CLAIMS

1. A method for operating a monitoring system used for manufacturing an extreme ultraviolet lithography mask blank, the method comprising:

a step for providing a substrate on a platform;

a step for scanning the substrate to search for defects;

a step for monitoring a deposition thickness of a material layer;

a step for generating a warning based on a deposition thickness error;

a step for, when a defect has been detected on the substrate, generating a warning and cleaning or replacing the substrate, and when a defect has not been detected on the substrate, depositing the material layer on the substrate and monitoring the material layer to search for defects; and

a step for, when a defect has been detected on the material layer, generating a warning and disposing of the substrate having the material layer, and when a defect is not detected on the material layer, depositing a second material layer on the material layer.

2. The method according to claim 1, wherein the step for monitoring the material layer to search for defects includes a step for continuously scanning while the material layer is being deposited.

3. The method according to claim 1, wherein the step for monitoring the material layer includes a step for scanning at a wavelength of 495 nm to 570 nm.

4. The method according to claim 1, wherein the step for monitoring the material layer includes a step for monitoring a signature of a spectrum of the material layer.

5. The method according to claim 1, wherein the step for monitoring the material layer and the second material layer includes continuous scanning of the material layer and the second material layer.

6. A method for operating a monitoring system for an integrated extreme ultraviolet mask manufacturing system, the method comprising:

a step for providing a substrate on a platform including a rotating electrostatic chuck;

a step for scanning the substrate;

a step for depositing a material layer on the substrate;

a step for monitoring a deposition thickness of the material layer; and

a step for generating a warning based on a deposition thickness error, and when a deposition thickness error has been detected, disposing of the substrate having the material layer; wherein:

the monitoring system can be implemented in-line or in situ with a physical vapor deposition (PVD), atomic layer deposition (ALD), or fluid CVD (FCVD) system or a combination of these.

7. The method according to claim 6, wherein the step for scanning the substrate includes a step for scanning using a light reflecting system, an X-ray system, a laser system, a camera system, or a combination of these.

8. The method according to claim 6, wherein the step for monitoring the deposition thickness includes a step for transporting the substrate to an inspection chamber.

9. The method according to claim 6, wherein the step for monitoring the deposition thickness includes a step for scanning a center position and an edge position.

10. The method according to claim 6, wherein the step for monitoring the deposition thickness includes a step for scanning using a light reflection system.