

SAFETY MEMO

February 7th, 2022 – Equipotential Bonding

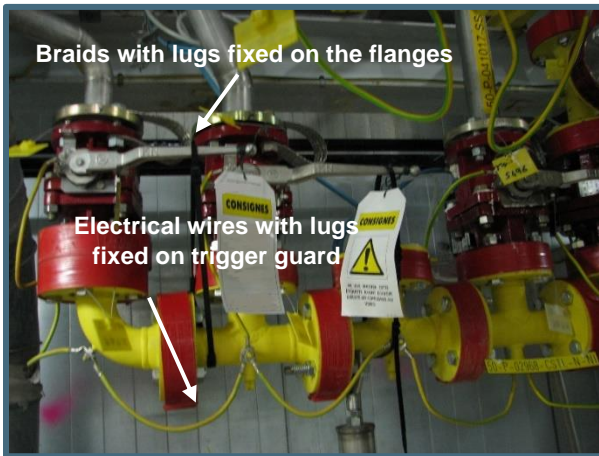


Did you know?

What is Equipotential Bonding?¹

Equipotentiality — the state in which conductive parts are at a substantially equal electric potential (CEC C22.1-18 Part 1 Section 10-004).

An equipotential bonding comprises any tabs and metal braids / electrical wires intended to connect every insulated metal element of an installation to each other.



Earthing Lugs or Grounding Electrode

Grounding electrode — a buried metal object or device buried in, or driven into, the ground to which a grounding conductor is electrically and mechanically connected (CEC C22.1-18-part Definitions).

Earthing lugs or ground electrodes is a perforated metal plate welded to the equipment or piping. This is intended to fix an equipotential bonding braid. The tab can be found on the housings of rotating machines, on one foot or on one cradle of sheet metal equipment, on certain connection flanges of sheet metal equipment, and finally near each flange of a section of piping.



What is equipotential bonding used for?

The primary function of equipotential bonding is to minimize shock hazards and used to eliminate the risk of potential difference of conductive objects that may become energized either directly or indirectly, by connecting all the metallic elements to an earth electrode and evacuating the current into the earth / ground. It is designed to protect people from electric shocks.

The equipotential bonds must therefore be installed on all flammable or explosive fluids (liquid, gaseous or solid - powders). The bonds generally consist of legs and braids connected by bolts which provide a low barrier path to facilitate the operation of protective devices under ground-fault operations.

Gaskets often act as an insulator and this assembly ensures electrical continuity with assembly by flanges, for example, because it is considered that the bolts do not make enough contact to ensure electrical continuity.

Binding Braid

The connecting braids are used to ensure electrical continuity between two separate metallic elements. These braids are bolted to the grounding lugs. Refer to the electrical code and standards in your jurisdiction for the allotted size of equipotential bonding conductors.



¹ Standards Council of Canada. (2021). Canadian Electrical Code, Part I. 25th ed.

