/Cu	50	56	40(S) 52(D)	.102	7	Gray
AR-5106 AR-5306	.218	.225	3 #10 Cw	50	44	40(S) 52(D)	.102	8	Red
AR-5107 AR-5307	.226	.236	6A Cw/Cu #4, 7W Cu	50	44	40(S) 52(D)	.102	8	Black
AR-5108 AR-5308	.237	.249	6M Cu 7 #12 Cw	50	49	42(S) 54(D)	.102	9	Blue
AR-5109 AR-5309	.250	.263	#3, 7W Cu 6M Cw 3W	50	50	42(S) 54(D)	.102	9	Gray
AR-5110 AR-5310	.264	.277	8M, Cw 7 #11 Cw	50	57	42(S) 54(D)	.102	9	Green
AR-5111 AR-5311	.278	.295	#2, 7W Cu 4A Cw/Cu	50	56	42(S) 54(D)	.102	10	Red
AR-5112 AR-5312	.296	.314	10M Cw 7 #10 Cw	25	35	44(S) 56(D)	.114	9	Black
AR-5113 AR-5313	.315	.333	#1, 7W-19W Cu	25	44	46(S) 58(D)	.128	9	Blue
AR-5114 AR-5314	.334	.352	12.5M Cw 7 #9 Cw	25	46	48(S) 60(D)	.128	9	Gray
AR-5115 AR-5315	.353	.372	14M Cw 2A Cw/Cu	25	54	50(S) 62(D)	.128	10	Green
AR-5116 AR-5316	.373	.392	7#8 Cw 16M Cw, 3 #5 Cw	25	62	52(S) 64(D)	.144	9	Red
AR-5118 AR-5318	.409	.425	18M Cw 2/0, 7W-19W Cu	15	44	54(S) 66(D)	.144	10	Blue
AR-5119 AR-5319	.426	.450	7 #7 Cw 20M Cw	15	55	54(S) 66(D)	.162	10	Gray
AR-5120 AR-5320	.451	.476	1/0 K, Cw/Cu 3/0, 7W-19W Cu	15	57	56(S) 68(D)	.162	10	Green
AR-5121 AR-5321	.477	.504	7 #6Cw 3/0, 12W Cu	15	62	56(S) 68(D)	.162	11	Red
AR-5122 AR-5322	.505	.534	19 #10 Cw 25M Cw	15	64	58(S) 70(D)	.162	11	Black
AR-5123 AR-5323	.535	.565	7 #5 Cw 4/0, 12W Cu	10	48	58(S) 70(D)	.162	12	Blue
AR-5124 AR-5324	.566	.592	19 #9 Cw 250M, 19-37W	10	49	60(S) 72(D)	.162	12	Gray
AR-5125 AR-5325	.593	.625	7 #4 Cw 250M, 12W Cu	10	53	60(S) 72(D)	.162	13	Green

Left-hand lay standard

**EXPLANATORY NOTES:**

- (1) Nominal Conductor size indicates one of various conductors within each range.
- (2) Single Support Length (S) and Double Support Length (D) are described on the first page of the Armor Rod section.
- (3) Reference O.D. Calculations for: APPLIED O.D. Calculations.
- (4) Copperweld is a registered trademark of the Copperweld Co.

# Armor Rods: Phosphor Bronze

For use on:

