

CLAIMS

1. A molding apparatus comprising:
 - a first mold part operative to hold a semiconductor substrate;
 - a second mold part having a main surface facing the first mold part; wherein the first and second mold parts are movable relative to each other between an open arrangement and a closed arrangement,
 - wherein the main surface comprises portions defining a mold cavity, and a recess spaced from and at least partially surrounding the mold cavity and operative to be at least partially within an edge of the semiconductor substrate held on the first mold part; and
 - a compressible structure located within the recess, wherein at least a portion of the compressible structure extends out of the recess towards the first mold part and is compressible into the recess when the compressible structure contacts the semiconductor substrate in the closed arrangement;
 - wherein the second mold part further comprises one or more air conduits operative to introduce compressed air into the mold cavity to separate the molded semiconductor substrate from the second mold part.
2. The molding apparatus according to claim 1, further comprising:
 - one or more further compressible structures to form a plurality of compressible structures surrounding the mold cavity.
3. The molding apparatus according to claim 1 or claim 2, further comprising:
 - a further compressible structure;
 - wherein the compressible structure is on a first side of the mold cavity, and the further compressible structure is on a second side of the cavity opposite the first side.
4. The molding apparatus according to any one of the preceding claims, further comprising:
 - a vacuum pump coupled to the one or more air conduits.

5. The molding apparatus according to any one of the preceding claims,
wherein the compressible structure comprises an elastomer.
6. The molding apparatus according to claim 5,
wherein the elastomer is any one selected from a group consisting of silicones,
nitriles, propylenes, perfluoroelastomers, and neoprenes.
7. The molding apparatus according to claim 5 or claim 6,
wherein the compressible structure further comprises a rigid structure in
contact with the elastomer.
8. The molding apparatus according to any one of the preceding claims,
wherein the compressible structure comprises a spring, and a rigid structure in
contact with the spring.
9. The molding apparatus according to any one of the preceding claims, wherein the
recess is fully within the perimeter of the semiconductor substrate.
10. The molding apparatus according to any one of the preceding claims, wherein the
compressible structure is compressible to be fully within the recess.
11. A method of molding a semiconductor substrate, the method comprising:
providing the semiconductor substrate over a first mold part, a second mold
part having a main surface facing the first mold part, the main surface comprising
portions defining a mold cavity and a recess spaced from and at least partially
surrounding the mold cavity and operative to be at least partially within an edge of the
semiconductor substrate held on the first mold part;
moving the first mold part and a second mold part from an open arrangement,
wherein a compressible structure located within the recess has a portion extending out

of the recess towards the first mold part, towards each other to a closed arrangement, wherein the compressible structure contacts the semiconductor substrate to compress the compressible structure into the recess

introducing a mold compound into a mold cavity defined by the main surface of the second mold part to form a molded semiconductor substrate comprising the semiconductor substrate and a mold cap structure on the semiconductor substrate;

separating the first mold part and the second mold part; and

introducing compressed air into the mold cavity to separate the molded semiconductor substrate from the second mold part.