Claims:

1. An apparatus for delivering semiconductor components to a substrate during semiconductor package manufacturing, the apparatus comprising:

a platform; and

a plurality of delivery modules affixed to the platform, each of the plurality of delivery modules having:

a support device for supporting the substrate; and

a delivery device for delivering the semiconductor components to the substrate,

wherein heights of the support devices are mutually levelled for conveying the substrate between the plurality of delivery modules.

2. The apparatus of claim 1, wherein the delivery devices are arranged at opposite sides of the respective support devices along a direction in which the substrate is to be conveyed.

3. The apparatus of claim 2, wherein the delivery devices are operative to deliver the semiconductor components to bonding locations at respective halves of the substrate that are nearer to the delivery devices, the respective halves of the substrate being divided along a line parallel to the direction in which the substrate is to be conveyed.

4. The apparatus of claim 1, wherein at least one of the plurality of delivery modules is affixed to the platform such that it is movable relative to the platform to arrange the support devices at a mutual offset in a direction transverse to a direction in which the substrate is to be conveyed.

5. The apparatus of claim 4, wherein the at least one of the plurality of delivery modules is movable along the direction transverse to the direction in which the substrate is to be conveyed.

6. The apparatus of claim 4, wherein at least one of the plurality of delivery modules is further movable in the direction in which the substrate is to be conveyed.

7. The apparatus of claim 4, further comprising a motion device for adjusting the mutual offset of the plurality of delivery modules.

8. The apparatus of claim 7, wherein the motion device comprises:

a track arranged on the platform; and

a plurality of wheels attached to at least one of the delivery modules to move the delivery module along the track.

9. The apparatus of any one of the preceding claims, comprising a single indexing unit for controllably conveying the substrate on the support devices.

Claims

1. An apparatus for delivering semiconductor components to a substrate during semiconductor package manufacturing, the apparatus comprising:

a platform; and

a plurality of delivery modules affixed to the platform, each of the plurality of delivery modules having:

a support device for supporting the substrate; and

a delivery device for delivering the semiconductor components to the substrate,

wherein heights of each respective support device of the plurality of delivery modules are mutually levelled for conveying the substrate between the plurality of delivery modules,

wherein the delivery devices are arranged at opposite sides of the respective support devices along a direction in which the substrate is to be conveyed, and

wherein the delivery devices are operative to deliver the semiconductor components to bonding locations at respective halves of the substrate that are nearer to the delivery devices, the respective halves of the substrate being divided along a line parallel to the direction in which the substrate is to be conveyed.

2. The apparatus of claim 1, comprising a single indexing unit for controllably conveying the substrate on the support devices.

3. An apparatus for delivering semiconductor components to a substrate during semiconductor package manufacturing, the apparatus comprising:

a platform; and

a plurality of delivery modules affixed to the platform, each of the plurality of delivery modules having:

a support device for supporting the substrate; and

a delivery device for delivering the semiconductor components to the substrate,

wherein heights of each respective support device of the plurality of delivery modules are mutually levelled for conveying the substrate between the plurality of delivery modules, and

wherein at least one of the plurality of delivery modules is affixed to the platform such that it is movable relative to the platform to arrange the support devices at a mutual offset in a direction transverse to a direction in which the substrate is to be conveyed.

4. The apparatus of claim 3, wherein at least one of the plurality of delivery modules is movable along the direction transverse to the direction in which the substrate is to be conveyed.

5. The apparatus of claim 3 or claim 4, wherein the at least one of the plurality of delivery modules is further movable in the direction in which the substrate is to be conveyed.

6. The apparatus of any one of claims 3 to 5, further comprising a motion device for adjusting the mutual offset of the plurality of delivery modules.

7. The apparatus of claim 6, wherein the motion device comprises:

a track arranged on the platform; and

a plurality of wheels attached to at least one of the delivery modules to move the delivery module along the track.

8. The apparatus of any one of claims 3 to 7, comprising a single indexing unit for controllably conveying the substrate on the support devices.