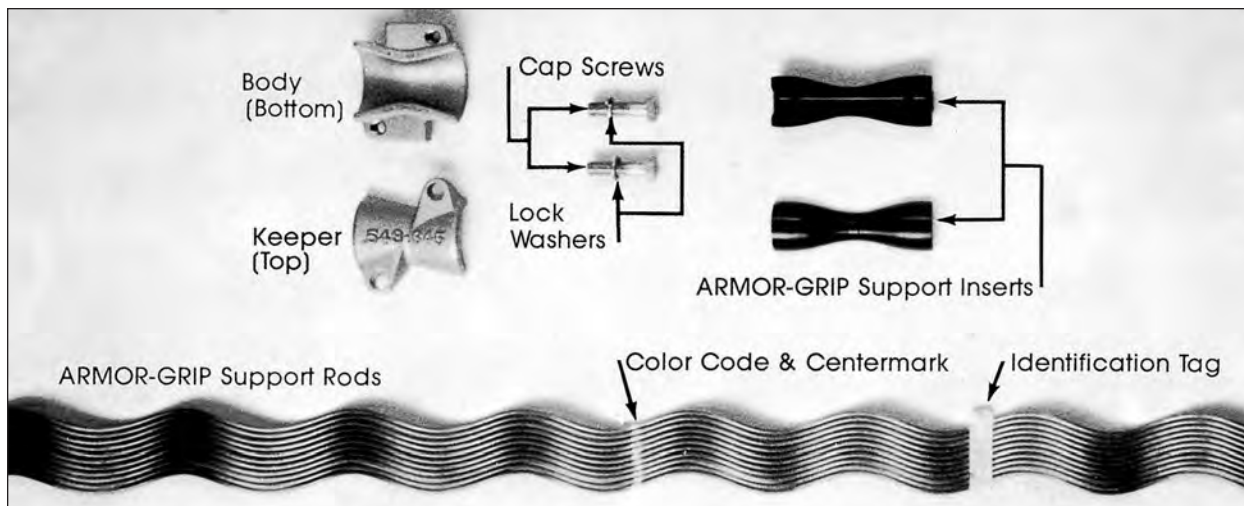




ARMOR-GRIP® Support

NOMENCLATURE

Thermal Rating (Continuous) 200°C



ARMOR-GRIP Support Keeper: Aluminum alloy casting. Comprises the top half of the ARMOR-GRIP Support housing unit. The conductor range is cast on the outside of the Keeper.

ARMOR-GRIP Support Body: Ductile iron casting. Comprises the bottom half of the ARMOR-GRIP Support housing unit. The conductor range is cast into the inside of the body.

ARMOR-GRIP Cap Screws and Lock Washers: Galvanized steel.

ARMOR-GRIP Support Inserts: An elastomer specifically formulated for resistance to ozone attack, weathering, extreme high and low temperature variations, and compression set. An aluminum alloy reinforcement is molded into the elastomer.

The conductor range is molded into the inside of each insert.



ARMOR-GRIP Support Rods: Aluminum covered steel for aluminum based conductor diameter range .390" to .481". Aluminum alloy for aluminum based conductor diameter range .482" to 1.828". Standard rod ends are supplied for sub-EHV applications and Parrot Bill® rod ends are supplied for EHV applications.

Color Code: Identifies conductor diameter range.

Center Mark: Identifies starting location and center of rods during installation.

Identification Tag: Identifies rod material, conductor type and diameter range.

Special Note about Conductor Range: Each ARMOR-GRIP Support housing unit has a wide conductor range and is an overlapping design that incorporates several different pairs of inserts and sets of rods. Each pair of inserts has a narrow conductor range and will accommodate a few different sets of rods. Each set of rods has a very narrow conductor range and is designed for use only on the size conductor listed on the ID tag.

GENERAL RECOMMENDATIONS

ARMOR-GRIP Support, intended for use on aluminum based conductors with a diameter range of .390" to 1.828", is designed to be used with clamp-top horizontal and vertical line post insulators.

The ARMOR-GRIP Support is designed to reduce static and dynamic stress at the support point, so that the conductor is better able to withstand the effects of vibration than with armor-clamp attachments. It also helps protect the conductor in the support area against flashover.

While ARMOR-GRIP Support provides improved protection against vibration fatigue of the conductor, on some lines

vibration may be so severe that the use of vibration dampers may be necessary. Utilities that have experienced vibration or expect to should consider adding dampers. Consult PLP for general guidelines and recommendations concerning vibration and dampers.

