Claims

1. A method of manufacturing an ophthalmic lens, the method comprising:
   - providing a male mold half having a convex mold surface, and a complementary female mold half having a concave mold surface, wherein the female mold half retains a polymerizable composition for forming an ophthalmic lens between the convex mold surface and the concave mold surface;
   - moving one of the mold halves toward the other mold half until the convex mold surface of the male mold half contacts the polymerizable composition retained in the female mold half;
   - contacting a surface of the female mold half with a surface of the male mold half by applying a force to bring the male mold half and the female mold half together;
   - measuring the force applied during the contacting; and
   - determining that the mold halves have formed a closed mold assembly when the force is greater than or equal to a predetermined threshold force;
   - wherein the male mold half is moved toward the female mold half during the contacting at a velocity which is varied in response to the measured force and a previously measured force applied to contact a second pair of the mold halves with one another.

2. The method of claim 1, further comprising applying and measuring a moving force during the moving of the one mold half toward the other.

3. The method of any preceding claim, wherein at least one of the male mold half and the female mold half is in operative communication with a force sensor during the contacting.

4. The method of claim 3, further comprising positioning at least one of the male mold half and the female mold half in operative communication with the force sensor before or during the contacting.

5. The method of claim 4, wherein the positioning comprises positioning at least one of the male mold half and the female mold half in an anvil, wherein the anvil is in operative communication with the force sensor.

6. The method of any preceding claim, wherein the velocity at which the male mold half is moved toward the female mold half during the moving, during the contacting, or during both, is from about 0.5 mm/s to about 1.5 mm/s.

7. The method of claim 6, wherein the velocity at which the male mold half is moved toward the female mold half during the moving is substantially constant for at least 80% of the duration of the moving.

8. The method according to any preceding claim, comprising a dwelling stage that includes maintaining the application of the force to the closed mold assembly for a predetermined period of time.

9. The method of claim 8, wherein the measuring further comprises determining that the force applied during the dwelling stage is greater than or equal to a predetermined threshold dwelling stage force.

10. The method of any preceding claim, further comprising a releasing stage that includes releasing the applied force and directing a stream of gas toward and past the mold halves.

11. The method of any preceding claim, wherein the method further comprises: curing the polymerizable composition in the closed mold assembly to form a polymeric lens body; demolding and delensing to release the polymeric lens body from both of the mold halves; optionally washing or extracting or hydrating, or any combination thereof, the released polymeric lens body; placing the released polymeric lens body in a contact lens package; sealing the filledpackage; and sterilizing the sealed package to form a finished contact lens package.

12. The method of any preceding claim, wherein the contacting comprises contacting a plurality of male mold halves with a respective plurality of complementary female

mold halves, calculating an average of the forces measured to contact each of the plurality of mold pairs, and wherein the determining comprises determining that that the plurality of pairs of mold halves are acceptably closed when the average of the forces measured is determined to be greater than or equal to a predetermined threshold average force.

13. The method of claim 12, wherein at least one mold half of each of the plurality of pairs of mold halves is in communication with a separate force sensor and wherein the average of the second forces measured is used to determine that the plurality of pairs of mold halves are acceptably closed.

14. The method of claim 13, wherein the at least one mold half of each of the plurality of pairs of mold halves is positioned in a separate, respective anvil, and each of the separate, respective anvils is in operative communication with a separate, respective force sensor.

15. A mold closing apparatus suitable for closing one or more ophthalmic lens molds, comprising:
    - an anvil for receiving a female mold half;
    - a retainer for retaining the anvil in a fixed lateral position;
    - a force sensor in operative communication with the anvil for measuring a force applied to a female mold half received in the anvil or to a polymerizable composition contained in a female mold half received in the anvil;
    - a holder for holding and positioning a male mold half that is complementary to the female mold half; and
    - a controller for controlling a velocity of movement of the holder, and for determining when a measured force applied to bring together a surface of a female mold half received in the anvil and a surface of a complementary male mold half held by the holder, is greater than or equal to a predetermined threshold force;
    - wherein the controller is configured to control the velocity at which the male mold half is moved toward the female mold half during the contacting based on the measured force and a previously measured force applied to contact a second pair of the mold halves with one another.

16. The mold closing apparatus of claim 15, wherein the anvil is unrestrained from moving in a vertical direction.

17. The mold closing apparatus of claim 15 or 16, further comprising a plurality of anvils and a respective plurality of force sensors, wherein each of the plurality of anvils is in operative communication with a separate, respective one of the force sensors.

18. The method of any of claims 1 to 14, wherein the step of moving comprises:

- an approaching stage, wherein one of the mold halves is moved at an approaching velocity to within a predetermined approaching distance relative to the position of the other mold half, and
- a meeting stage, wherein one of the mold halves is moved at an engaging velocity to a position where the convex mold surface of the male mold half contacts the polymerizable composition retained in the female mold half;

and wherein the engaging velocity is slower than the approaching velocity.