



## Armor Rods



### General Recommendations

**Protection:** PREFORMED™ Armor Rods are intended to protect against bending, compression, abrasion, and arc-over, and to provide repair. The degree of protection needed on specific line depends on a number of factors such as line design, temperature, tension, and exposure to wind flow, and vibration history on similar construction in the same area. As a general guide, the following recommendations may be adapted to the specific conditions. Armor Rods are recommended as minimum protection for bolted clamp-type supports or suspensions. Armor rods are recommended as minimum protection for use with hand-tied spans of 90 metres or more. Line Guards are recommended as minimum protection for hand-tied spans of less than 90 metres in urban construction having no experience of vibration. The use of supplementary damping devices should be considered in areas experiencing a history of vibration problems. Spiral Vibration Dampers should be given serious consideration when distribution conductor spans exceed 105 metres and/or 15 percent tension at 16°C.

**Application-Inspection:** After application of the correct number of rods per set, a slight gap between rods should be present. Apply no more than one-half the number of rods per set at a time on smaller sizes. On conductor 12mm and larger, do not attempt to apply more than four rods at a time. The alignment of the ends of the rods should be maintained within 50 mm for voltages of 230 KV and lower.

### Armor Rods: Parrot-Bill® Ends

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

### O.D. Calculations

Applied overall diameter computed as follows:

The rod diameter can be obtained from the catalogue page tables. Conductor/strand O.D. can be found in conductor charts.

Rod Diameter.	3mm x 2 = 6.00mm
Conductor Diameter.	+ 4.78mm
Total Applied O.D.	10.78mm



**Design Modification:** WRAPLOCK® Ties are recommended as being superior to armor-tie combinations in providing protection for 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 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 layers. Consult PLP for repair capability of specific stranding.

**Note:** All conductor, new or weathered MUST be thoroughly wire-brushed and coated with a good quality inhibitor along the area where restorative repair fittings are to be applied. Damage should be located at the "point of support" or within the "midspan area"

**Tapping:** Tapping over applied aluminum or Hard drawn copper Armor Rods is permissible. Where it is known that Tapping clamps will be installed over Armor-Rods, an inhibitor must be applied.

**Material Selection:** For copper conductor, Copperweld Armor Rods are recommended when electrical requirements such as tapping or repair are not involved. Where such requirements are involved Hard Drawn Copper Armor Rods may be used.

**Catalogue No.:** AAR (Aluminium); CAR (Copper); SAR (Galvanised)





## Aluminium Alloy Armor Rods

RIGHT HAND LAY STANDARD. ALWAYS QUOTE INSULATOR TYPE AND NECK DIAMETER.

