



Cenelectrex

Earth-Rite FIBC

Static Grounding System

The use of Flexible Intermediate Bulk Containers (FIBC's) has grown in line with the need for industry world-wide to transport and store powdered, flaked and granulated products more efficiently and economically. While this has resulted in huge increases in productivity, it has also brought with it additional safety issues which should be addressed by all responsible plant operators.

One such issue concerns the dangerous build up of electrostatic charge during FIBC filling and discharging.

As the FIBC is filled there is a steady accumulation of charge which, if left unchecked, may result in spark discharges from the surface of the FIBC, or charging of adjacent isolated conductors by induction. This may in turn provide sufficient energy for ignition of certain flammable vapours and dust in air concentrations, as well as being a potential source of a dangerous physiological shock. In order to control this problem, many FIBC manufacturers offer Type C "anti-static or "conductive" constructions, using either interwoven conductive threads or other static dissipative materials. The container is then "grounded", typically using clamps attached to earthing tags, enabling charge to dissipate before it builds up to an excessive level.

However, even if a company has correctly specified Type C FIBC's, some uncertainties still remain:

- Has the operator correctly fitted the clamp and "earthed" the FIBC ?



- In the case of a "multi-trip" FIBC, has the bag lost some of it's anti-static properties through damage or wear and tear ?
- Is the operator using the correct FIBC ?

To answer these questions, Newson Gale have developed the Earth-Rite FIBC system, to enable users of Type C anti-static flexible bulk containers to check that the bag construction is still within the correct specification (minimum/maximum resistance) and correctly earthed.

To suit various types of filling/discharging machinery the system is offered in two formats which monitor resistance either between the lifting loops and one earth clamp with respect to earth, or between two separate earth clamps with respect to earth. The monitoring unit is certified intrinsically safe, making it suitable for use in hazardous atmospheres.

The Earth-Rite FIBC makes a valuable contribution to plant and personnel safety, helping eliminate dangerous accumulation of static charge which can result in fires/explosions within flammable atmospheres, and hazardous working environments for operators. It is part of the Newson Gale range of Cenelectrex® equipment for controlling static in industry.

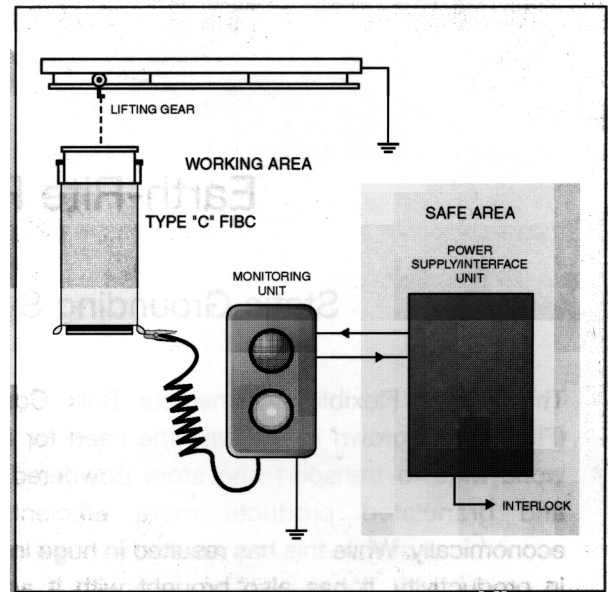


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TECHNICAL SPECIFICATION

Each Cenelectrex® Earth-Rite FIBC Static Grounding System consists of the following elements:

- Earth Monitoring Unit (EExia IIC T4) complete with Intrinsically Safe relay and status indicator lamps (US FM approval pending)
- Insulated Monitoring Clamp c/w 16½ft Hytrel sheathed spiral cable (optional earthing clamp and spiral cable also available)
- Power supply unit



SYSTEM DESCRIPTION

The system is set to engage the product-transfer circuit only when the resistance through the container is within the range of 500 to 1×10^8 Ohms. If customers are using specific FIBC's, or have their own safety standards alternative resistance ranges may be supplied to special order. Until these conditions are achieved, the system remains non-permissive. The resistance limits imposed by the system prevent the operator from fooling the system by clamping the monitoring lead directly to earth.

The system utilizes a special insulated monitoring clamp which should be attached to the conductive earth loop of the FIBC. This clamp is connected to a

chemical and abrasion resistant spiral cable and forms the monitoring connection so that the resistance through the bag and down to earth can be monitored. The static dissipation path is provided by the lifting hooks which should be connected to ground. If the lifting hooks cannot be used for grounding, the system monitors resistance between two separate clamps and down to earth. The system also provides a visual indication of earth condition via red/green lights, and is designed to meet current EC directives. In addition to Type C FIBC's, the system can also be used to monitor other static dissipative materials such as drum linings, kegs, hoses etc.



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The Earth-Rite FIBC forms part of the Cenelectrex® range of Static Control Equipment for hazardous areas which is exclusively available in the U.S.A. and Mexico from Stewart R. Browne Mfg.