

PRINCIPLE

An electric fence consists of a controller and a connected fence where the controller feeds electric impulses into the fence. The fence represents a "psychological barrier" for the animals; it can also be used to train a certain behavior (eg. cow trainer in the stable).

STANDARDS FOR THE FENCE CONTROLLER

The fence controller must comply with the European Standard EN 60335-2-76. Fence controllers must not cause radio + tv interference.

This is ensured if they comply with European Directive (EMC) 89/336/EEC and if they are printed with the CE mark.

There are controllers of different output performances. A main rule is: Not as powerful as possible but as powerful as necessary.

For safety reasons high power controllers (with more than 5 Joule at 500 Ω) shall not be used. Medium power controllers (up to 3,5 Joule) provide safe fencing with all ordinary fences even with some vegetation, dry ground and long fences. There are special controllers for cowtrainers and similar applications. Further application hints can be found in the catalogue.

The time between two pulses must not be shorter than 1 second. Especially in case of accumulator or mains controllers they must be set out of duty immediately and be repaired in an authorized service station.

GENERAL REQUIREMENTS FOR ELECTRIC FENCES

Electric fences shall be installed and operated so that they cause no electrical hazard to persons, animals or their surroundings.

Electric fence constructions which are likely to lead to the entanglement of animals or persons shall be avoided.

An **electric fence** shall not be supplied from two different **energizers** or from independent **fence circuits** of the same **energizer**.

For any two different **electric fences**, each supplied from a different **energizer** independently timed, the distance between the wires of the two **electric fences** shall be at least 2 m. If this gap is to be closed, this shall be effected by means of electrically non-conductive material or an isolated metal barrier.

Barbed wire or razor wire shall not be electrified by an energizer

Any part of an **electric fence** which is installed along a public road or pathway shall be identified at frequent intervals by warning plates securely fastened to the fence posts or firmly clamped to the fence wires.

A distance of at least 10 m shall be maintained between the **energizer earth electrode** and any other earthing system such as the power supply system protective earth or the telecommunication system earth.

Except for low output **battery-operated energizers**, the **energizer earth electrode** shall penetrate the ground to a depth of at least 1 m.

Connecting leads that are run inside buildings shall be effectively insulated from the earthed structural parts of the building. This may be achieved by using insulated high voltage cable.

Connecting leads that are run underground shall be run in a conduit of insulating material or else insulated high voltage cable shall be used. Care shall be taken to avoid damage to the **connecting leads** due to the effects of animal hooves or tractor wheels sinking into the ground.

Connecting leads shall not be installed in the same conduit as the mains supply wiring, communication cables or data cables.

Connecting leads and **electric fence** wires shall not cross above overhead power or communication lines.

Crossings with overhead power lines shall be avoided wherever possible. If such a crossing cannot be avoided, it shall be made underneath the power line and as nearly as possible at right angles to it.

If **connecting leads** and **electric fence** wires are installed near an overhead power line, the clearances shall be not less than those shown in table.

Minimum clearances from power lines

| Power line voltage (V) | Clearance (m) |
|--------------------------|-----------------|
| ≤ 1000 | 3 |
| >1000 ≤ 33000 | 4 |
| > 33000 | 8 |

If **connecting leads** and **electric fence** wires are installed near an overhead power line, their height above the ground shall not exceed 2 m.

This height applies either side of the orthogonal projection of the outermost conductors of the power line on the ground surface, for a distance of

- 2 m for power lines operating at a nominal voltage not exceeding 1000 V;
- 15 m for power lines operating at a nominal voltage exceeding 1000 V.

Mounting

In case of indoor mounting the fence controller shall not be installed at places where there is a risk of fire, eg. barns or stables. Indoor installed connecting leads having a voltage of more than 1000 V require a special insulation which is effective with respect to structural parts connected to earth. This insulation can be achieved by adequate air gaps or with high voltage cable. The controllers shall be so installed that they are out of reach of children and not subject to mechanical damage.

Keep off combustible materials

Combustible materials shall be kept away from the fence wires and the connecting leads.

Gate insulation

Parts of electric fences liable to be handled (e.g.gates) shall be insulated from electric pulse leading parts, e.g. by insulated gate handles.

Fence controllers with metal enclosure

For controllers provided with metal enclosures, fence wires and connecting leads shall be so connected to the controller that they cannot come into contact with the enclosure.

Spacings to other metal parts

Fence wires and connecting leads shall not be in contact with metal parts not belonging to the electric fence, such as the railing of a bridge or a cattle water place.

PARTICULAR REQUIREMENTS FOR ELECTRIC ANIMAL FENCES

Electric fences intended for deterring birds, household pet containment or training animals such as cows need only be supplied from low output **energizers** to obtain satisfactory and safe performance.

In **electric fences** intended for deterring birds from roosting on buildings, no **electric fence** wire shall be connected to the **energizer earth electrode**. A warning plate shall be fitted to every point where persons may gain ready access to the conductors.