Unbalanced Loading. The ARMOR-GRIP Support will withstand an unbalanced load of approximately 10 to 20% of the conductor RBS before initial slip occurs. Slightly higher unbalanced loads will be obtained after the unit has been in service for a period of time.

ARMOR-GRIP® Support

Mechanical Strength. The ARMOR-GRIP Support will withstand a pulloff load from the trunnion pins of the insulator cap of 5,000 lbs. applied in any direction. This includes the vertical up direction so that the unit will withstand an uplift load. Since the bore of the unit is symmetrical throughout the entire 360° range, a radial conductor load may be applied safely in any direction.

Line Angles. A maximum line angle of 30° may be turned using a single ARMOR-GRIP Support, and a maximum of 60° using a Double-Support unit.

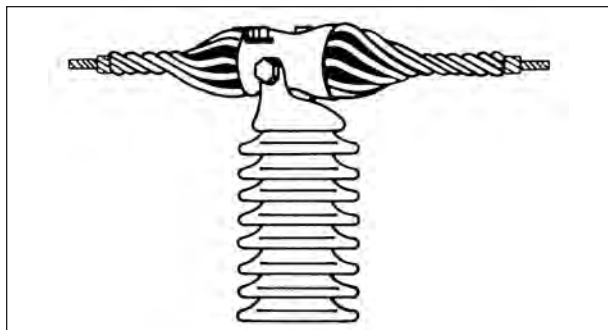
ARMOR-GRIP Support: Double. A special ARMOR-GRIP Support is available for applications utilizing a double support. The minimum distance between the double support points is listed on the next page. Contact PLP® for an engineering recommendation and additional information when considering use of the Double-Support unit.

Loading Consideration. In the work of line design, it should be considered that the cantilever strength of the insulator may be the governing factor, rather than the strength rating of the ARMOR-GRIP Support for unbalanced loading, mechanical strength, and turning angles.

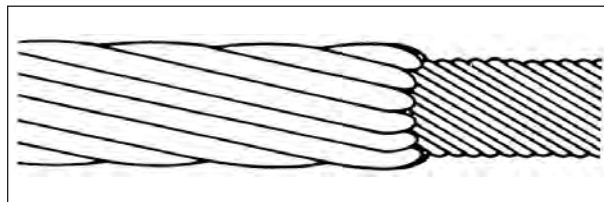
Unusual Line Conditions. The ARMOR-GRIP Support may be rotated vertically on the trunnion pins a maximum of 15° before the bottom of the unit interferes with the insulator cap. This should be considered for those terrain conditions, such as a steep side hill, which might result in the unit being installed at an angle from the horizontal.

DESIGN MODIFICATIONS

1. **ARMOR-GRIP Support for line repair.** For repair of fatigue damaged conductors, a specially designed ARMOR-GRIP Support can be applied over PRE-FORMED™ type armor rods to extend the life of the conductor. Wrench formed rods must be removed when conductor fatigue occurs under them. A splice is then applied to the fatigued area and the ARMOR-GRIP Support is applied over the splice. This type of application requires special consideration and PLP should be consulted for a technical evaluation.



2. **EHV Applications.** To meet the corona onset and RIV requirements for most extra high voltage applications, Parrot Bill® ends are to be used instead of standard rods. Consult PLP for EHV engineering recommendations.



INSTALLATION GUIDELINES

1. **Conductor compatibility.** ARMOR-GRIP Support should be used only on the size and type of conductor for which they are designed. ARMOR-GRIP Support is designed for right-hand lay conductor. Consult PLP when using types and/or sizes of conductor not mentioned on the catalog pages.
2. During installation of the ARMOR-GRIP Support keeper to the body, the cap screw should be tightened **only** until the lockwasher is flat. A relatively low torque value of approximately **10 to 15 foot** pounds is sufficient to flatten the washer. The inherent gripping of the rods provides the majority of the unbalanced holding strength of the unit. **Further tightening may damage the keeper of the body.**
3. Consult the ARMOR-GRIP Support Application Procedure for additional information regarding the correct installation of ARMOR-GRIP Support.
4. ARMOR-GRIP Support rods are **not** interchangeable with either standard armor rods or ARMOR-GRIP Suspension rods.

