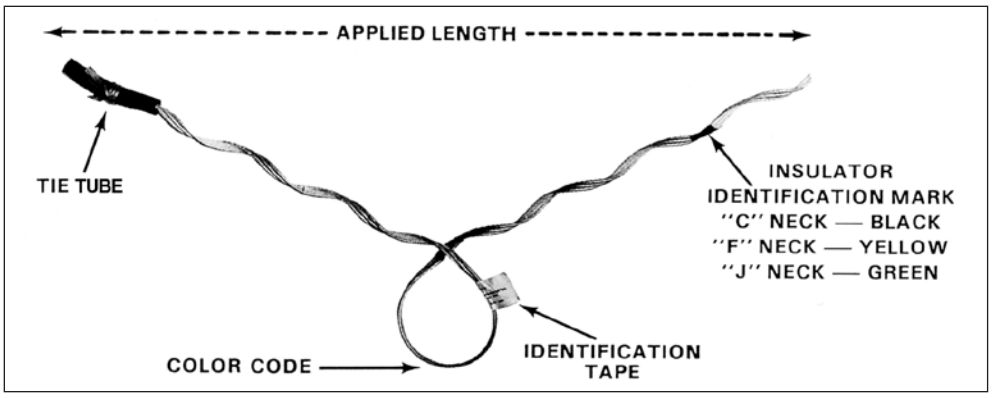
Side Tie – Groove Formed

NOMENCLATURE

RUS Accepted

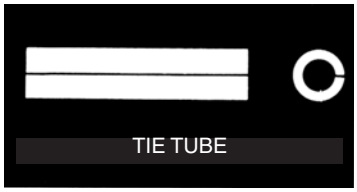


Tie Tube: For bare conductor, each tie is furnished with a Tie Tube Component. The Tie Tube is detached and applied over the bare conductor.

Identification Tape: Shows catalog number, nominal sizes.

Insulator Identification Mark: Identifies the correct insulator headstyle by colors corresponding to information on catalog pages.

Color Code and Applied Length: Assists in identification of conductor size, corresponding to tabular information appearing on catalog pages.



GENERAL RECOMMENDATIONS

INTENDED USE: Side Ties manufactured of aluminum covered steel secure conductors in the side groove of interchangeable headstyle insulators.

Side Ties provide an improved method of securing conductor compared to clamp-top insulators or hand ties over Armor Rods.

GROOVE-FORMED: The Groove-Formed design broadens conductor diameter ranges, matching DISTRIBUTION Tie. The formed loop section permits better utilization of insulator groove space so that larger conductors can be accommodated on a given insulator.

SIDE TIE WITH TUBE: Side Ties provide superior abrasion protection for the conductor under all types of motion, including low frequency sway oscillation, high frequency aeolian vibration and galloping.

The tube component is recommended because it surrounds the bare conductor with a resilient cushion where the conductor would come into contact with the insulator and with the center section of the tie.

With the Tie Tube, the Side Tie not only replaces our original armoring product, but provides superior protection by eliminating abrasion rather than sacrificing outside surfaces to abrasion. In the case of Side Ties applied over plastic jacketed conductor, Side Ties can be used without tubes because contact with the bare conductor is prevented by the jacketing itself.

PREFORMED™ Plastic Side Ties are also offered as an alternate to metal ties applied over plastic jacketed conductor.

Side Ties used without tubes can replace hand tie wire in areas where abrasion damage has not been experienced.

VIBRATION DAMPERS: By using Side Ties with tubes abrasion cannot reduce the fatigue life of the conductor. However, for lines where experience indicates that prolonged periods of vibration might lead to fatigue of the conductor, cause inner wire fretting, or score the insulator's glaze, SVD's are recommended.

The following are guideline definitions for vibration activity. Application of these guidelines should be based on a Utility's field experience.

(Continued)

Side Tie – Groove Formed

GENERAL RECOMMENDATIONS CONTD.

"Excessive" Vibration: Areas where abrasion damage has been known to require replacement of both hand tie wire and protective rods, or where fatigue has been found under clamps. Protective rods should be replaced when visual inspection shows approximately one-half or more of the rod diameter has been abraded.

"Severe" Vibration: Areas where abrasion has required replacement of hand tie wire, but damage to protective rods has not progressed to the point where replacement is necessary.

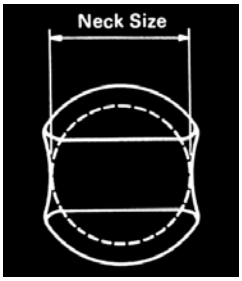
"Moderate" Vibration: Areas where replacement of hand tie wire has not been required, and damage is minor.

Side Ties, with pads, provide protection on areas of **"moderate"** vibration.

For areas experiencing "severe" or "excessive" vibration, supplemental use of SVD is recommended. Spiral Vibration Damper's purpose is to suppress aeolian vibration.

