

Retractable Bypass Conductor

GroundGuardian®

Lightning Protection for Floating Roof Tanks





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Lightning Risks Involving Floating Roof Storage Tanks

External Floating Roof Tanks (EFRTs) are extremely susceptible to direct lightning strikes and nearby strike currents. Studies have shown that **31% of all floating roof tank fires are caused by lightning** related issues. Rim Seal fires are the most common type of fire for floating-roof tanks, and it is estimated that **95% of rim seal fires are the result of lightning strikes**. These fires can lead to months or years of downtime, tank/facility damage or injury to personnel.

Your facility need not suffer one of the many catastrophic tank fires that happen each year. The **GroundGuardian® Retractable Bypass Conductor (RBC)** is an important part of the comprehensive layered ALLTEC Protection Pyramid™. The GroundGuardian® RBC adds an effective means to mitigate the chance of rim seal fires started by lightning, beyond current protection methods.



Potentially Hazardous Issues With Current Protection Methods

Currently, to create a roof-shell bond, the National Fire Prevention Association (NFPA) 780 states that shunts must be spaced a maximum of every 3 m (10 ft) around the tank perimeter. Corrosion or by-product accumulations on the inside of the shell can create a high impedance/resistance connection between the shell and the shunts, resulting in sparking and possible ignition. Large tanks are typically “out-of-round” by several inches, this results in shunts pulling away from the tank shell, causing a loss of the necessary bonds.

Shunts alone are too unreliable to take this chance, as testing has shown that, rather than reducing the risk of fire from lightning strikes, they may actually be increasing risk potential. A poorly contacting rim-seal shunt on an EFRT is an example of where sparks might occur during lightning storms. If there is a non-conducting layer on the shell or the shunt, the spark will initially be an air-gap spark that will break down the insulation, followed by current flow in a poorly contacting area resulting in thermal sparking.

ALLTEC’s Solution - The GroundGuardian® Retractable Bypass Conductor (RBC)

Providing an exceptionally low resistance and low impedance connection between the Floating Roof and Tank Shell Wall, ALLTEC’s RBC prevents rim fires by dissipating lightning energy before it can arc and cause ignition.

The RBC is engineered to meet the American Petroleum Institutes (API) Recommended Practice 545 (4.2.1.2.1), which states: Bypass Conductors are used for conduction of the intermediate and long duration component of a lightning strike.

As it is with all electrical problems and solutions, each case will vary depending on numerous factors.