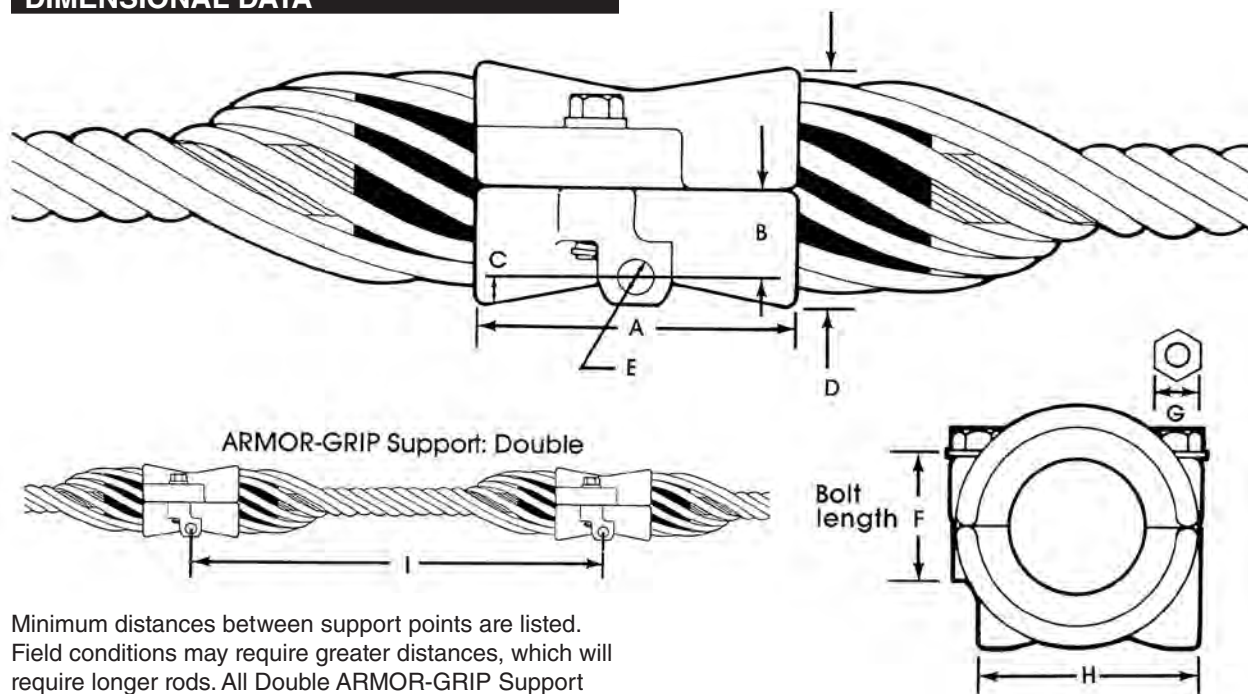
SAFETY CONSIDERATIONS

1. This product is intended for a single (one-time) use and for the specified application. However, all components, except for the rods, may be reused if in good condition. **CAUTION: DO NOT MODIFY OR REUSE THE RODS 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 ARMOR-GRIP Support before application.
5. ARMOR-GRIP Supports are precision devices. To insure proper performance, they should be stored in cartons under cover and handled carefully.



ARMOR-GRIP® Support

DIMENSIONAL DATA

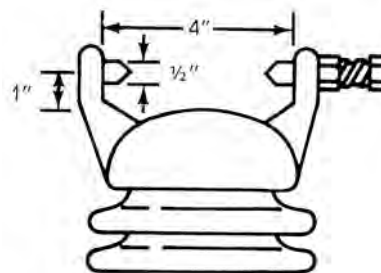


Minimum distances between support points are listed. Field conditions may require greater distances, which will require longer rods. All Double ARMOR-GRIP Support applications are supplied and engineered on a special order basis to insure proper rod length and performance.

Conductor Ranges (Inches)	Dimensions in Inches								
	A	B	C	D	E	F	G	H	I
.390-.481	2-17/32	5/8	49/64	1-61/64	19/32	2	3/4	3-7/8	12
.482-.542	3	5/8	1	2-3/8	19/32	2	3/4	3-7/8	12
.543-.619	3-1/8	13/32	7/8	2-17/32	19/32	2	3/4	3-7/8	12
.620-.645	3-1/8	13/32	7/8	2-17/32	19/32	2	3/4	3-7/8	18
.646-.750	3-3/4	5/8	53/64	2-3/4	19/32	2	3/4	3-7/8	18
.751-.907	4-1/2	3/4	27/32	3-13/64	19/32	2-1/4	3/4	3-7/8	18
.908-1.005	5	1-1/8	21/32	3-19/32	19/32	2-1/4	3/4	3-7/8	22
1.006-1.208	5-1/2	1-5/16	13/16	4-3/16	19/32	2-1/4	3/4	3-7/8	26
1.209-1.355	6	1-1/2	13/16	4-5/8	19/32	2-1/4	3/4	3-7/8	29
1.356-1.557	6-1/2	1-5/8	29/32	5-7/64	19/32	2-1/4	3/4	3-7/8	32
1.558-1.828	7	1-15/16	49/64	5-13/32	19/32	2-1/4	3/4	3-7/8	37