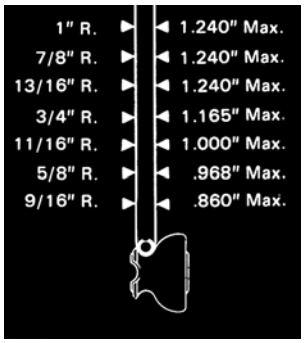
MECHANICAL STRENGTH: The Side Tie is designed to provide longitudinal holding strength in excess of values required by the National Electric Safety Code. The holding strength is usually sufficient to contain the broken conductor to a single span, however, the Side Tie is designed to relieve the load before severe damage is done to the pole's structural components. **TM-167E** covers the mechanical testing of the Groove Formed Side Tie and is available upon request.

INTERCHANGEABLE HEADSTYLE INSULATOR: To insure proper fit and service life, it is recommended only insulators corresponding to C-Neck, F-Neck, or J-Neck be used. These neck-diameter and groove-height dimensions appear on ANSI standards.



Consult PLP for engineering recommendations on non-interchangeable headstyle insulators. A sample of the insulator in question is desirable.

CONDUCTOR SIZE: The Side Tie exactly matches the DISTRIBUTION Tie's ranges, which means identical color codes on armless construction. Conductor sizes up to 1.240" O.D. can be accommodated depending on the insulator's side groove radius.

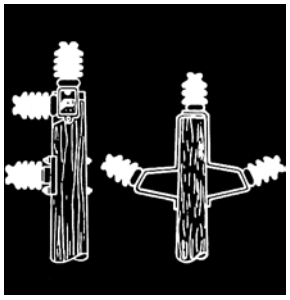


The Side Tie is designed to permit controlled movement of unbroken conductor, reducing cantilever loading at the base of the insulator or bracket, then restore itself. We refer to this unique feature as "resilience."

RADIO INTERFERENCE: The RIV/TVI characteristics of Side Ties are equivalent to those of a well-made hand tie when originally installed. During service life the precontoured Side Tie assures continued fit, which would have better RIV/TVI performance than a loosened hand tie wire.

TAPPING: Compared to the use of protective rods, placing hot-line clamps directly over the applied legs of Side Ties cannot be recommended. Tapping over protective rods will remain permissible, however, there are now stirrups available that provide a superior method of making hot-line taps.

LINE ANGLES GENERAL GUIDELINES: On horizontally-mounted insulators, Side Ties can normally accommodate line angles up to **10**°. On vertically-mounted insulators, line angles up to **40**° can normally be achieved. When insulators are mounted at various degrees of cant between the horizontal and the vertical, line angles between 0˚ and 40° may be accommodated depending upon the actual cant of the insulator.



A technical report **(TM-197E)** is available which describes these permissible line angles for Side Ties as a function of the insulator's cant.

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, sag angles, insulator style and orientation, etc. Consult PLP® for further guidance on line angle issues not covered in the above test report.

Side Tie – Groove Formed

GENERAL RECOMMENDATIONS CONTD.

APPLICATION-INSPECTION: In the case of smaller sizes, the complete installation should show the applied leg tucked under the corner of the tube as shown.

On larger sizes of conductors, it is optional whether the legs go under or over the corner of the Tie Tube.

Because the clearance for application is the same whether or not the Tie Tube is installed, the maximum conductor O.D. is not affected by the Tube.

SMALLER SIZES
(BELOW 1/0)

LARGER SIZES
(1/0 AND LARGER)

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™ Side Tie before application.
5. PREFORMED Side Ties are precision devices. To insure proper performance, they should be stored in cartons under cover and handled carefully.

