~~What is claimed is:~~

CLAIMS

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

a step for providing a substrate on a platform;

~~performing~~ a ~~scan of~~step for scanning the substrate~~;~~ to search for defects;

~~depositing a material layer on the substrate;~~

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

a step for generating ~~an alert~~a warning based on ~~an error in the~~ a deposition thickness~~.~~ error;

~~2. The method as claimed in claim 1 wherein monitoring the deposition thickness includes performing a continuous scan during a deposition process.~~

~~3. The method as claimed in claim 1 wherein monitoring the deposition thickness includes scanning with a wavelength of 495 nm to 570 nm.~~

~~4. The method as claimed in claim 1 wherein monitoring the deposition thickness includes monitoring a spectral signature of the material layer.~~

~~5. The method as claimed in claim 1 further comprising:~~

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~~; and~~.

~~wherein:~~

2. The method according to claim 1, wherein the step for monitoring the ~~deposition thickness~~material layer to search for defects includes a ~~continuous scan of the material layer and the second material layer.~~

~~6. A monitoring system comprising:~~

~~a platform for supporting a substrate;~~

~~a deposition system for depositing a material layer on the substrate;~~

~~a sensor assembly~~step for ~~detecting an error in~~continuously scanning while the material layer~~; and~~ is being deposited.

~~a second deposition system for depositing another of the material layer on the substrate.~~

~~7.~~

3. The ~~system as claimed in~~method according to claim ~~6~~1, wherein the ~~platform can include an electrostatic chuck, a rotating chuck, or a combination thereof.~~

~~8. The system as claimed in claim 6 wherein the sensor assembly~~step for monitoring the material layer includes a ~~light reflectance system, an x-ray system, a laser system, a camera system, or a combination thereof.~~step for scanning at a wavelength of 495 nm to 570 nm.

~~9.~~

4. The ~~system as claimed in~~ method according to claim ~~6~~1, wherein the ~~sensor assembly can include~~step for monitoring the material layer includes a ~~source and~~step for monitoring a ~~detector, the source and the detector are orientated in~~ signature of a ~~forty-five degree angle to a layer top surface~~spectrum of the material layer.

~~10.~~

5. The ~~system as claimed in~~method according to claim ~~6 further comprising an inspection chamber for scanning a deposition thickness after deposition~~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.

~~11.~~

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

a step for providing a substrate on a platform~~, the platform includes~~ including a rotating electrostatic chuck;

~~performing a scan of the substrate;~~

~~depositing a material layer on~~ 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 ~~an alert~~a warning based on ~~an~~ a deposition thickness error, and when a deposition thickness error ~~in the deposition thickness or a defect in the substrate.~~

~~12. The method as claimed in claim 11 wherein performing the scan~~has been detected, disposing of the substrate ~~includes performing the scan with a light reflectance system, an x-ray system, a laser system, a camera system, or a combination thereof.~~having the material layer; wherein:

~~13.~~ 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 ~~as claimed in~~ according to claim ~~11~~6, wherein ~~monitoring the deposition thickness includes transferring~~the step for scanning the substrate ~~to~~ includes a step for scanning using a light reflecting system, an ~~inspection chamber~~X-ray system, a laser system, a camera system, or a combination of these.

~~14.~~

8. The method ~~as claimed in~~ according to claim ~~11~~6, wherein the step for monitoring the deposition thickness includes ~~scanning a center location and an edge location~~a step for transporting the substrate to an inspection chamber.

~~15.~~

9. The method ~~as claimed in~~according to claim ~~11~~6, wherein the step for monitoring the deposition thickness includes a step for scanning ~~with a light reflectance system~~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.