CLAMP TOP TRUNNION

To insure proper fit and service life, it is recommended that only line post insulators with clamp top trunnion caps that conform to ANSI standards be used. See the illustration on the right for nominal cap dimensions that illustrate ANSI standards that have been established outlining the permissible dimensions and tolerances for trunnion caps. Consult the insulator manufacturer when in doubt about insulator standards.



The above dimensions are approximates for design information. Consult ANSI specification C29.7-1977 for exact dimensions.

ARMOR-GRIP® Support

For use on:

**ACSR, All-Aluminum, Aluminum Alloy,
AWAC® Compacted All-Aluminum
Compacted ACSR, ACSS (AW & TW) for
Continuous Operating Temperatures
up to 200° C**



Catalog Number	Diameter Range (Inches)		Nominal Conductor Size	AGS® Rods				AGS Hardware Sets Per Carton	AGS Rods & Hardware Wt./Lbs. Per Carton	Color Code
	Min.	Max.		Length (Inches)	Rod Diameter (Inches)	Rods Per Set	Sets Per Carton			
AGS-5265	.390	.404	1/0, 6/1	36	.128	11	24	24	70	Yellow
AGS-5266	.405	.418	1/0, 5/1 AWAC	36	.128	11	24	24	70	Brown
AGS-5267	.419	.434	#1, 3/4 AWAC	36	.128	11	24	24	70	Green
AGS-5268	.435	.450	2/0, 6/1	36	.128	11	24	24	70	Blue
AGS-5269	.451	.470	2/0, 5/2 AWAC	36	.128	12	24	24	72	White
AGS-5270	.471	.481	110.8, 12/7	36	.128	12	24	24	72	Green
AGS-5255	.482	.499	#1, 2/5 AWAC	30	.167	10	18	18	40	Red
AGS-5200	.500	.512	3/0, 6/1	30	.167	10	18	18	40	Blue
AGS-5201	.513	.530	4/0, 7W All-Alum.	30	.167	11	18	18	41	Green
AGS-5202	.531	.542	1/0, 2/5, AWAC	30	.167	11	18	18	41	Yellow
AGS-5203	.543	.555	2/0, 3/4, AWAC	34	.182	10	18	18	53	Black
AGS-5204	.556	.573	4/0, 6/1	34	.182	11	18	18	54	White
AGS-5205	.574	.594	266.8, 7-19W All-Alum.	34	.182	11	18	18	54	Brown
AGS-5206	.595	.606	266.8, 18/1 AWAC	34	.182	11	18	18	55	Orange
AGS-5207	.607	.619	266.8, 18/1	34	.182	11	18	18	55	Purple
AGS-5208	.620	.645	266.8, 26/7	38	.182	12	18	18	58	Red
AGS-5209	.646	.673	336.4, 19-37W All-Alum.	41	.204	11	15	15	61	Blue
AGS-5210	.674	.690	300, 26/7	41	.204	11	15	15	61	Green
AGS-5211	.691	.710	300, 30/7	41	.204	12	15	15	63	Yellow
AGS-5212	.711	.731	366.4, 26/7	41	.204	12	15	15	63	Black
AGS-5213	.732	.750	336.4, 30/7	41	.204	12	15	15	63	White
AGS-5214	.751	.768	397.5, 26/7 AWAC	45	.250	10	12	12	65	Brown
AGS-5215	.769	.795	397.5, 26/7	45	.250	11	12	12	68	Orange
AGS-5216	.796	.824	477, 18/1	45	.250	11	12	12	68	Purple
AGS-5217	.825	.845	477, 26/7 AWAC	48	.250	11	12	12	70	Red
AGS-5218	.846	.870	477, 26/7	48	.250	11	12	12	70	Blue
AGS-5219	.871	.893	600, 37W All-Alum.	48	.250	12	12	12	73	Green
AGS-5220	.894	.907	500, 30/7	48	.250	12	12	12	73	Green
AGS-5221	.908	.920	556.5, 24/7	53	.250	12	9	9	66	Yellow
AGS-5222	.921	.937	556.5, 26/7	53	.250	12	9	9	66	Black
AGS-5223	.938	.962	605, 24/7	53	.250	12	9	9	66	White
AGS-5224	.963	.986	636, 24/7	53	.250	13	9	9	68	Brown
AGS-5225	.987	1.005	636, 26/7	53	.250	13	9	9	68	Orange
AGS-5226	1.006	1.022	636, 30/19	62	.310	11	6	6	64	Purple
AGS-5227	1.023	1.040	795, 37-61W All-Alum.	62	.310	11	6	6	64	Red
AGS-5228	1.041	1.074	715.5, 26/7	62	.310	11	6	6	64	Blue