CATALOGUE NO. AAR	CONDUCTOR DIAMETER (mm)	COLOUR CODE	RODS PER SET	LENGTH OF FITTING (mm)	ROD DIA. (mm)	SETS PER PACK	APPROX PACK MASS (kg)
AAR 133/141	3.38 – 3.58	Red	6	910	2.64	50	5
AAR 142/150	3.61 – 3.81	Brown	6	910	2.64	50	5
AAR 151/160	3.84 – 4.06	Green	6	910	2.64	50	6
AAR 161/171	4.09 – 4.34	Yellow	7	910	2.64	50	6
AAR 172/181	4.37 – 4.60	Grey	7	910	2.64	50	6
AAR 182/193	4.62 – 4.90	Red	7	910	2.64	50	8
AAR 194/207	4.93 – 5.26	Blue	7	1010	2.95	50	8
AAR 208/219	5.28 – 5.56	Green	7	1010	2.95	50	9
AAR 220/228	5.59 – 5.79	White	7	1010	3.25	50	10
AAR 229/243	5.82 – 6.17	Red	7	1010	3.25	50	10
AAR 244/259	6.20 – 6.58	Orange	7	1010	3.25	50	12
AAR 260/273	6.60 – 6.93	Green	7	1070	3.66	50	14
AAR 274/289	6.96 – 7.34	Yellow	8	1070	3.66	50	13
AAR 290/308	7.37 – 7.82	Brown	8	1070	3.66	50	14
AAR 309/326	7.85 – 8.28	Red	8	1120	3.66	50	14
AAR 327/346	8.31 – 8.79	Blue	9	1170	3.66	50	16
AAR 347/366	8.81 – 9.30	Green	9	1220	3.66	50	17
AAR 367/389	9.32 – 9.88	Black	10	1270	3.66	50	18
AAR 390/413	9.91 – 10.49	Yellow	9	1320	4.06	30	23
AAR 414/436	10.52 – 11.07	Red	10	1320	4.06	30	16
AAR 437/463	11.10 – 11.76	Blue	10	1370	4.06	30	17
AAR 464/490	11.79 – 12.45	Green	10	1370	4.06	30	17
AAR 491/521	12.47 – 13.23	Orange	11	1420	4.06	30	20
AAR 522/558	13.26 – 14.17	Brown	11	1470	4.47	30	21
AAR 559/585	14.20 – 14.86	White	11	1520	4.47	30	23
AAR 586/606	14.88 – 15.39	Blue	12	1620	4.47	15	15
AAR 607/630	15.42 – 1600	Orange	12	1570	4.47	15	15
AAR 631/655	16.03 – 16.64	Red	12	1620	4.62	15	15
AAR 656/679	16.66 – 17.25	Black	12	1680	4.62	15	17
AAR 680/703	17.27 – 17.86	Yellow	13	1730	4.62	15	20
AAR 704/739	17.88 – 18.77	White	12	1830	5.18	15	21
AAR 740/755	18.80 – 19.18	Red	12	1830	5.18	15	22
AAR 756/766	19.20 – 19.46	Black	13	1830	5.18	15	23
AAR 767/814	19.48 – 20.68	Green	11	1930	6.35	10	24
AAR 815/845	20.70 – 21.46	Brown	11	1930	6.35	10	24
AAR 846/907	21.49 – 23.04	Red	12	1930	6.35	10	24
AAR 908/929	23.06 – 23.60	Orange	12	1980	6.35	10	25
AAR 930/976	23.62 – 24.79	Green	12	2030	6.35	10	28
AAR 977/1016	24.82 – 25.81	Blue	12	2240	7.62	10	38



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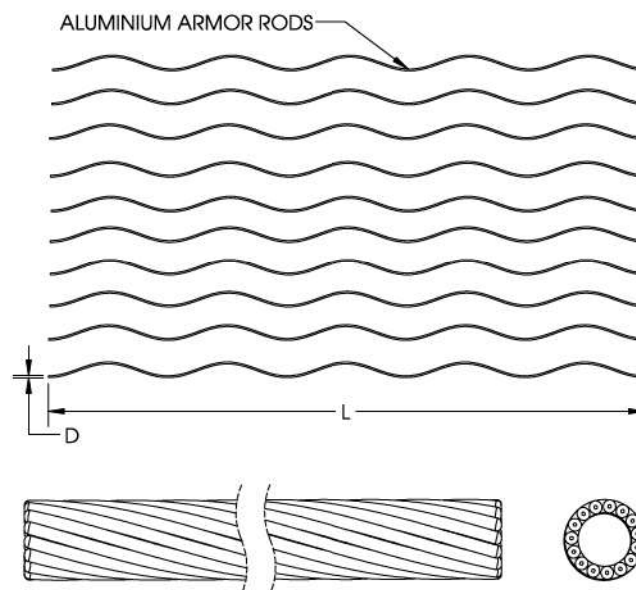
CATALOGUE NO. AAR	CONDUCTOR DIAMETER (mm)	COLOUR CODE	RODS PER SET	LENGTH OF FITTING (mm)	ROD DIA. (mm)	SETS PER PACK	APPROX PACK MASS (kg)
AAR 1017/1035	25.83 – 26.29	Black	12	2340	7.62	10	42
AAR 1036/1064	26.31 – 27.03	Blue	12	2390	7.62	10	44
AAR 1065/1098	27.05 – 27.89	Grey	12	2440	7.62	10	44
AAR 1099/1139	27.91 – 28.93	Yellow	13	2440	7.62	10	50
AAR 1140/1161	28.96 – 29.49	Blue	13	2540	7.62	5	25
AAR 1162/1208	29.51 – 30.68	Green	13	2540	7.62	5	25
AAR 1209/1269	30.71 – 32.23	Brown	12	2540	9.27	5	32
AAR 1270/1327	32.26 – 33.71	Black	12	2540	9.27	5	32
AAR 1328/1390	33.73 – 35.31	Grey	13	2540	9.27	5	34
AAR 1391/1440	35.33 – 36.58	White	13	2540	9.27	5	42
AAR 1441/1508	36.60 – 38.3	Red	13	2540	9.27	5	45
AAR 1509/1578	38.33 – 40.08	Green	14	2540	9.27	5	45



