**CLAIMS:**

1. A substrate position aligner comprising:

a substrate holding assembly configured to hold a substrate in a vertical orientation;

a plurality of rollers comprising at least two idler rollers and a drive roller, each roller having a point on its perimeter spaced on a common radius from a center of substrate rotation defined within the substrate holding assembly;

a rotation mechanism configured to selectively rotate the drive roller; and

a sensor positioned approximately on the common radius and configured to detect presence of an orientation cut in the substrate when the orientation cut is not orientated within a range between about – 44 degrees and about + 44 degrees from horizontal.

2. The substrate position aligner of claim 1, wherein substrate holding assembly comprises a crescent shaped body having a first plate and a second plate configured to hold the substrate therebetween.

3. The substrate position aligner of claim 2, wherein the crescent shaped body is fabricated from ceramic or polyetheretherketone.

4. The substrate position aligner of claim 1, wherein the common radius is about 75mm.

5. The substrate position aligner of claim 1, wherein a radial distance between the idler rollers and the drive roller is between about 59mm to about 65mm.

6. The substrate position aligner of claim 2, wherein a distance between a top of the drive roller and top adjacent edges of the first and second plates defines a tapered lip.

7. The substrate position aligner of claim 6, wherein the tapered lip has a height between about 0.5 mm and about 1.5 mm.

8. The substrate position aligner of claim 1, wherein the rotation mechanism is a motor or an actuator.

9. The substrate position aligner of claim 1, wherein the sensor is configured to detect a presence of the orientation cut in the substrate by using a light projected between the sensor and the orientation cut in the substrate.

10. A substrate position aligner comprising:

a substrate holding assembly configured to hold a substrate in a vertical orientation, wherein the substrate holding assembly has a center of substrate rotation defined within the substrate holding assembly;

at least three idler rollers and a drive roller, wherein each roller has a point on its perimeter spaced on a common radius from the center of substrate rotation;

a rotation mechanism configured to rotate the drive rollers;

a first sensor configured to detect the substrate when located in the substrate holding assembly; and

a second sensor and third sensor each configured to detect a presence of an orientation cut in the substrate when the substrate is adjacent to or in a cut-down orientation.

11. The substrate position aligner of claim 10, wherein the second sensor and third sensor are each configured to detect a presence of the orientation cut in the substrate when the orientation cut is not orientated within a range between about – 44 degrees and about + 44 degrees from horizontal.

12. The substrate position aligner of claim 10, wherein the second and third sensors are spaced substantially equidistant from the center of substrate rotation and

at least one of the second or third sensors is located at angle no greater than about 80 degrees from vertical relative to a center line of the substrate position aligner.

13. The substrate position aligner of claim 11, wherein the drive roller is disposed between the second and third sensors.

14. A method of aligning a substrate having an orientation cut, the method comprising:

placing the substrate on a plurality of rollers, wherein the rollers are distributed such that the substrate is supported on at least two rollers at all times;

sensing a presence of the substrate on the rollers; and

sensing a presence of the orientation cut when the orientation cut is not orientated within a range between about - 44 degrees and about + 44 degrees from horizontal.

15. The method of claim 14, further comprising:

rotating the driver roller until the presence of orientation cut is detected.

16. The method of claim 15, wherein sensing the presence of the orientation cut further comprises sensing a presence of the orientation cut when the orientation cut is not orientated within a range between about - 38 degrees and about + 38 degrees from horizontal.

17. The method of claim 14, wherein sensing the presence of the substrate includes detecting light between the substrate and a first sensor.

18. The method of claim 17, wherein sensing the presence of the orientation cut includes detecting light between the orientation cut and a second sensor.

19. The method of claim 14, further comprising:

activating a hardware fault when the presence of the orientation cut fails to be sensed after a pre-determined amount of time or a pre-determined amount of substrate rotation.

20. The method of claim 14, wherein sensing the presence of the substrate initiates rotation of the substrate.