Right-hand lay standard

(Continued on next page)

EXPLANATORY NOTES:

- (1) Nominal Conductor Size indicates one of various conductors within each range.
- (2) Reference general dimensional information for physical dimensions other than length.
- (3) AGS weights listed are approximate and include packaging.
- (4) An ARMOR-GRIP Support unit is comprised of a set of rods with a matched hardware assembly. The rods and assemblies are packaged in separate but corresponding cartons.
- (5) AWAC is a registered trademark of the Copperweld Co.



ARMOR-GRIP® Support

For use on:

**ACSR, All-Aluminum, Aluminum Alloy,
AWAC® Compacted All-Aluminum
Compacted ACSR, ACSS (AW & TW) for
Continuous Operating Temperatures
up to 200° C**



Catalog Number	Diameter Range (Inches)		Nominal Conductor Size	AGS® Rods				AGS Hardware Sets Per Carton	AGS Rods & Hardware Wt./Lbs. Per Carton	Color Code
	Min.	Max.		Length (Inches)	Rod Diameter (Inches)	Rods Per Set	Sets Per Carton			
AGS-5229	1.075	1.090	874.5, 37W All-Alum.	62	.310	12	6	6	67	Green
AGS-5230	1.091	1.118	795, 26/7	62	.310	12	6	6	67	Yellow
AGS-5231	1.119	1.136	954, 37W All-Alum.	62	.310	12	6	6	67	Black
AGS-5232	1.137	1.152	795, 30/19	62	.310	12	6	6	67	White
AGS-5233	1.153	1.175	954, 45/7	62	.310	12	6	6	67	Brown
AGS-5234	1.176	1.208	954, 54/7	62	.310	12	6	6	67	Orange
AGS-5235	1.209	1.226	1113, 61W All-Alum.	71	.365	11	3	3	47	Purple
AGS-5236	1.227	1.259	1192.5, 61W All-Alum.	71	.365	11	3	3	47	Red
AGS-5237	1.260	1.286	1113, 48/7	71	.365	12	3	3	49	Blue
AGS-5238	1.287	1.314	1272, 61W All-Alum.	71	.365	12	3	3	49	Green
AGS-5239	1.315	1.355	1272, 45/7	71	.365	12	3	3	49	Yellow
AGS-5240	1.356	1.394	1272, 54/19	78	.365	12	3	3	51	Black
AGS-5241	1.395	1.416	1351.5, 54/19 AWAC	78	.365	13	3	3	54	White
AGS-5242	1.417	1.442	1510.5, 61W All-Alum	78	.365	13	3	3	54	Brown
AGS-5243	1.443	1.477	1431, 54/19	78	.365	13	3	3	54	Orange
AGS-5244	1.478	1.516	1590, 45/7	78	.365	13	3	3	54	Purple
AGS-5245	1.517	1.557	1590, 54/19	78	.365	13	3	3	54	Red
AGS-5246	1.558	1.579	1780, 72/7	90	.365	14	3	3	61	Blue
AGS-5247	1.580	1.612	1780, 84/19	90	.365	14	3	3	61	Green
AGS-5248	1.613	1.650	2000, 91W All-Alum.	90	.365	14	3	3	61	Yellow
AGS-5249	1.651	1.688	2000, 72/7	90	.365	15	3	3	64	Black
AGS-5250	1.689	1.711	2000, 84/19	90	.365	15	3	3	64	White
AGS-5251	1.712	1.752	2129, 84/19	90	.365	15	3	3	64	Brown
AGS-5252	1.753	1.790	2156, 84/19	90	.365	15	3	3	64	Orange
AGS-5253	1.791	1.828	2300, 84/19	90	.365	15	3	3	64	Purple

Right-hand lay standard

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