

# Guy Guard

## Ground Wire Attachment

### Purpose

- Electrical grounding wire to guy wire attachment
- Guy wire grip protection from ice damage

### Benefits

- Averts galvanic corrosion between copper grounding wire and guy wire
- Reduces electrical resistance between grounding wire and guy wire
- Eliminates point load stress to guy wire
- Prevents ice damage to grounding wire, guy wire grip, and tower failure

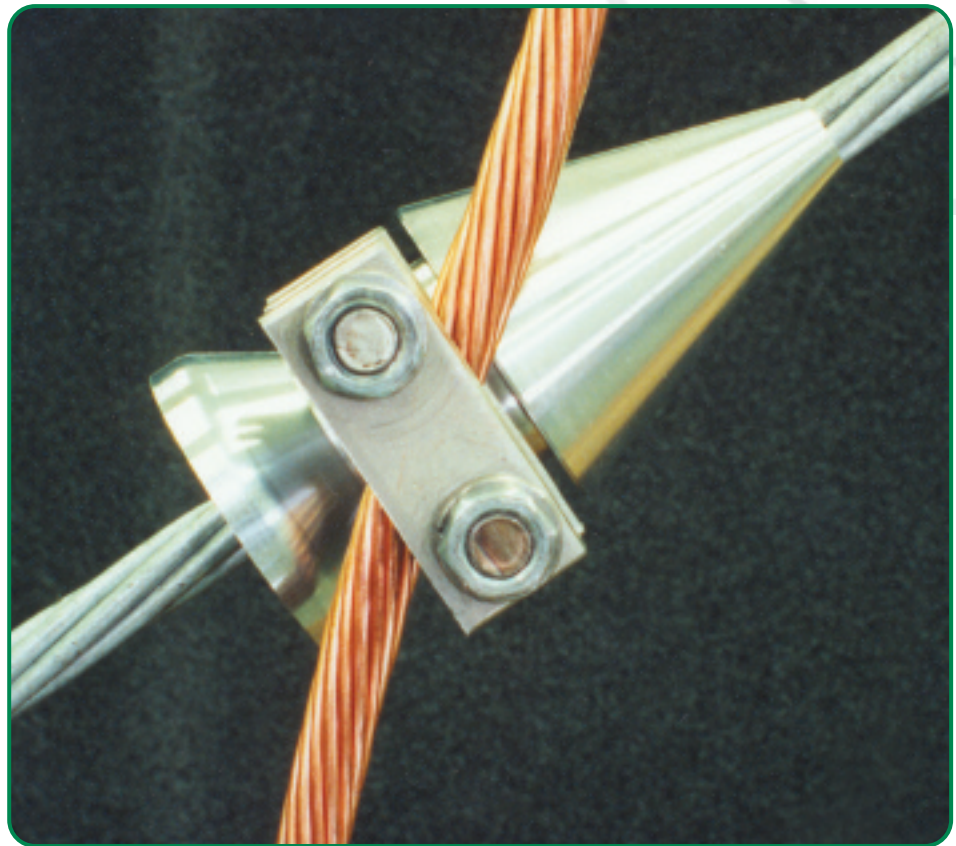
### Features

- Stainless steel grounding attachment
- Machined for close guy wire tolerance and fit
- Easy, Single U-bolt attachment

## Superior Electrical Grounding Wire Attachment

The advantage of the Guy Guard over the typical wire clamps is a neutral stainless steel interface between the copper grounding wire and the galvanized guy wire. This attachment reduces the possibility of galvanic corrosion to the electrical connection which could result in an increased resistance to the grounding rod. Any high fault current (lightning) not finding ground through the grounding rod will dissipate energy into the concrete foundation causing structural damage. The large contact area between the Guy Guard and the guy wire offers a more conductive surface and a reduction in resistance between the two conductors. Another advantage of the Guy Guard is a reduction in the stress translated to the guy wire by the gripping force. Wire clamps attach to the guy wire by actually deforming the strands of the cable. This point load reduces the load capacity of the guy wire system. The Guy Guard distributes a normal force over a large guy wire area and eliminates any point load stresses.

Guy wire clamps force the copper grounding wire to change direction from vertical to parallel



with the guy cable and back to vertical. This repeating "S" configuration results in an indirect path to the ground. The Guy Guard permits straight and continuous path from the top guy wire to the grounding rod.

## Guy Wire Grip Protection from Ice Damage

Radial ice is among the leading causes of tower failures. One mode of failure is ice damage to the guy wire attachment grip. Once damaged, the grip could release the guy wire and place the tower in jeopardy.

Steel guy wires conduct temperature changes very efficiently. Freezing rain readily accumulates on the guy wires forming cylinders. After the storm, a combination of heat radiating from the sun and temperature rise causes the ice cylinders to melt first where in contact with the guy wire.

The ice cylinders will then spiral effortlessly down the guy wire and impact the guy wire grip and any other intervening tower appurtenance. To illustrate, a ten foot long cylinder piece of ice formed by 1/2" of radial ice accumulation on a

guy wire could weigh approximately 10 pounds. This cylinder falling 200 feet would generate a force of 800 g or 8,000 pounds. This destructive action is repeated as higher segments of cylindrical ice release and fall.

Impacts of this magnitude will strip the grip from the guy wire, release the support and could result in tower failure. Any tower accessories in the path of the ice would also be destroyed including the ground wire attachment or guy wire dampeners. Another effect of the ice impact is a surge in guy wire stress.

The Guy Guard protects the guy wire grip and other accessories from ice cylinder damage. The low profile sheds the sliding ice from the guy wire without generating the force caused by a sudden stop of the cylinder.

The Guy Guard is not intended as a guy grip end sleeve. No impact protection device should be in direct contact with the guy grip. The Guy Grip is readily available in guy wire sized from 1/4" to 1-1/4" diameter. A single U-bolt attachment permits a simple attachment process to new or existing guy wires.