Claims

1. Mould for encapsulating electronic components mounted on a carrier, comprising at least two mould parts which are displaceable relative to each other, at least one of the mould parts with a mould cavity recessed in a contact side, which mould parts are configured to engage with the mould cavity round the electronic components to be encapsulated;
wherein at least a part of the mould cavity is formed by an insert having a flexible three-dimensional moulding surface for facing the electronic components~~.~~;
wherein

~~2. Mould according to claim 1, **characterised in that** the~~ three-dimensional moulding surface of the insert is formed as a continuous surface configured to cover multiple electronic components~~.~~;
wherein
~~3. Mould according to claim 2, **characterised in that**~~ the three-dimensional moulding surface of the insert comprises multiple contact areas, each configured for contacting at least a part of an upper surface of an electronic component, wherein the distance of said contact areas to a side of the insert opposing the three-dimensional moulding surface differs between at least two of said contact areas~~.~~; and
wherein the three-dimensional moulding surface of the insert has a hardness between 70 - 100 Sh-A, preferably between 80 - 90 Sh-A.

~~4~~2. Mould according to any of the preceding claims, **characterised in that** the three-dimensional moulding surface of the insert is made from a polymer material, for instance from a vulcanized synthetic rubber, more specific a fluor-elastomer.

~~5~~3. Mould according to any of the preceding claims, **characterised in that** the insert is detachably connectable to the mould part.

~~6. Mould according to any of the preceding claims, **characterised in that** the three-dimensional moulding surface of the insert has a hardness between 70 - 100 Sh-A, preferably between 80 - 90 Sh-A.~~

~~7~~4. Mould according to any of the preceding claims, **characterised in that** the insert comprises an inflexible coupling part carrying the flexible three-dimensional moulding surface.

~~8~~5. Mould according to claim ~~7~~4, **characterised in that** the inflexible coupling part is provided with coupling means for coupling the insert to a mould part.

~~9~~6. Mould according to any of the preceding claims, **characterised in that** the three-dimensional moulding surface of the insert is impermeable for moulding material.

~~10~~7. Mould according to any of the preceding claims, **characterised in that** the mould comprises multiple flexible inserts having three-dimensional moulding surfaces for facing the electronic components.

~~11~~8. Mould according to claim ~~10~~7, **characterised in that** the mould comprises at least two mutually opposing mould parts, each having a contact side with a mould cavity recessed therein, wherein said mould cavities are at least partially formed by an insert having a flexible three-dimensional moulding surface.

~~12~~9. Mould according to any of the preceding claims, **characterised in that** an opening in the mould part for receiving the insert is connected to underpressure means.

~~13~~10. Insert for use in a mould according to any of the preceding claims comprising a flexible three-dimensional moulding surface~~.~~;
wherein the three-dimensional moulding surface of the insert is formed as a continuous surface configured to cover multiple electronic components;
wherein the three-dimensional moulding surface of the insert comprises multiple contact areas, each configured for contacting at least part of an upper surface of an electronic component, wherein the distance of said contact areas to a side of the insert opposing the three-dimensional moulding surface differs between at least two of said contact areas; and
wherein the three-dimensional moulding surface of the insert has a hardness between 70 – 100 Sh-A, preferably between 80 – 90 Sh-A.

~~14~~11. Method for producing an insert according to any of the preceding claims, comprising vulcanizing a polymer material onto an inflexible coupling part by moulding the polymer material together with a curative between the inflexible coupling part and a counter mould.

~~15~~12. Method for encapsulating electronic components mounted on a carrier using a mould according to any of the claims 1-~~12~~9, comprising the processing steps of:

a) positioning a carrier carrying one or more electronic components between two mould parts such that the electronic components face a mould cavity,
b) moving the mould parts towards each other, such that the mould parts are clamping the carrier between the mould parts, the at least one mould cavity is enclosing the electronic components to be encapsulated and the insert contacts at least one of the electronic components and/or the carrier;
c) bringing a moulding material in the mould cavity; and
d) moving the mould parts apart from each other, and removing the carrier with moulded electronic components from the mould parts, thereby also releasing the insert from the electronic components.

~~16~~13. Method according to claim ~~15~~12, **characterised in that** a foil layer is brought in the mould cavity covering at least partially the flexible three-dimensional moulding surface of the insert.

~~17~~14. Method as claimed in claim ~~16~~13, **characterised in that** during processing step c) while moving the mould parts towards each other, the foil is clamped between the insert and the electronic components and/or the carrier.

~~18~~15. Method according to claim ~~16~~13 or ~~17~~14, **characterised in that** an underpressure is applied between the foil layer and the flexible three-dimensional moulding surface of the insert via an opening in the mould part.

~~19~~16. Method as claimed in any of the claims ~~15~~12 - ~~18~~15, **characterised in that** the moulding material is brought in the mould cavity according method step c) after the mould parts are moved towards each other according method step b) by

displacing liquid moulding material to the mould cavity enclosing the electronic component by exerting pressure on the moulding material.

~~20~~17. Method according any of the claims ~~15~~12 - ~~19~~16, **characterized in that** a processing temperature between 100-200 °C is applied during bringing the moulding material in the mould cavity.