

## AR® Spacer Twister

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### Galloping Control & Phase Separation for Single Conductors



An anti-galloping spacer damper, this solution for transmission lines provides galloping and vibration control in addition to maintaining separation between phase conductors when the predicted galloping amplitude exceeds the available clearance. The AR Spacer Twister has two articulating clamps at each end of a polymer insulator. AR Spacer Twister may be used in combination with other AR anti-galloping dampers.

#### APPLICATIONS

On occasion, phase separation and galloping control is required because of a deeper than usual mid-span sag relative to span length. When the occasional span is at risk for galloping and clashing, the Spacer Twister addresses both needs – phase separation and twisting the conductor. AR Spacer Twister can be used alone or it may be paired with other AR antigalloping dampers, including the AR Twister and Windamper.

In these dual damper solutions, the AR antigalloping damper works to twist the conductor either by inertia offset, both statically and dynamically or by aerodynamics. When paired with the Twister or Windamper, the Spacer Twister adds a light weight solution for guarding against clashing when the predicted galloping amplitude may exceed the available clearance.

#### HOW IT WORKS

The AR Spacer Twister combines the benefits of the twisting action by AR Clamps with the features of the polymer insulators. Insulators have a good track record for eliminating flashovers during galloping but they do not

prevent galloping motion. Twisting is integral to the AR Products galloping control methodology. By forcing the conductor to twist, aerodynamic lift is unloaded and high amplitude galloping is interrupted.

**Protection from Flashover.** The primary purpose of the AR Spacer Twister is to guard against flashover when there is a deficit in phase clearance even after the application of a galloping control solution.

The Spacer|Twister has eliminated breaker operations on treated spans up to 345kV.

#### PERFORMANCE TESTED

AR Clamps have been strength tested at independent laboratories. Slipping tests found clamp strength to exceed 4000 lbs.

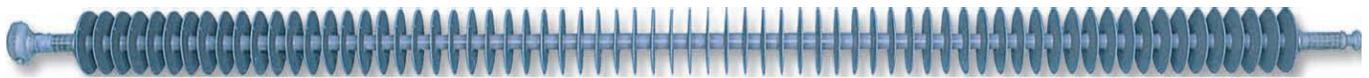
Insulator rods used in the AR Spacer Twister have been tested for compressive strength to establish column-buckling behavior. The tensile test of the 5/8" rod revealed an ultimate load of 35,000 lbs. The rods behave as an elastic column under compression load.

## SPECIFICATIONS

Component	Weight	Conductor	Clamp Sizes	Insulator Lengths	Application
AR Clamps	4 lbs.	0.625" - 1.80"	1.0" to 1-7/16"	3 ft. – 15 ft.	Single and bundled conductor; horizontal or vertical
Insulator	varies	0.625"-1.80"			
Hardware	1 lb.	1.75" flat washers; 5/8-3" bolts, ANCO pin, lock washers			

## CONSTRUCTION

Clamps are aluminum castings; insulator is comprised of polymer core with high grade forged steel fittings; hardware is HDG steel. End fittings are tongue-tongue.



Polymer suspension insulator, standard shed, tongue fittings secured to AR Clamps with HDG hardware.



AR Clamps are sized to the conductor and installed over line guards. The articulating feature lets the clamps rotate through large angles, allowing the conductor to twist. This dynamic motion dumps off aerodynamic lift and reduces galloping motion.

In collaboration with the client’s project engineer, up to 3 models of varying lengths can be customized to accommodate span lengths, phase clearance, sag depths and other unique characteristics of the line.

**Note: The AR Spacer Twister is designed for use with line guards. Aluminum line guard specifications will be included in the recommendations for the galloping control solution together with specifications for the AR Spacer Twister model, number of units and placement on the phases of the transmission line.**