

The short presentation of the MOL FER Fire Department's Newson Gale static grounding and bonding system

Introduction

The MOL FER Fire Department was faced with the following issues:

How the right grounding can be ensured on the field, how it can be checked, and how the right static bonding can be ensured in explosion proof realization during transloading of hazardous materials?

The requirement of two different systems was taken into consideration:

- A permanently installed, 24 VDC power supplied static ground verification system with an earthing rod set for the chemical container, to ensure the right grounding and to make it verifiable everywhere on the field.
- A portable static grounding and verifying system which can be connected to a 230 VAC generator supplied transloading pump with emergency switch off function.

Why?

In order to ensure and verify the right grounding in a nearly disastrous situation and to help the rescue team's work, so that the full process can pass safely.

Goals

- To fulfill the ATEX Directive and the related 2008/08. and 2012/09. BORDERLINE.
- To provide the right grounding in case of mobile equipments and processes according to the CENELEC limit values.
- To check whether the connected vehicle is a road tanker.
- To check the earthing point's validity.

ATEX 94/9/EC BORDERLINE

The Borderline of the 4th edition of the ATEX Directive was issued in September of 2012 (the application aid of the ATEX Directive, which applications are in the scope of the



Directive) which says that the grounding clamp has to indicate a feedback to the operator about the right connection.

The system detects not only the right connection, but also checks the proper grounding and recognizes the tanker.

Limit value verification

- The maximum allowed loop resistance between two grounded points is 10 Ω .
- Verification of the tanker capacity (maximum 1000 pF).

ATEX certification

Key consideration was that the equipment should be safely applicable in potentially hazardous areas. The existing system is certified for Ex Zone 2, however the same system can be implemented for Ex Zone 1 as well.

The design of the two systems was finalized at the end of 2011:

1. Earth-Rite MGW system on a stainless steel mounting plate, which can be easily installed and removed on different fire trucks (24 VDC).
2. Earth-Rite RTR system installed on a stainless steel „trolley”, keeping the security and mobility in mind (230 VAC).

Functions and components of the Earth-Rite MGW system

- To ensure the right grounding of the fire truck.
- To be mobile, so that it can be quickly portable between the trucks.
- To be able to work from the power supply of the fire truck.
- Robust, „transportable” design.
- The factory-made system is completed with a 15 m long cable, a self-retracting cable reel and a stainless steel clamp.
- The right earthing is ensured by a 4-piece, 60 cm long earthing rod set. These must be installed into the ground at the right distance from each other.



Functions and components of the Earth-Rite RTR system

- To ensure the right grounding.
- Generator supplied working in the interest of the mobility.
- The pump works only in case of the correct earthing.
- Applicable in and out of Ex Zone.
- The earthing of the pump is ensured by a clamp.
- If the earthing is not correct the emergency bypass system takes effect (if there is no other possibility).
- 4-piece earthing rod set.
- Clamp to set up the connection to the earthing.
- Grounded „trolley” due to the verified grounded mounting plate.
- Pump-enabling in case of the correct earthing.
- Clamps for grounding mobile objects (Bond-RITE EZ).





Witch standards are fulfilled by the products?

- BS 5958: Code of Practice for Control of Undesirable Static Electricity (1991).
- Cenelec CLC/TR 50404: Code of Practice for the Avoidance of Hazards due to Static Electricity (2003).
- API RP 2219: Safe Operation of Vacuum Trucks in Petroleum Service (2005)
- NFPA77: Recommended Practice on Static Electricity (2007).
- API RP 2003: Protection against Ignitions Arising out of Static, Lightning and Stray Currents (2008).
- IEC 61340-4-4: Electrostatic classification of Flexible Intermediate Bulk Containers (2012).

Witch Hungarian standards are fulfilled by the products?

At the moment only the MSZ 16040-1:1973 standard (Sztatikai feltöltődések, Static discharges) deals with this issue, in which the only requirement is that the down-conducting resistance must be less than $10^6 \Omega$. An interesting fact is, that the English standards determine this value at 10Ω .

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