

Claims:

1. A system for producing a high contrast image of an ophthalmic lens under inspection, comprising:

- a) a top camera to view the ophthalmic lens through a lens module;
- b) a motorized mechanism for positioning the top camera at two pre-programmed positions;
- c) three illumination modules;
- d) said illumination modules focusing light through the ophthalmic lens under inspection, thereby producing a high contrast image of the ophthalmic lens;
- e) wherein the ophthalmic lens is contained within a cuvette comprising a transparent bottom glass designed to have an optical power of positive ten;
- f) said cuvette mounted with two optical windows, one of them being vertical and the other at an angle;
- g) said transparent bottom glass being further designed to position the ophthalmic lens under inspection;
- h) said cuvette designed to be filled with saline solution;
- i) an accurately calibrated test object positioned to achieve an image of the ophthalmic lens overlaid with the image of a pattern present on the test object;
- j) an additional illumination source comprising a laser diode; and
- h) a second camera to view the ophthalmic lens through a slanted optical lens module.

2. A system according to claim 1, further comprising a focusing lens.

3. A system according to claim 1, further comprising a set of beam splitters.

4. A method for inspecting defects of an ophthalmic lens, the method comprising the steps of:

providing the system of claim 1;

moving the top camera to a second of the two pre-programmed positions, wherein the top camera is configured to inspect for defects;

positioning the cuvette in the optical axis of the top camera;

receiving, in the top camera, illumination from one or more of said illumination modules having passed through the ophthalmic lens contained in the cuvette to produce multiple enhanced images of the defects in the ophthalmic lens;

inspecting for defects within the ophthalmic lens; and

removing the ophthalmic lens if defects are beyond a predetermined size.

5. A method for determination of lens thickness of an ophthalmic lens, the method comprising the steps of:

providing the system of claim 1;

receiving, in the second camera, illumination from the laser diode directed by a set of beam deflectors and having passed through a focusing lens and the ophthalmic lens contained in the cuvette, to produce a scattered image formed by reflected rays, and

measuring a distance between two extremes of the reflected rays.

6. The method according to claim 5, further comprising the step of:

creating a chart of measurements between the two extremes of the reflected rays of several pre-selected ophthalmic lenses of known thickness, to be used as a reference for determining the lens thickness of subsequent ophthalmic lenses to be inspected.

7. The method according to claim 6, further comprising the step of:

removing and segregating the ophthalmic lens from the cuvette after determining the optical thickness based on the chart.