Side Tie – Groove Formed

For use on:
ACAR, ACSR,
All-Aluminum, AWAC®
Compacted ACSR,
Aluminum Alloy

C-Neck Interchangeable Headstyle Insulators

ANSI 55-2 Pin
ANSI 55-3 Pin

2-1/4" Neck Diameter

Catalog Number	Diameter Range (Inches) Min.	Max.	Nominal Conductor Size	Units Per Carton	Wt./Lbs. Per Carton	Applied Length (Inches)	Insulator Identification Mark	Color Code
9/16" R. GROOVE (See Note 2)								
STC-1250-P	.190	.215	#6, 6/1 – #4, 7W Comp.	100	19	16	Black	Blue
STC-1251-P	.216	.244	#4, 7W All Alum. – #4, 6/1, 7/1 Comp.	100	20	17	Black	Brown
STC-1252-P	.245	.277	#4, 6/1, 7/1 – #4, 7W Alum. Alloy	100	22	19	Black	Orange
STC-1253-P	.278	.315	#3, 7W Alum. Alloy – #2, 7W All Alum.	50	11	21	Black	Purple
STC-1254-P	.316	.357	#2, 6/1, 7/1 – #2, 7W Alum. Alloy – #1, 6/1	50	16	24	Black	Red
STC-1255-P	.358	.405	1/0, 7W All Alum. 1/0, 6/1 1/0, 7W Alum. Alloy	50	17	26	Black	Yellow
STC-1256-P	.406	.459	2/0, 7W All Alum. 2/0, 6/1 2/0, 7W Alum. Alloy	50	20	28	Black	Blue
STC-1257-P	.460	.520	3/0, 7W All Alum. 3/0, 6/1 3/0, 7W Alum. Alloy	50	21	31	Black	Orange
STC-1258-P	.521	.588	4/0, 7W All Alum. 4/0, 6/1 4/0, 7W Alum. Alloy	50	22	32	Black	Red
STC-1259-P	.589	.665	266.8, 37W All Alum. 266.8, 18/1 336.4, 19W All Alum.	50	24	23	Black	Purple
STC-1260-P	.666	.755	336.4, 18/1 397.5, 19W All Alum. 400, 19W, 37W, All Alum.			25	Black	Brown
STC-1261-P	.756	.858	477, 19W, 37W, All Alum. 477, 18/1, 24/7, 26/7			26	Black	Red
5/8" R. GROOVE (See Note 2)								
STC-1262-P	.859	.968	556.5, 26/7 636, 18/1 700, 37W, 61W, All Alum.			28	Black	Blue
11/16" R. GROOVE (See Note 2)								
STC-1263-P	.969	1.096	795, 37W, 61W, All Alum. 715.5, 24/7 795, 54/7			29	Black	Green
3/4" R. GROOVE (See Note 2)								
STC-1264-P	1.097	1.240	954, 36/1, 54/7 1033.5, 37W, 61W, All Alum.			33	Black	Yellow

Right-hand lay standard

EXPLANATORY NOTES:
(1) Nominal Conductor size indicates one of various conductors within each range.
(2) For the succeeding ranges, the insulator's side groove radius should be at least as large as shown above.
(3) AWAC is a registered trademark of the Copperweld Co.

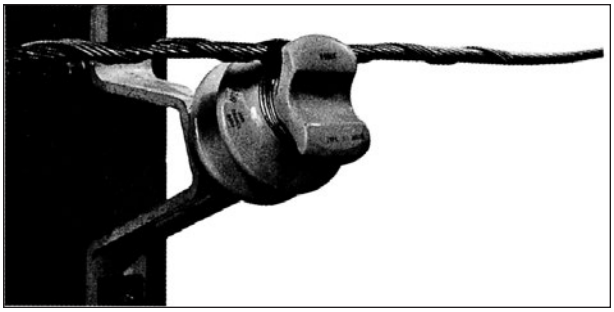
Side Tie – Groove Formed

For use on:
ACAR, ACSR,
All-Aluminum, AWAC®
Compacted ASCR,
Aluminum Alloy

F-Neck Interchangeable Headstyle Insulators

ANSI 53-4 Spool
ANSI 53-5 Spool
ANSI 55-4 Pin
ANSI 55-5 Pin
ANSI 57-1 Post
ANSI 57-2 Post
ANSI 57-3 Post

2-7/8"
Neck Diameter



Catalog Number	Diameter Range (Inches)		Nominal Conductor Size	Units Per Carton	Wt./Lbs. Per Carton	Applied Length (Inches)	Insulator Identification Mark	Color Code
	Min.	Max.						
9/16" R. GROOVE (See Note 2)								
STF-1150-P	.190	.215	#6, 6/1 #4, 7W Comp.	100	16	16	Yellow	Blue
STF-1151-P	.216	.244	#4, 7W All Alum. #4, 6/1, 7/1 Comp.	100	17	17	Yellow	Brown
STF-1152-P	.245	.277	#4, 6/1, 7/1 #4, 7W Alum. Alloy	100	19	19	Yellow	Orange
STF-1153-P	.278	.315	#3, 7W Alum. Alloy #2, 7W All Alum.	50	12	21	Yellow	Purple
STF-1154-P	.316	.357	#2, 6/1, 7/1 #2, 7W Alum. Alloy #1, 6/1	50	17	24	Yellow	Red
STF-1155-P	.358	.405	1/0, 7W All Alum. 1/0, 6/1 1/0, 7W Alum. Alloy	50	17	26	Yellow	Yellow
STF-1156-P	.406	.459	2/0, 7W All Alum. 2/0, 6/1 2/0, 7W Alum. Alloy	50	21	28	Yellow	Blue
STF-1157-P	.460	.520	3/0, 7W All Alum. 3/0, 6/1 3/0, 7W Alum. Alloy	50	22	30	Yellow	Orange
STF-1158-P	.521	.588	4/0, 7W All Alum. 4/0, 6/1 4/0, 7W Alum. Alloy	50	24	32	Yellow	Red
STF-1159-P	.589	.665	266.8, 37W All Alum. 266.8, 18/1 336.4, 19W All Alum.	50	24	23	Yellow	Purple
STF-1160-P	.666	.755	336.4, 18/1 397.5, 19W All Alum. 400, 19W, 37W, All Alum.	50	33	25	Yellow	Brown
STF-1161-P	.756	.858	477, 19W, 37W, All Alum. 477, 18/1, 24/7, 26/7	50	30	26	Yellow	Red
5/8" R. GROOVE (See Note 2)								
STF-1162-P	.859	.968	556.5, 26/7 636, 18/1 700, 37W, 61W, All Alum.	50	36	28	Yellow	Blue
11/16" R. GROOVE (See Note 2)								
STF-1163-P	.969	1.096	795, 37W, 61W, All Alum. 715.5, 24/7 795, 54/7	50	36	29	Yellow	Green
3/4" R. GROOVE (See Note 2)								
STF-1164-P	1.097	1.240	954, 36/1, 54/7 1033.5, 37W, 61W, All Alum.	50	39	33	Yellow	Yellow

