Claims:

1. Process for inspecting an ophthalmic lens, comprising:

placing the lens on a curved surface of a holder;

providing a plurality of illumination modules for illumination the ophthalmic lens, each of the plurality of illumination modules is arranged to be selectively strobed;

acquiring multiple images by a plurality of optical detectors or imaging devices and subsequently processed and analyzed in the image analyzing equipment by image processing algorithms for detecting defects in the ophthalmic lens,

drawing two or more concentric circles on the captured images, and converting an area of interest encompassed by the two or more concentric circles to form a two dimensional image; and

analyzing a flipped lens, the analyzing steps including:

defining an area in the image by a small box;

binarizing the area in the box by defining a said light intensity threshold value to separate the Dark and White pixels;

identifying the white pixel groups in the area; and

evaluating the geometric characteristic of at least one white pixel group;

wherein each of the plurality of illumination modules is arranged to emit different wavelengths of illumination; and

wherein the plurality of optical detectors or imaging devices are suitably coupled with a plurality of beam splitters and a plurality of optical filters, the beam splitters and optical filters are arranged to guide the different wavelengths of illumination to the respective optical detectors or imaging devices.

2. Process according to Claim 1, wherein said geometric characteristic includes the height of at least one white pixel group.

3. Process according to claim 1, wherein said geometric characteristic includes the width of at least one white pixel group.

4. Process according to claim 1, wherein said geometric characteristic includes the aspect ratio of at least one white pixel group.

5. Process according to claim 1, wherein said geometric characteristic includes the step of counting the number of white pixel groups in the horizontal orientation and a subsequent step of rejecting the lens, if it exceeds a predetermined count.

6. Process for inspecting an ophthalmic lens, comprising:

placing the lens on a curved surface of a holder;

providing a plurality of illumination modules for illuminating the ophthalmic lens, each of the plurality of illumination modules is arranged to be selectively strobed;

acquiring multiple images by a plurality of optical detectors or imaging devices and subsequently processed and analyzed in the image analyzing equipment by image processing algorithms for detecting defects in the ophthalmic lens;

drawing two or more concentric circles on the captured images, and converting an area of interest encompassed by the two or more concentric circles to form a two dimensional image; and

analyzing a tear defects in ophthalmic lens, the steps including:

identifying the edge of the lens in the unwrapped image of an area around the edge in Fig 25, resulting in image shown in Fig 26;

measuring the length of tear L1 and L2 in the image shown in Fig 26;

evaluating the geometric characteristic of L1 and L2;

wherein each of the plurality of illumination modules is arranged to emit different wavelengths of illumination; and

wherein the plurality of optical detectors or imaging devices are suitably coupled with a plurality of beam splitters and a plurality of optical filters, the beam splitters and optical filters are arranged to guide the different wavelengths of illumination to the respective optical detectors or imaging devices.

7. Process according to Claim 6, wherein said geometric characteristic includes the step of measuring the height of the tear L1 and L2 and a subsequent step of rejecting the lens if the height value exceeds the user set limits.

8. Process according to Claim 6, wherein said geometric characteristic includes the step of measuring the width of the tear L1 and L2 and a subsequent step of rejecting the lens if the width value exceeds the user set limits.

9. Process according to claim 1, further includes the steps for analyzing gap defects in ophthalmic lens, the steps including:

a) identifying the edge of the lens in the unwrapped image in Fig 27, resulting in image shown in Fig 28;

b) locating a gap in the edge profile in the unwrapped image of the lens in Fig 28;

c) measuring the length of gap identified in step b.

10. Process according to Claim 9, wherein said geometric characteristic includes the step of comparing the gap distance with the user set values and a subsequent step of rejecting the lens if the gap value exceeds the user set limits.

11. Process according to claim 1, further includes the steps for analyzing double edge defects in ophthalmic lens, the steps including:

a) identifying the edge of the lens in the unwrapped image of the image in Fig 30 resulting in image shown in Fig 31;

b) locating a white pixel blob in between two black edges in the edge profile of the unwrapped image of the lens edge in Fig 28;

c) measuring the geometric characteristic of the White pixel blob.

12. Process according to Claim 11, wherein said geometric characteristic includes the step of calculating the area of the blob and the subsequent step of rejecting the lens if the blob area value exceeds the user set limits for double edge defective lens.

13. Process according to claim 1, further includes the steps for analyzing non-circular defects in ophthalmic lens, the steps including:

a) Identifying the edge of the lens in the unwrapped image of the image in Fig 33 resulting in image shown in Fig 34;

b) Measuring the geometric characteristic as in the vertical height at different points from the imaginary line of a normal edge lens line with that of the actual line identified in step a.

14. Process according to Claim 13, wherein said geometric characteristic includes the step of comparing the various height values measured at different points and the subsequent step of rejecting the lens if the values of the heights measured exceeds the user set limits for a non-circular defective lens.

15. Process for inspecting an ophthalmic lens, whereby multiple images are acquired by a plurality of optical detectors or imaging devices and subsequently processed and analyzed in the image analyzing equipment by image processing algorithms to detect defects in the ophthalmic lens, the process including the steps of:

extracting an edge from the captured images;

drawing a concentric circle from the edge of the lens pre-programmed offset;

unwrapping the area within the two concentric circles to form a two dimensional image;

analyzing a flipped lens, wherein the step of analyzing the flipped lens includes:

a) defining an area in the image by a small box;

b) binarizing the area in the box by defining a light intensity threshold value to separate dark and white pixels;

c) identifying white pixel groups in the area;

d) evaluating a geometric characteristic of at least one white pixel group.