AUTOMATIC DOOR SUPPLIERS ASSOCIATION

ELECTRICAL INFORMATION FOR AUTHORISED TECHNICIAN TEST

Conductors of different circuits

Conductors of different circuits may be laid side by side, may occupy the same duct (e g conduit, cable trunking system), or may be in the same multi-conductor cable, provided that the arrangement does not impair the proper functioning of the respective circuits. Where these circuits operate at different voltages, the conductors shall be either separated by suitable barriers or insulated for the highest voltage to which any conductor within the same duct can be subjected.

Circuits which are not switched off by the supply disconnecting device shall be either physically separated from other wiring or distinguished by colour (or both) so that they can be identified as being live when the disconnecting device is in the OFF or OPEN position.

Supply disconnecting (isolating) device

General

A hand operated supply disconnecting device shall be provided for each incoming supply. This device shall disconnect the electrical equipment of the machine from the supply when required (e g during work on the electrical equipment).

When two or more supply disconnecting devices are provided, protective interlocks shall be used where a hazardous condition or damage to the machine or to the work in progress could occur.

Power Operated Circuit-Breakers

Power operated circuit-breakers, (e g operated electrically or by compressed air), shall be permitted as supply disconnecting devices where, in addition, they fulfil the following requirements:

- have a means (e g hand, push-button) for manual operation (this means need not be operable from outside the enclosure where there are other means to open the circuit-breaker); and
- when locked in the open (OFF) position, manual as well as remote closing shall be prevented.

Operating Handle

The handle of the supply disconnecting device shall be easily accessible and located between 0.6 m and 1.9 m above the servicing level; a maximum height of 1.7 m is preferred.

Excepted Circuits

The following circuits need not be disconnected by the supply disconnecting device:

- lighting circuits for lighting needed during maintenance or repair;

plug/socket circuits for the exclusive connection of repair or maintenance tools and equipment (e g hand drills, test equipment);

undervoltage protection circuits which are only used for automatic tripping in case of supply failure;

- circuits supplying equipment which should normally remain energized for satisfactory operation (e g temperature controlled measuring devices, product (work in progress) heaters, program storage devices);
- control circuits for interlocking.

It is recommended, however, that such circuits be provided with their own disconnecting device.

Where such a circuit is not disconnected by the supply disconnecting device;

- a permanent warning label shall be appropriately placed in proximity to the supply disconnecting device.
- a permanent warning label shall be placed in proximity to each excepted circuit; and
- a corresponding statement shall be inserted in the maintenance manual.

Devices for switching off for prevention of unexpected start-up

Devices for switching off for the prevention of unexpected start-up shall be provided (e g where during maintenance a start-up of the machine can create a hazard). A supply disconnecting device may fulfil this function. (These provisions are under consideration by CEN/TC 114).

Such devices shall be appropriate and convenient for the intended use, shall be suitably placed, and readily identifiable (e g by a durable marking where necessary).

Precautions shall be taken to prevent unintentional or inadvertent operation of the disconnecting device.

When devices other than supply disconnecting devices are used (e g by using the control circuit to switch off a contactor), such means for switching off shall be employed only for situations where there is:

- no dismantling of the machine;
- adjustments requiring a relatively short time;
- no work being carried out on the electrical equipment except when;
- there is no hazard arising from electric shock and burn;
- the switching off means cannot be negated by the work; or
- the work is of minor nature (e g replacement of plug-in devices without disturbing existing wiring).

Location and Mounting of Control Devices

As far as is practicable, machine mounted control devices (program switch) shall be:

- readily accessible for service and maintenance; and
- mounted in such a manner as to minimize the possibility of damage from handling equipment or from other mobile equipment.

The actuators of hand-operated control devices shall be selected and installed so that:

- the operator is not placed in a hazardous situation when operating them; and
- the possibility of inadvertent operation is minimised.