

SAFETY FOOT SWITCHES

1.0 PURPOSE

This Standard covers the basic requirements for the qualification and use of Safety Foot Switches with the intention of enhancing personnel safety in accordance with all the relevant Corporate Safety Requirements as well as National and Local legislation.

Notes: For use in Europe, the qualification required for foot switches is that they be "CE" Marked () to certify that their construction is in compliance with the appropriate European Standards (EN) or that specific third party certification as a product has been given. They shall be accompanied with an EC Declaration of Conformity.

For use in North America, the qualification required for foot switches is that they be UL 508 Listed () and CSA Certified (), to certify that their construction is in compliance with the appropriate UL/CSA Test Reports.

2.0 REFERENCES

IEC 60947-1 Low-voltage switchgear and controlgear - Part 1: General rules
 IEC 60947-5-1 Low-voltage switchgear and controlgear - Part 5-1 Control circuit devices and switching elements - Electromechanical control circuit devices
 EN 60447 Man Machine Interface (MMI) - Actuating Principles
 EN 418 Safety of machinery - Emergency Stop Equipment, functional aspects, Principles for design.
 VDE 0660-200
 UL 508
 CSA C22-2 No. 14
 NF E 09-031

3.0 DEFINITIONS

Positive Opening (Direct Opening) - In accordance with IEC 60947-5-1, contacts Shall open even if welded and shall not rely on the use of springs or flexible links between the actuator and contacts.

Type A - Foot switches designed for general applications

Type B - Foot switches designed for specific control of presses, shears and similar machinery or equipment.

Note: The application of all foot switches to control operations shall be approved

by the local safety department

4. TECHNICAL CONTENT

4.1 ENCLOSURES:

- 4.1.1.** All enclosures and housings shall be suitable for the environmental conditions expected, but as a minimum, they shall be at least IP 65 (NEMA 13) and utilise oil resistant gaskets. The foot switch enclosure shall be of metal and resist a dead load of at least 100Kg (250 lbs) without either deformation or the operation of the switch contacts. The enclosure shall also withstand the force from a 22.7 Kg (50 lbs) solid iron sphere dropped from a height of 1 metre (3 feet) without deformation or switch operation.
- 4.1.2.** All Enclosures shall be provided with an earth (ground) termination screw inside having a slotted hexagonal head and a wire clamp. In North America the screw shall be green in colour.
- 4.1.3.** All type A foot switches shall be enclosed by guards or shields on the top and all sides except the one for foot insertion. Clearance dimensions shall be no less than those shown in figure 1.
- 4.1.4.** In addition to the guards provided on the top and all sides, Type B footswitches shall be provided with a door or safety cover on the foot insertion side or other Ford approved means to prevent accidental actuation when not in use.
- 4.1.5.** The surface of the actuator pedal shall be of a non-slip material or construction.
- 4.1.6.** Foot switches shall be finished with Yellow oil resistant enamel paint or other locally approved high visibility safety colour or material.
- 4.1.7.** A cable entry hole shall be provided at the rear of the switch housing with a thread of 20 mm (or $\frac{3}{4}$ inch NPT).
- 4.1.8.** Foot pedals shall have at least 10 mm ($\frac{1}{2}$ inch) travel before the contacts are operated.

4.2. SWITCH CONTACT ASSEMBLIES:

- 4.2.1.** A single switch contact block shall provide at least two normally open and two normally closed positive opening contacts. All contacts shall be isolated with no common terminals. Contact ratings shall meet the requirements of :- IEC AC13, DC13 and/or NEMA A300, Q300.
The normally open contacts shall close and open simultaneously, as required for connecting the footswitch to a certified safety relay module.