



ELECTRIC SHIELDING AND PROTECTION AGAINST HUMIDITY

- ProofCap shields and protects electronic circuits
- Adaptable ProofCap laminate of metal foils and plastic films
- New design and product possibilities
- Simple production and environmental friendly process
- A marketing advantage



*Excellent dampening qualities (65 dB) and a low impact on environment have been the results of applying ProofCap on ERICSSON products.*

### **ERICSSON Micro base station**

Rapidly increasing telecommunications combined with fierce phone operator competition demands more effective, compact and low weight telecom equipment.

ERICSSON set up the goal to use outdoor air as coolant directly onto the electronic boards in a new generation Micro Base stations. A series of laboratory and field tests proved that ProofCap encapsulation of the electronic boards fulfils the specified requirements in an outdoor environment. This reduced the Micro base station size, weight and cost dramatically.

The ProofCap application resulted in no screws and a 50% weight reduction in comparison with casted aluminium boxes. No-clean boards can be used and there is no need for any coating or conductive seals.

### **ProofCap shields and protects electronic circuits**

Electronics today play an increasingly important part in almost any product. The market requires faster, decentralised and cost effective electronic solutions but in increasingly difficult applications.

The patented ProofCap encapsulating technique offers a combined electric shielding and protection against humidity. Fire and ESD protection is integrated.

ProofCap is adaptable, facilitating a short time-to-market, durable with low weight, environmentally friendly and easy to apply onto the electronic board as well having an appealing design. It also minimizes necessary investments in production equipment, floor space, ventilation and training of staff.

### **Adaptable ProofCap laminate of metal foils and plastic films**

Metal foils and plastic films are chosen to give the ProofCap laminate the demanded electric shielding, environmental protection as well mechanical features. The laminate consists of an outer stainless steel foil, plastic film, brass foil and an inner plastic film.

The laminate is pressed to fit the shape of the electronic board and components. The press tool is single sided which allows for fast prototypes.

The stainless steel foil provides corrosion and fire protection as well making the laminate rigid and gives it an attractive surface. Shielding is ensured by the brass foil. It is grounded to the electronic board by using short-circuiting strips. The thermoplastic films bind the two metal foils together and allows for melt-sealing to the electronic board as well providing electrical insulation. The ProofCap laminate thickness is 0,5 mm.

ProofCap laminate can be combined with a thicker bottom metal plate necessary for fixation and cooling. The adhesion strength can be used to integrate mechanical items such as cooler, front and fixing items without the use of screws.

Soldering pads, electrical conductors and antenna patterns can be applied directly onto the ProofCap laminate. This opens up for small, integrated and low weight products.

## Simple production

The ProofCap laminate is delivered in its pressed form to fit the electronic board.

Laminate and board are pressed together in the ProofCap melt-sealing machine. It automatically applies, during 1-2 min, the correct heat, pressure and the subsequent cooling. Applied heat has no influence on the components.

The time to apply a ProofCap cover is to be compared with time-consuming operations such as cleaning, masking, coating or potting and finally drying of electronic boards. Sometimes these tasks are out-sourced, complicating the logistics, increasing the product cost and delivery time.

ProofCap facilitates repairs by being easily removable. Apply heated air, remove the cover and the electronic board is directly accessible for inspection, test and repairs without any need to remove coating or potting. Re-seal by applying a new ProofCap cover.

Ergonomics is improved since ProofCap is low weight, a clean process and minimizes the number of used screws. It also allows for easy marking and integrates ESD protection for safe handling.



## Environmental friendly process

Low impact on the environment is an equally important aspect of modern products.

ProofCap addresses this by combining materials and a process that are low on the use of resources, with low weight and do not contain or produce any harmful substances. It also allows for recycling of electronics, board and cover. This means low use of energy to produce the ProofCap laminate, less fossil fuels during transport and minimized harm to humans and nature.

ProofCap ends the requirement of special and costly soldering fluxes, board cleaning products, coating and potting substances. It should also be possible to reduce the need of bromine as a fire-inhibitor due to the fire protection properties of the ProofCap laminate.



*Growing fish is an annual 2 Billion USD industry in Norway. The industry require reliable equipment to stay effective and keep costs down.*

## Automated Fish Feeding

Janeko AB have been successful in supplying automation products that meet the tough demands of fish growing industry along the Norwegian coast. The electronics must withstand saltwater, rapid weather and temperature shifts as well rough handling.

Janeko AB have solved this by applying ProofCap onto their fish feeding control system, reducing down-time and the need for spares and service. This has helped Janeko AB capture a 50% market share in Norway.

They use a specially designed ProofCap bag that does not require any press or melt-sealing machine. It is a flexible concept that is useful for small production series or where a simple protection is required.

## **ProofCap AB**

*ProofCap AB (Ltd) holds the unique right to market and sell the patented ProofCap laminate. It provides application know-how of using ProofCap onto electronics, the pressed laminate and necessary melt-sealing machine.*