## Copper Alloy Armor Rods

RIGHT HAND LAY STANDARD.

CATALOGUE NO. CAR	CONDUCTOR DIAMETER (mm)	COLOUR CODE	RODS PER SET	SETS PER PACK	APPROX PACK MASS (kg)	LENGTH OF FITTING (mm)	ROD DIA. (mm)
315 – 333	7.98 – 8.46	BLACK	9	15	14	1170	3.25
334 – 352	8.47 – 8.94	WHITE	9	15	14	1220	3.25
353 – 372	8.95 – 9.45	BROWN	10	10	11	1270	3.25
373 – 392	9.46 – 9.96	RED	9	10	13	1350	3.66
393 – 408	9.97 – 10.36	ORANGE	10	10	14	1350	3.66
409 – 425	10.37 – 10.79	GREEN	10	10	16	1370	3.66
426 – 450	10.82 – 11.43	BLUE	10	10	19	1370	4.06
451 – 476	11.44 – 12.09	YELLOW	10	10	19	1420	4.06
477 – 504	12.10 – 12.80	WHITE	11	10	22	1420	4.06
505 – 534	12.81 – 13.56	GREY	11	10	22	1470	4.06
535 – 565	13.57 – 14.35	RED	12	10	24	1470	4.06
566 – 592	14.36 – 15.04	GREEN	12	10	25	1520	4.06
593 – 625	15.05 – 15.87	BLUE	13	5	14	1520	4.06
626 – 666	15.88 – 16.92	YELLOW	12	5	17	1570	4.47
667 – 701	16.93 – 17.80	BROWN	13	5	18	1570	4.47
702 – 735	17.81 – 18.67	RED	13	5	19	1630	4.47
736 – 767	18.68 – 19.48	BLUE	14	5	20	1630	4.47
768 – 798	19.49 – 20.27	ORANGE	13	5	21	1680	4.88
799 – 841	20.28 – 21.26	GREEN	14	5	23	1730	4.88
842 – 890	21.27 – 22.60	BLACK	13	5	27	1780	5.89
891 – 940	22.61 – 23.88	YELLOW	14	5	30	1830	5.89







## Galvanised Steel Armor Rods

RIGHT HAND LAY STANDARD.

CATALOGUE NO. SAR	CONDUCTOR DIAMETER (mm)	COLOUR CODE	RODS PER SET	SETS PER PACK	APPROX PACK MASS (kg)	LENGTH OF FITTING (mm)	ROD DIA. (mm)
144	3.66	BROWN	8	20	4	530	1.63
175	4.44	BLUE	8	20	6	610	2.03
192	4.88	YELLOW	9	20	6	640	2.03
227	5.77	RED	9	20	7	710	2.03
240	6.10	ORANGE	9	20	7	740	2.34
277	7.04	BLACK	9	20	10	810	2.34
312	7.93	BROWN	10	20	11	860	2.64
320	8.13	GREEN	10	20	11	860	2.64
345	8.76	RED	11	15	9	890	2.64
384	9.75	BLACK	11	15	14	940	2.64
386	9.80	BLACK	11	15	14	940	2.95
400	10.16	YELLOW	11	15	14	960	2.95
432	10.97	BROWN	12	15	15	990	2.95
480	12.19	GREEN	11	10	15	1040	3.66
520	13.21	ORANGE	12	10	16	1070	3.66
640	16.26	BROWN	12	10	26	1070	4.47