

STATIC BONDING & GROUNDING CONSIDERATIONS

+ Static charges generated during the transfer of flammable liquids tend to be high voltage, but very low current. Thus, copper cables are not required (or recommended) for static grounding; small diameter steel cables are preferred for their flexibility and strength.

→ See pages 13 - 15 for a comprehensive range of cables and assemblies designed for static grounding.

+ Welding clamps and battery clips are designed for current carrying applications, but often perform poorly when attached to dirty, rusted, and coated surfaces commonly found on vehicles and containers used for the transfer of flammables. Always choose a static grounding clamp that is designed for the condition and profile shape of the surface to which you are attaching:

PRIMARY SURFACE	COMMON APPLICATIONS	RECOMMENDED CLAMPS
Flat to moderately curved surfaces; coated or uncoated	Safety cans, drums, totes, pails	REB, RSS, VUD100 (pg. 8)
Round and uneven surfaces; coated or uncoated	Ground balls, bolts, rods	ALS10A (pg. 8)
Variable surfaces on large vehicles	Tanker trucks, railcars	GAT-P, G40-PCU (pg. 9)

+ If you need to ensure that there is a good connection to ground during transfer operations, consider continuous ground monitoring with our **G2 system (pgs. 20 - 21)**.

HAZARDOUS LOCATION CLASSIFICATIONS

The Canadian Electrical Code (Canada) and National Electrical Code (United States) classify hazardous locations in accordance with the nature of the hazard. The following is a brief summary of these classifications:

CLASS I	Flammable gases/vapours may be present in the air in quantities sufficient to produce explosive/flammable mixtures
DIVISION 1	Explosion hazard may exist during normal operations or repair/maintenance operations
DIVISION 2	Explosion hazard is normally confined within closed containers or systems, or the area is adjacent to a Division 1 area from which the explosive gases might occasionally flow
CLASS II	Combustible dust or electrically conductive combustible dust may be present
DIVISION 1	+ Electrically conductive combustible dust may be present, or + A hazardous amount of combustible dust may be present during normal operations, or as a result of a malfunction in the presence of an ignition source
DIVISION 2	Combustible dust may accumulate and interfere with the heat dissipation of electrical equipment, or where the accumulation of dust may be ignited
CLASS III	Easily ignitable fibres and flyings are present, but not likely to be suspended in air in quantities sufficient to produce ignitable mixtures

Equipment approved for Division 1 is also suitable for use in Division 2 areas. However, Class I and II areas are further sub-divided by Groups; only equipment that has been approved for a specific Group should be used in an area classified as belonging to that Group. The following is a brief summary of some of the hazards found in each group:

CLASS I GROUPS		CLASS II GROUPS	
A	Acetylene	E	Metal dusts such as aluminum and magnesium
B	Hydrogen, arsine, butadiene	F	Carbonaceous dusts such as coal and coke
C	Diethyl ether, ethylene, cyclopropane	G	Grain, flour, and starch dusts
D	Gasoline, ethanol, natural gas, propane, acetone, benzene, butane, hexanes, naphtha, toluene		

→ Lind Equipment offers a range of portable work lights that are approved for use in hazardous locations. See pages 25 - 30. For further information, see the Resources section at www.lindequipment.net, the Canadian Electrical Code Part I Section 18, and the National Electrical Code articles 500-504, 510-517.