

## ALLOY TOP TIE

**Alloy Top Ties** provide a vastly improved method of securing conductors in the top groove of interchangeable headstyle insulators compared to hand ties and are manufactured from an aluminum alloy material which makes it ideal for corrosive environments. They provide superior abrasion protection for the conductor under all types of motion, including low-frequency sway oscillation, high-frequency aeolian vibration, and galloping. The included tie tube provides an armoring layer that eliminates abrasion damage of the conductor and insulator caused by conductor motion, extending the life of the electrical system and reducing maintenance.

### FEATURES AND BENEFITS

- Superior corrosive-resistance when compared to standard aluminized steel ties
- Ideal for corrosive environments like coastal areas
- Applicable to interchangeable headstyle insulators - C, F, and J-Neck
- Accommodates conductors from 0.245" - 1.240" diameter
- Mitigates long-term issues caused by Radio Influence Voltage (RIV)
- Accommodates line angles up to 10-degrees in the vertical orientation
- Exceeds NESC requirements for unbalanced load
- Reduces abrasion caused by vibration
- Resiliency of the tie protects the conductor
- Test reports available upon request

## DESIGN CONSIDERATIONS

Description	Details
Interchangeable Headstyle Insulator	To ensure proper fit and service life, it is recommended that only insulators corresponding to C-Neck, F-Neck, or J-Neck be used. These neck-diameter and groove-height dimensions appear in the appropriate ANSI C29 standards. Consult PLP for engineering recommendations on non-interchangeable headstyle insulators. A sample of the insulator in question is required.
Conductor Size	Conductor sizes up to 1.240" OD can be accommodated depending on the insulator's top groove radius.
Radio Influence (RIV)	The Radio Influence Voltage (RIV)/Television Interference (TVI) characteristics of Alloy Top Ties are equivalent to those of a well-made hand tie, as originally installed. During service life the pre-contoured Alloy Top Tie ensures continued fit, which would have better RIV/TVI performance than a loosened tie wire.
Line Angles - General Guidelines	<p>On vertically mounted insulators, Alloy Top Ties can normally accommodate line angles up to 10-degrees. Larger angles may be accommodated when the insulator is mounted at varying degrees of cant from the vertical, depending upon the actual cant of the insulator. Combining Side Ties with Alloy Top Ties on a single structure can also affect the acceptable line angles for that structure.</p> <p>In all cases, the conductor should rest in the preferred insulator groove, independently of the tie, so the tie is not required to force the conductor to remain in that groove. The largest practical angle a tie can accommodate depends upon limiting factors such as conductor size, tension, span lengths, insulator style, orientation, etc. Consult PLP for further guidance on line angle issues.</p>
Mechanical Strength	<p>The Alloy Top Tie is designed to provide longitudinal holding strength in excess of values required by the National Electric Safety Code. The maximum holding strength is usually sufficient to contain the broken conductor to a single span, however, the Alloy Top Tie is designed to relieve the load before severe damage is done to the pole's structural components.</p> <p>The Alloy Top Tie is designed to permit controlled and limited movement of unbroken conductor, reducing cantilever loading at the base of the insulator or bracket, then restore itself. We refer to this unique feature as "<b>resiliency</b>" and is designed into each Alloy Top Tie. <b>TR-878-E</b> covers the mechanical testing of the Alloy Top Tie and is available upon request.</p>
Vibration Dampers	By using Alloy Top Ties, the vibration fatigue life is maximized to the extend the original endurance limit of the conductor is not reduced by abrasion on its outside surface. However, on selected lines where experience indicates that prolonged periods of vibration might approach the fatigue life of the conductor, or cause inner wire fretting, vibration dampers are recommended. See the Guidelines in the <b>Overhead Distribution Line Repair Manual</b> .
Tapping	Compared to the use of protective rods, placing hot-line clamps directly over the applied legs of Alloy Top Ties is not recommended. Tapping over protective rods will remain permissible, however, there are stirrups available that provide a superior method of making hot-line taps.

