

CLAIMS

1. A method of calibrating a dispenser of the type having a material dispensing unit that is configured to dispense material on a substrate, the method comprising:
providing a weigh scale having a plate configured to receive material dispensed on the
5 plate;
dispensing one or more patterns of material on the plate;
weighing the amount of material dispensed on the plate; and
comparing the weighed amount of material to a designated amount of material,
wherein dispensing one or more patterns of material replicates at least a portion of
10 patterns of material dispensed on the substrate during a dispensing operation.
2. The method of claim 1, wherein comparing the weighed amount of material to the designated amount of material includes determining whether the weighed amount of material is within a predetermined tolerance.
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3. The method of claim 2, wherein if the weighed amount of material is outside the predetermined tolerance, further comprising repeating dispensing, weighing and comparing until the weighed amount is within the predetermined tolerance.
4. The method of claim 2, further comprising adjusting a parameter of the dispenser to vary an amount of material dispensed in the event the weighed amount is outside the predetermined tolerance.
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5. The method of claim 4, wherein adjusting the parameter of the dispenser includes adjusting a speed of the gantry.
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6. The method of claim 4, wherein adjusting the parameter of the dispenser includes adjusting a rotation of an auger screw of the dispensing unit or by adjusting a shot size of the dispensing unit.
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7. The method of claim 1, further comprising displaying the weight of the pattern dispensed to a user using a user interface device.

8. The method of claim 7, wherein the user interface device includes a display coupled to a dispenser controller.

5 9. The method of claim 1, wherein the dispensing unit is an auger-type dispenser.

10. The method of claim 1, wherein the dispensing unit is a jetter-type dispenser.

11. A controller coupled to a dispenser of the type having a material dispensing unit
10 that is configured to dispense material on a substrate, the controller comprising:
a calibration component configured to perform acts of
dispensing one or more patterns of material on a plate of a weigh scale of the
dispenser,
weighing the amount of material dispensed on the plate, and
15 comparing the weighed amount of material to a designated amount of material,
wherein dispensing one or more patterns of material replicates at least a portion
of patterns of material dispensed on the substrate during a dispensing operation.

12. The controller of claim 11, wherein comparing the weighed amount of material
20 to the designated amount of material includes determining whether the weighed amount of material
is within a predetermined tolerance.

13. The controller of claim 12, wherein if the weighed amount of material is outside
the predetermined tolerance, further comprising repeating dispensing, weighing and comparing
25 until the weighed amount is within the predetermined tolerance.

14. The controller of claim 12, further comprising adjusting a parameter of the
dispenser to vary an amount of material dispensed in the event the weighed amount is outside the
predetermined tolerance.

30 15. The controller of claim 14, wherein adjusting the parameter of the dispenser
includes adjusting a speed of the gantry.

16. The controller of claim 14, wherein adjusting the parameter of the dispenser includes adjusting a rotation of an auger screw of the dispensing unit or by adjusting a shot size of the dispensing unit.

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17. The controller of claim 11, further comprising displaying the weight of the pattern dispensed to a user using a user interface device.

18. The controller of claim 17, wherein the user interface device includes a display coupled to the controller.

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19. The controller of claim 11, wherein the dispensing unit is an auger-type dispenser.

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20. The controller of claim 1, wherein the dispensing unit is a jetter-type dispenser.

Claims:

1. A method of calibrating a dispenser of the type having a material dispensing unit that is configured to dispense material on a substrate, the method comprising:
 - providing a weigh scale having a plate configured to receive material dispensed on the plate;
 - dispensing one or more patterns of material on the plate;
 - weighing the amount of material dispensed on the plate;
 - comparing the weighed amount of material to a designated amount of material, wherein dispensing one or more patterns of material replicates at least a portion of patterns of material dispensed on the substrate during a dispensing operation; and
 - displaying the weight of the pattern dispensed to a user using a user interface device having a display coupled to a dispenser controller,
 - wherein during setup, an operator specifies the following parameters: a speed of a dispenser gantry; a number of dispensers; a z-axis height of each dispenser; for auger-type dispensers, a rotation of an auger screw in degrees per millimeter, or for jetter-type dispensers, a jetting rate in dots per millimeter; a predetermined tolerance of the weight of the pattern dispensed; a measure of every n boards or every n minutes; and when to perform a needle cleaning operation, and
 - wherein one or more icons are provided on the display to assist the operator.
2. The method of claim 1, wherein comparing the weighed amount of material to the designated amount of material includes determining whether the weighed amount of material is within the predetermined tolerance.
3. The method of claim 2, wherein if the weighed amount of material is outside the predetermined tolerance, further comprising repeating dispensing, weighing and comparing until the weighed amount is within the predetermined tolerance.
4. The method of claim 2, further comprising adjusting a parameter of the dispenser to vary an amount of material dispensed in the event the weighed amount is outside the predetermined tolerance.

5. The method of claim 4, wherein adjusting the parameter of the dispenser includes adjusting the speed of the dispenser gantry.

6. The method of claim 4, wherein adjusting the parameter of the dispenser includes adjusting the rotation of the auger screw of the dispensing unit or by adjusting a shot size of the dispensing unit.

7. The method of claim 1, wherein the dispensing unit is an auger-type dispenser.

8. The method of claim 1, wherein the dispensing unit is a jetter-type dispenser.

9. A controller coupled to a dispenser of the type having a material dispensing unit that is configured to dispense material on a substrate, the controller comprising:

a calibration component configured to perform acts of

dispensing one or more patterns of material on a plate of a weigh scale of the dispenser,

weighing the amount of material dispensed on the plate,

comparing the weighed amount of material to a designated amount of material,

wherein dispensing one or more patterns of material replicates at least a portion of patterns of material dispensed on the substrate during a dispensing operation,

displaying the weight of the pattern dispensed to a user using a user interface device having a display coupled to a dispenser controller,

wherein during setup, an operator specifies the following parameters: a speed of a dispenser gantry; a number of dispensers; a z-axis height of each dispenser; for auger-type dispensers, a rotation of an auger screw in degrees per millimeter, or for jetter-type dispensers, a jetting rate in dots per millimeter; a predetermined tolerance of the weight of the pattern dispensed; a measure of every n boards or every n minutes; and when to perform a needle cleaning operation, and

wherein one or more icons are provided on the display to assist the operator.

10. The controller of claim 9, wherein comparing the weighed amount of material to the designated amount of material includes determining whether the weighed amount of material is within the predetermined tolerance.

11. The controller of claim 10, wherein if the weighed amount of material is outside the predetermined tolerance, further comprising repeating dispensing, weighing and comparing until the weighed amount is within the predetermined tolerance.

12. The controller of claim 10, further comprising adjusting a parameter of the dispenser to vary an amount of material dispensed in the event the weighed amount is outside the predetermined tolerance.

13. The controller of claim 12, wherein adjusting the parameter of the dispenser includes adjusting the speed of the dispenser gantry.

14. The controller of claim 12, wherein adjusting the parameter of the dispenser includes adjusting the rotation of the auger screw of the dispensing unit or by adjusting a shot size of the dispensing unit.

15. The controller of claim 9, wherein the dispensing unit is an auger-type dispenser.

16. The controller of claim 9, wherein the dispensing unit is a jetter-type dispenser.