**Copper**

**Copperweld®/Copper Composite**

Catalog Number	Diameter Range (Inches)		Nominal Conductor Size	Units	Wt/lbs	Length (Inches)	Rod Diameter (Inches)	Rods Per Set	Color Code
	Min.	Max.		Per Carton					
ARB-1103 ARB-1303	.160	.168	#6, Solid Cu	75 75	54 70	38(S) 50(D)	.099	7	Green
ARB-1104 ARB-1304	.169	.178	9 1/2 D Cw/Cu	75 75	56 72	40(S) 52(D)	.099	7	Red
ARB-1105 ARB-1305	.179	.188	#6, 7W Cu 8C, Cw/Cu	75 75	56 72	40(S) 52(D)	.099	7	Black
ARB-1107 ARB-1307	.196	.207	#8A Cw/Cu #4, Solid Cu	50 50	44 56	40(S) 52(D)	.099	8	Gray
ARB-1109 ARB-1309	.218	.225	#8D Cw/Cu #7A Cw/Cu	50 50	44 56	40(S) 52(D)	.099	8	Red
ARB-1110 ARB-1310	.226	.236	#6A Cw/Cu #4, 7W Cu	50 50	44 56	40(S) 52(D)	.099	8	Black
ARB-1111 ARB-1311	.237	.249	#7D Cw/Cu	50 50	52 65	42(S) 54(D)	.099	9	Blue
ARB-1112 ARB-1312	.250	.263	#3, 7W Cu #2 Solid Cu	50 50	52 65	42(S) 54(D)	.099	9	Gray
ARB-1113 ARB-1313	.264	.277	#6D Cw/Cu	50 50	52 65	42(S) 54(D)	.099	9	Green
ARB-1114 ARB-1314	.278	.295	#4A Cw/Cu #2, 7W Cu	50 50	56 72	42(S) 54(D)	.099	10	Red
ARB-1115 ARB-1315	.296	.314	#2F Cw/Cu #5D, Cw/Cu	50 50	68 86	44(S) 56(D)	.111	9	Black

Left-hand lay standard

**EXPLANATORY NOTES:**

- (1) Nominal Conductor size indicates one of various conductors within each range.
- (2) Single Support Length (S) and Double Support Length (D) are described on the first page of the Armor Rod section.
- (3) Reference O.D. Calculations section, for: APPLIED O.D. Calculations.
- (4) Refer to General Recommendations for material selection.
- (5) Copperweld is a registered trademark of the Copperweld Co.



# Armor Rods: Galvanized Steel

**For use on:  
Steel Reinforced Copper Conductors with  
Right-Hand Lay**

Catalog Number	Diameter Range (Inches)		Nominal Conductor Size	Units	Wt/lbs	Length (Inches)	Rod Diameter (Inches)	Rods Per Set	Color Code
	Min.	Max.		Per Carton					
AR-1154 AR-1354	.244	.259	6/1 #4-7/1	50 50	38 48	40 (S) 52 (D)	.070	12	Orange
AR-1158 AR-1358	.309	.326	6/1 #2-7/1	50 50	60 75	44 (S) 56 (D)	.086	12	Red
AR-1160 AR-1360	.347	.373	#1-6/1	50 50	70 88	48 (S) 60 (D)	.086	13	Black
AR-1162 AR-1362	.390	.413	1/0-6/1	25 25	50 62	52 (S) 64 (D)	.100	13	Yellow
AR-1164 AR-1364	.437	.463	2/0-6/1	25 25	70 84	54 (S) 66 (D)	.119	12	Blue
AR-1166 AR-1366	.491	.521	3/0-6/1	20 20	62 75	56 (S) 68 (D)	.119	13	Orange
AR-1168 AR-1368	.552	.585	4/0-6/1	15 15	66 80	60 (S) 72 (D)	.138	13	Red

Right-hand lay standard

**For use on:  
Galvanized Steel Strand  
with Left-Hand Lay**

Catalog Number	Diameter Range (Inches)		Nominal Conductor Size	Units	Wt/lbs	Length (Inches)	Rod Diameter (Inches)	Rods Per Set	Color Code
	Min.	Max.		Per Carton					
AR-1123	.229	.243	1/4-7W	50	37	40	.086	10	Black
AR-1124	.244	.259	1/4-3W	50	37	40	.086	10	Yellow
AR-1128	.309	.326	5/16-3W 5/16-7W HS, & EHS	50	60	44	.100	11	Black
AR-1130	.347	.373	3W 3/8-7W	50	70	48	.100	12	Orange
AR-1133	.414	.436	7/16-7W	20	52	52	.119	12	Green
AR-3139	.491	.521	1/2-7W 19W	20	62	56	.138	12	Blue

Left-hand lay standard

**EXPLANATORY NOTES:**

- (1) Nominal Conductor size indicates one of various conductors within each range.
- (2) Single Support Length (S) and Double Support Length (D) are described on the first page of the Armor Rod section.
- (3) Galvanized Steel Armor Rods may be suitable for application on materials other than Galvanized Steel. Consult the Factory for specific information.