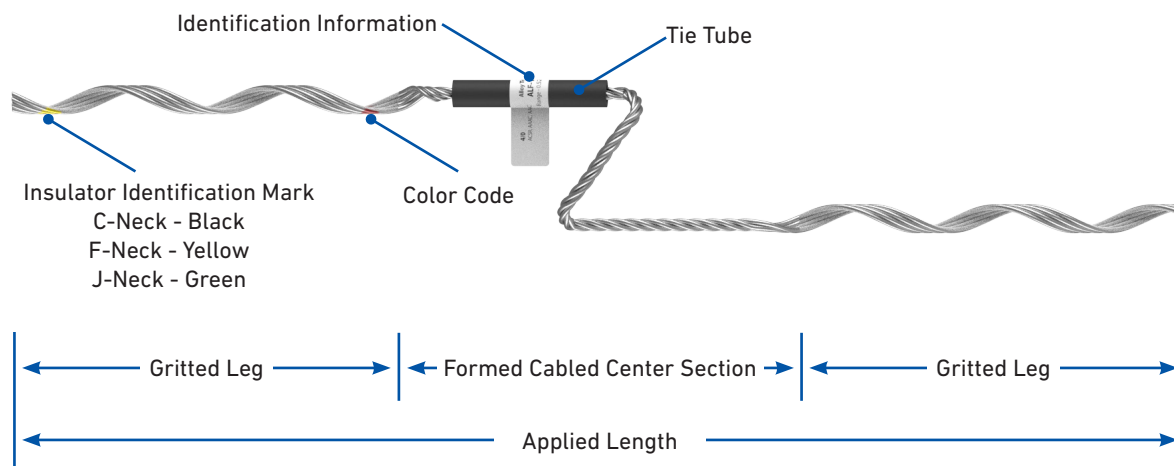
### Additional Resources

For additional information regarding the use and installation of Alloy Top Ties, scan or click the QR code below.



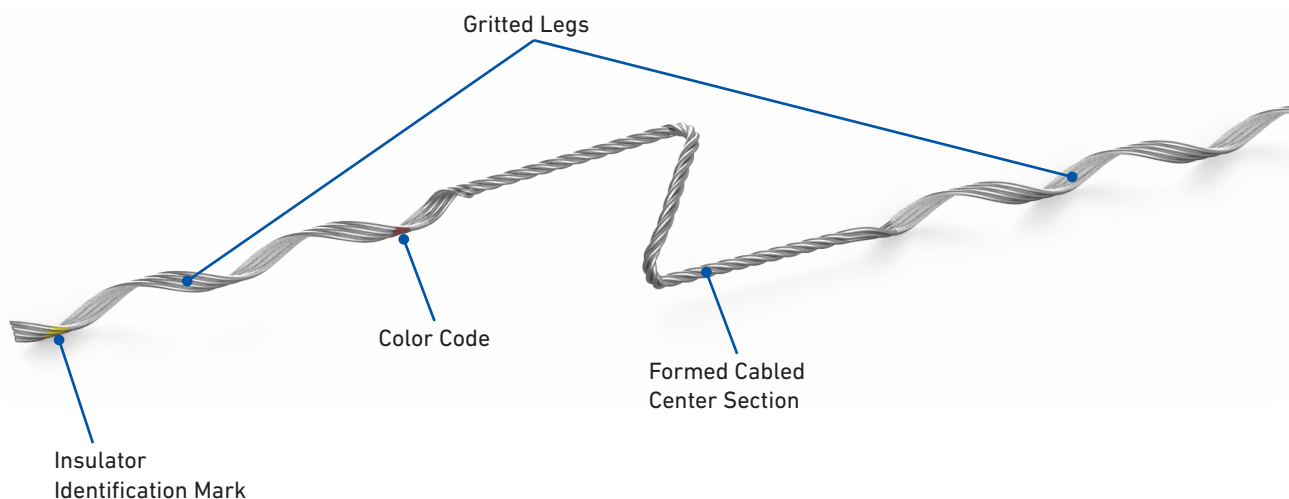
Alloy Top Tie  
Webpage

## SPECIFICATIONS



### WRAPLOCK Tie

Component	Description
Tie Tube	Each tie is furnished with Tie Tube Component. The Tie Tube is detached and applied over the conductor.
Identification Information	Shows catalog number and pertinent tie information. Printed on a tie flag or printed on the tie tube.
Color Code	Identifies conductor diameter ranges for colors corresponding to tabular information on catalog pages.
Insulator Identification Mark	Identifies the correct insulator headstyle for colors corresponding to information on catalog pages.
Gritted Leg	Gritted helical legs retention the conductor in place and prevent the conductor from shifting over the insulator.
Formed Cabled Center Section	Allows the tie to form properly around the conductor and neck of the insulator.
Applied Length	Assist in identification of conductor size corresponding to tabular information appearing on catalog pages.



