

## 2-component moulding resin for IML applications

SIMCO\_IML Easycore

### Manufacturing of an IML electrode with moulding resin.

To manufacture an IML electrode with special moulding resin using a moulding jig, the following parts are necessary.

See also diagram O-5072 in the appendix.

1. High-voltage cable
2. Suction cups (antistatic)
3. Non-conductive mounting
4. High-voltage series resistor(s) The value of the resistor(s) is between 60 and 80 MOhm. The type of resistor depends on the application. Please consult SIMCO or your SIMCO agent for information on this.
5. Mould with release agent
6. Conductive layer between the mounting and the moulding resin
7. Moulding resin
8. Non-conductive cover

### Points to note and tips

1. The resistor(s) must be mounted in a well isolated way.
2. Do **NOT** fix the resistors with the "half" conductive (antistatic) moulding resin for IML applications. The series resistor(s), protect the electrode against overload
3. The connection between the resistor(s) and the conductive layer must be as short as possible.
4. For the non-conductive mounting, use PVC, PE, PP or POM for example. **Do not use** PA, synthetic resin bonded paper or antistatic materials!
5. Do not forget to fit the vacuum channels.
6. Sharp points on conductors must be avoided.
7. For the conductive layer between the mounting and the moulding resin, a self-adhesive aluminium or copper foil can be used.
8. By preparing the mounting material with a primer, better adhesion is achieved between the resin and the mounting. For example, the primer Loctite 770 or Prokol Rocathaan PU Primer Uni and hardener .
9. For the mould, a "mould release" can be used as a release agent. SIMCO product QZ-13, P/N 9117552000.
10. Keep the mould dry, moisture results in foaming!
11. Not well mixed 2-component material results in cracking in the endproduct.
12. A wrong mixing (resin / hardener) ratio results in a poor endproduct.
13. Carefully stir (and stir very well!) the mixture to prevent the inclusion of air!
14. After stirring pour the mixture over in an other container to prevent not well mixed material from the sides of the first container into the endproduct.

15. When pouring the 2-component resin, take care not to allow air to get into the mixture.
16. Once the resin has cured, remove the mould.
17. Once cured, the resin can be shaped (machined); the remaining layer thickness must be at least 5 mm. "Simplified" at least 2 mm.

The conductive layer is placed on the mounting material. The conductive layer must remain approx. 10 mm away from the sides and the suction cups to avoid overlap of the high voltage. To achieve good adhesion between the mounting material and the resin, small strips of foil must be removed without the foil being torn.

Antistatic suction cups ensure more homogeneous charging.

The series resistors are fitted in series with the high-voltage cable and as close as possible to the conductive layer. For small surface areas of up to approx. 100 cm<sup>2</sup>, a single series resistor is fitted; in other cases the surface area is divided into several sections and each section is then provided with a series resistor. The value of the high-voltage resistor is between 60 and 80 MOhm.

When the electrode is applied at ground level (simplified IML), it is sufficient to use a conductive base. It must then be ensured that the edges are isolated, so that no sparks can fly over from a charging electrode positioned opposite.

An HD-R charging electrode or a similar type with a series resistor at each point is recommended to achieve steady charge and, in the event of any defects, to avoid large sparks from forming.