Features & Benefits

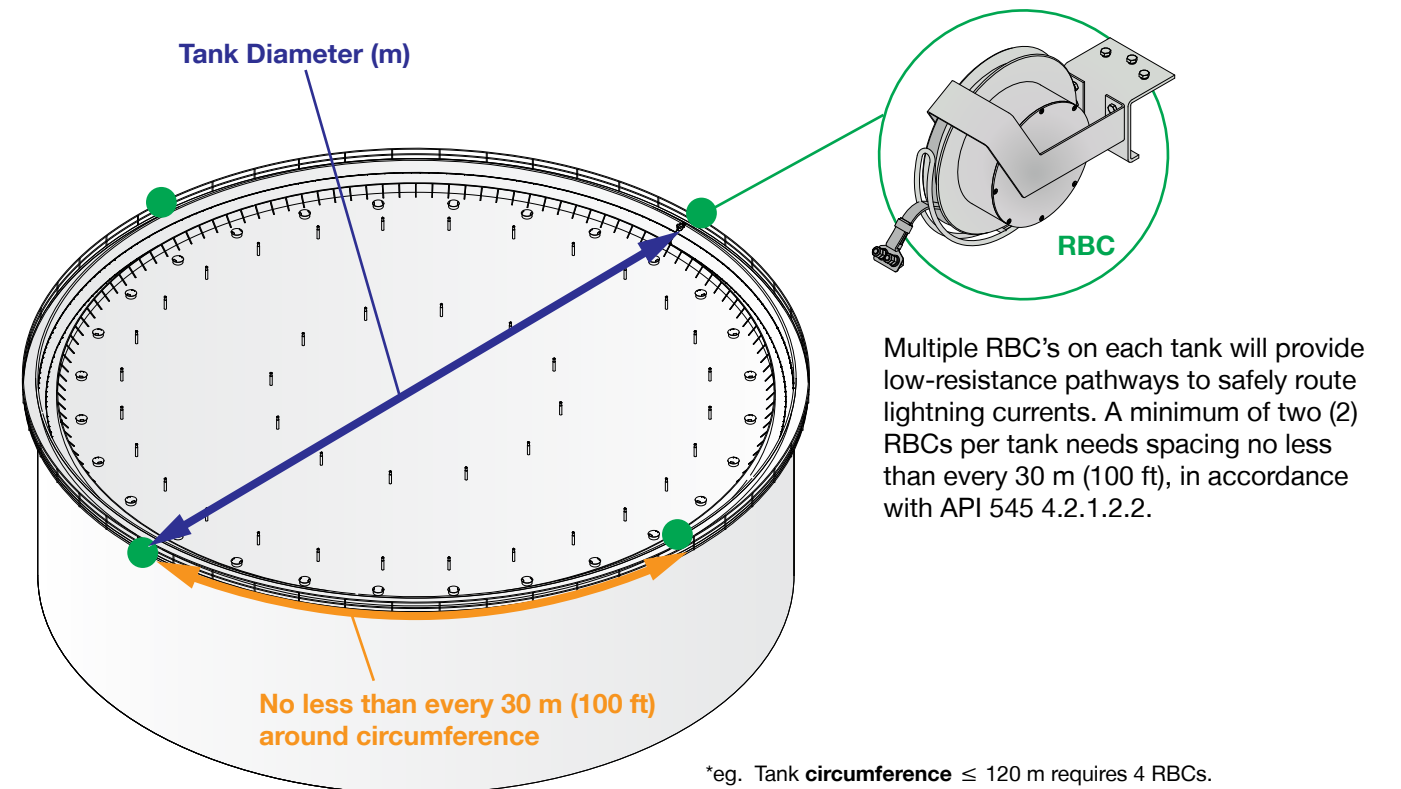
- Easily installed on new or existing facilities.
- Provides permanent low resistance-low impedance bond between the shell and roof of External Floating Roof Tanks (EFRTs). “Each conductor, including connections shall have a maximum end-to-end resistance of 0.03 ohms (Ω).” *American Petroleum Institutes (API) Recommended Practice 545 (4.2.1.2.2)
- The RBC comes with an industry leading one (1) year workmanship replacement warranty.



- The 50mm² bypass conductor of the RBC is specially designed and manufactured with a low resistance copper core, safeguarded with stainless steel for exceptional corrosion resistance, strength and maximum durability.
- The RBC uses a sleek and exceptionally rugged construction made of heavy-duty 4-12 mm thick, stainless steel suitable for long life in any environment.
- The RBC also comes with a safety stopping mechanism to maximize tank and personnel protection.

RBC Quantity Selection Chart

Tank Diameter (m)	≤ 19.10	≤ 28.65	≤ 38.20	≤ 47.75	≤ 57.30	≤ 66.84	≤ 76.39	≤ 85.94	≤ 95.49	≤ 105.04	≤ 114.59	≤ 124.14	≤ 133.69	≤ 143.24
Quantity of Required RBCs	2	3	4	5	6	7	8	9	10	11	12	13	14	15



“24/7 Protection”

Understand the constant risk.

Enjoy the security of knowing you are protected by continuous, reliable protection.

Contact an ALLTEC Representative for more information regarding recommendations for the protection of your facility. You can also learn more about ALLTEC’s products and services at www.alltecglobal.com.

Grounding and Bonding Solutions · Surge Suppression · Lightning Protection



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