Alloy Top Tie

## ORDERING INFORMATION

### Alloy Top Tie: C-Neck and F-Neck Interchangeable Headstyle Insulators

Diameter Range		Nominal Conductor Size <sup>1</sup>	Units per Carton	C-Neck Insulators (Black)		F-Neck Insulators (Yellow)		Conductor Color Code
in				Catalog Number	Applied Length	Catalog Number	Applied Length	
Minimum	Maximum				in		in	
9/16" R. Groove <sup>2</sup>								
0.245	0.277	#4, 6/1, 7/1; #4, 7W Alum. Alloy	100	ALC-1102	26	ALF-1202	27	Orange
0.278	0.315	#3, 7W Alum. Alloy; #2, 7W All Alum.	100	ALC-1103	26	ALF-1203	29	Purple
0.316	0.357	#2, 6/1, 7/1; #2, 7W Alum. Alloy; #1, 6/1 ACSR	100	ALC-1104	28	ALF-1204	31	Red
0.358	0.405	1/0, 7W All Alum.; 1/0, 6/1 ACSR; 1/0, 7W Alum. Alloy	100	ALC-1105	30	ALF-1205	32	Yellow
0.406	0.459	2/0, 7W All Alum.; 2/0, 6/1 ACSR; 2/0, 7W Alum. Alloy	50	ALC-1106	25	ALF-1206	26	Blue
0.460	0.520	3/0, 7W All Alum.; 3/0, 6/1 ACSR; 3/0, 7W Alum. Alloy	50	ALC-1107	25	ALF-1207	27	Orange
0.521	0.588	4/0, 7W All Alum.; 4/0, 6/1 ACSR; 4/0, 7W Alum. Alloy	50	ALC-1108	28	ALF-1208	29	Red
0.589	0.665	266.8, 37W All Alum.; 266.8, 18/1	50	ALC-1109	30	ALF-1209	32	Purple
0.666	0.755	336.4, 19W All Alum.; 336.4, 18/1; 397.5, 19W All Alum.	50	ALC-1110	31	ALF-1210	32	Brown
0.756	0.858	477, 19W, 37W All Alum.; 477, 18/1 24/7, 26/7	50	ALC-1111	32	ALF-1211	33	Red
5/8" R. Groove <sup>2</sup>								
0.859	0.968	556.5, 26/7; 636, 18/1; 700, 37W, 61W All Alum.	50	ALC-1112	34	ALF-1212	35	Blue
3/4" R. Groove <sup>2</sup>								
0.969	1.096	795, 37W All Alum.; 795, 61W All Alum.; 715.5, 24/7; 795, 54/7	50	ALC-1113	37	ALF-1213	38	Green
1.097	1.240	954, 36/1, 54/7; 1033.5, 37W, 61W All Alum.	50	ALC-1114	40	ALF-1214	41	Yellow

Right-hand lay standard

#### NOTES:

<sup>1</sup> Nominal Conductor Size indicates one or more of various conductors within each range.

<sup>2</sup> For the succeeding ranges the insulator's top groove radius should be at least as large as shown above.

**ORDERING INFORMATION** CONTINUED**Alloy Top Tie: J-Neck Interchangeable Headstyle Insulators**

Diameter Range		Nominal Conductor Size <sup>1</sup>	Units per Carton	J-Neck Insulators (Green)		Conductor Color Code
in				Catalog Number	Applied Length	
Minimum	Maximum				in	
9/16" R. Groove <sup>2</sup>						
0.245	0.277	#4, 6/1, 7/1; #4, 7W Alum. Alloy	100	ALJ-1302	28	Orange
0.278	0.315	#3, 7W Alum. Alloy; #2, 7W All Alum.	100	ALJ-1303	30	Purple
0.316	0.357	#2, 6/1, 7/1; #2, 7W Alum. Alloy; #1, 6/1 ACSR	100	ALJ-1304	32	Red
0.358	0.405	1/0, 7W All Alum.; 1/0, 6/1 ACSR; 1/0, 7W Alum. Alloy	100	ALJ-1305	33	Yellow
0.406	0.459	2/0, 7W All Alum.; 2/0, 6/1 ACSR; 2/0, 7W Alum. Alloy	50	ALJ-1306	27	Blue
0.460	0.520	3/0, 7W All Alum.; 3/0, 6/1 ACSR; 3/0, 7W Alum. Alloy	50	ALJ-1307	28	Orange
0.521	0.588	4/0, 7W All Alum.; 4/0, 6/1 ACSR; 4/0, 7W Alum. Alloy	50	ALJ-1308	30	Red
0.589	0.665	266.8, 37W All Alum.; 266.8, 18/1	50	ALJ-1309	33	Purple
0.666	0.755	336.4, 19W All Alum.; 336.4, 18/1; 397.5, 19W All Alum.	50	ALJ-1310	33	Brown
0.756	0.858	477, 19W, 37W All Alum.; 477, 18/1 24/7, 26/7	50	ALJ-1311	34	Red
5/8" R. Groove <sup>2</sup>						
0.859	0.968	556.5, 26/7; 636, 18/1; 700, 37W, 61W All Alum.	50	ALJ-1312	36	Blue
3/4" R. Groove <sup>2</sup>						
0.969	1.096	795, 37W All Alum.; 795, 61W All Alum.; 715.5, 24/7; 795, 54/7	50	ALJ-1313	39	Green
1.097	1.240	954, 36/1, 54/7; 1033.5, 37W, 61W All Alum.	50	ALJ-1314	42	Yellow

Right-hand lay standard

**NOTES:**<sup>1</sup> Nominal Conductor Size indicates one or more of various conductors within each range.<sup>2</sup> For the succeeding ranges the insulator's top groove radius should be at least as large as shown above.