Right-hand lay standard

EXPLANATORY NOTES:

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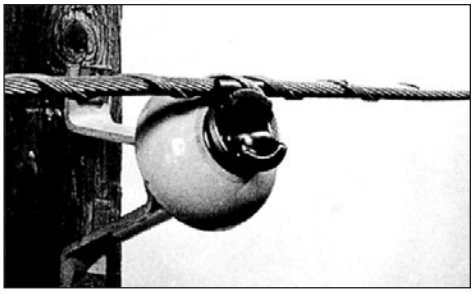
Side Tie – Groove Formed

For use on:
ACSR, ACAR,
All-Aluminum, AWAC®,
Compacted ACSR,
Aluminum Alloy

J-Neck Interchangeable
Headstyle Insulators



ANSI 55-6
Single Skirt Pin
ANSI 55-7 **3-1/2"**
Single Skirt Pin **Neck Diameter**
ANSI 56-1
Double Skirt Pin

Catalog Number	Diameter Range (Inches)		Nominal Conductor Size	Units	Wt./Lbs.	Approx. Applied Length (Inches)	Insulator Identification Mark	Color Code
	Min.	Max.		Per Carton				
9/16" R. GROOVE (See Note 2)								
STJ-1500-P	.190	.215	#6, 6/1	100	19	16	Green	Blue
STJ-1501-P	.216	.244	#4, 7W, All Alum.	100	21	17	Green	Brown
STJ-1502-P	.245	.277	#4, 6/1 - 7/1 #3, 7W, All Alum.	100	23	19	Green	Orange
STJ-1503-P	.278	.315	#3, 7W, Alum. Alloy #2, 7W, All Alum.	100	28	21	Green	Purple
STJ-1504-P	.316	.357	#2, 6/1 - 7/1 #2, 7W, Alum. Alloy #1, 6/1	100	32	24	Green	Red
STJ-1505-P	.358	.405	1/0, 7W-19W All Alum. 1/0, 6/1 1/0, 7W, Alum. Alloy	100	33	26	Green	Yellow
STJ-1506-P	.406	.459	2/0, 7W-19W, All Alum. 2/0, 6/1	50	24	31	Green	Blue
STJ-1507-P	.460	.520	3/0, 7W-19W, All Alum. 3/0, 6/1 3/0, 7W, Alum. Alloy	50	24	32	Green	Orange
STJ-1508-P	.521	.588	4/0, 6/1 4/0, 7W, All Alum. 4/0, 7W, Alum Alloy 250, 19W-37W All Alum.	50	25	34	Green	Red
STJ-1509-P	.589	.665	266.8, 19W-37W All Alum. 300, 19W37W, All Alum. 266.8, 26/7	50	27	23	Green	Purple
5/8" R. GROOVE (See Note 2)								
STJ-1510-P	.666	.755	336.4, 37W, All Alum. 397.5, 19W-37W, All Alum.	50	33	25	Green	Brown
STJ-1511-P	.756	.858	397.5, 24/7, 26/7 477, 19W, 37W, All Alum. 477, 18/1, 24/7, 26/7	50	35	26	Green	Red
STJ-1512-P	.859	.968	556.5, 61W All Alum. 556.5, 26/7 636, 18/1	25	19	28	Green	Blue
STJ-1513-P	.969	1.096	636, 24/7, 26/7, 30/19 715.5, 36/1, 24/7, 26/7	25	19	29	Green	Green
STJ-1514-P	1.097	1.240	954, 54/7 1033.5, 45/7 1113, 61W All Alum. 954, 37W Alum. Alloy	25	22	33	Green	Yellow

Right-hand lay standard

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