



## RETRACTABLE GROUNDING ASSEMBLY (RGA)

Prevent Tank Fires from Lightning & Bound Charge



### Effective

Permanent low-impedance bond prevents arcs and sparks triggered by lightning and bound charge

### Economical

Low initial cost with exceptional return on investment

### Easy-to-Install

2 hour install on new and existing tanks

### Long-Lasting

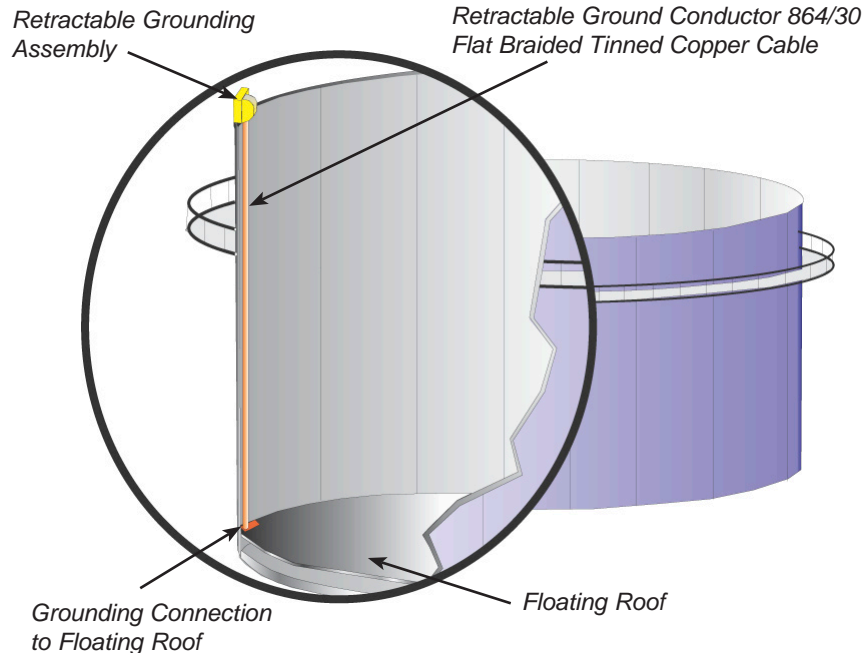
Engineered for years of durability and reliable performance

### Low-Maintenance

Requires virtually no upkeep and reduces the need for shunt maintenance

LEC's award winning Retractable Grounding Assembly™ (RGA™) is an effective and virtually maintenance-free grounding system specifically designed for floating roof storage tank facilities.

By providing a positive, low-impedance, connection between the tank shell and the roof, the RGA is more reliable than shunts for providing the best grounding connection possible, therefore mitigating the risk of lightning-related tank fires.



**Diagram:** The RGA is typically mounted on the highest point of the tank with the cable extended to the roof and bolted or welded into position. Once installed, the cable extends and retracts with the height of the roof.

US Patent #7,078,621  
Conforms to ATEX Guidelines

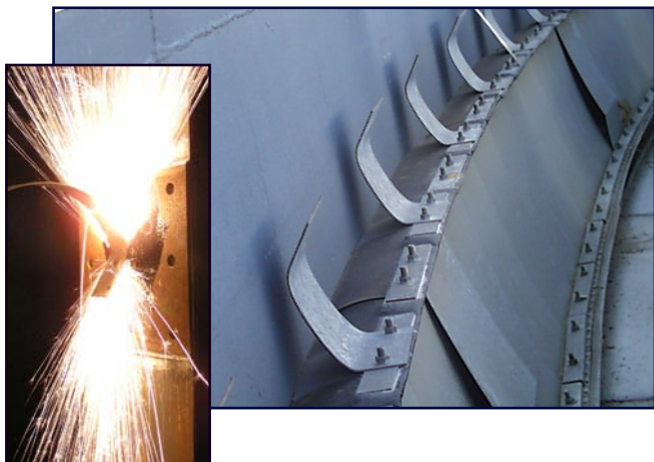


## What Is The Hazard?

An improperly grounded object will arc when the bound charge is too great. All floating roof tanks are at risk for arcing because the roof floats on top of the product, with a gap between it and the wall. This gap is usually sealed with a non-conductive material that electrically isolates the roof from the tank wall and from any connection to earth. An arc in a floating roof tank can start a fire that damages or destroys the product and nearby structures.

The industry has been installing metal strips called "shunts" along the edge of the floating roof that reach out to the wall of the tank to provide the electrical connection needed for preventing rim fires. However, shunts are unreliable because they provide a tenuous connection that requires constant maintenance for several reasons:

1. Wax, rust, and crude oil elements tend to line the tank wall, insulating the shunt's connection which can cause arcing and fire.



2. The floating roof can drift slightly off-center and disconnect some of the shunts from the wall creating a gap that can result in arcing.

Some companies have tried to use long wires that extend from the top of the tank wall down to the center of the floating roof. However, the impedance of the wire

is still far too high for the energy from a lightning strike to discharge within the time available (about one microsecond).

## How The RGA Works

Preventing rim fires from arcing requires a reliable, full-time, positive connection between the wall and the roof that has an impedance path of less than 1 ohm. Additionally, the connection needs to provide grounding despite the many insulators that are present around the edge of the tank.

The Retractable Grounding Assembly (RGA) fulfills these prevention requirements and carries a standard 1 year manufacturer's warranty. The retractable, braided cabling was designed to guarantee the lowest impedance by maximizing the surface area and keeping the cable length to a minimum at all times. The connection is resistant to interference from insulators because both ends are permanently attached to the roof and shell of the tank, and sealed to prevent rust.

The RGA provides reliable protection with a minimal investment: It can be installed quickly on any tank using a variety of mounting options that allow the tank to be in-service during installation. Stainless steel and thick cabling make the RGA resistant to wear and tear\*.

Floating roof tanks with large diameters can accumulate a large bound charge on the roof which needs to be carried to the closest location of the tank wall. Every tank is evaluated individually for the number of RGAs needed to optimize the transfer of bound charge. To determine the recommended number of RGAs for a particular application, contact us as follows:

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**www.LECglobal.com**

\* LEC recommends one Replacement Strap Kit ( to replace the short extension at the end of the cable) for every tank that has RGAs installed.