CLAIMS

1. A process tool for an electronic device manufacturing system, the process tool comprising:

a transfer chamber;

a process chamber coupled to the transfer chamber; and

a transfer chamber robot comprising:

a plurality of links including one or more first links and one or more second links;

an end effector coupled to the one or more first links; and

a sensor coupled to the one or more second links,

wherein the one or more first links and the end effector are configured to transfer substrates to and from the process chamber along one or more first degrees of freedom;

wherein the one or more second links are configured to position the sensor within the process chamber along one or more second degrees of freedom;

wherein the one or more first degrees of freedom are independent from the one or more second degrees of freedom; and

wherein the sensor is configured to take measurements inside the process chamber.

2. The process tool of claim 1, wherein the sensor comprises at least one of an accelerometer, a distance sensor, a camera, a capacitive sensor, a reflectometer, a pyrometer, a laser-induced fluorescence spectroscope, and fiber optics.

3. The process tool of claim 1, wherein the sensor is coupled to a power-link capable of providing electrical power to the sensor.

4. The process tool of claim 1, wherein the sensor is coupled to a data-link capable of sending the measurements to a user interface or a data storage system.

5. An electronic device manufacturing system, comprising:

a load lock; and

a process tool of any one of claims 1 to 4.

6. A transfer chamber robot suitable for use with a transfer chamber and a process chamber coupled to the transfer chamber, the transfer chamber robot comprising:

a plurality of links including one or more first links and one or more second links;

an end effector coupled to the one or more first links; and

a sensor coupled to the one or more second links,

wherein the one or more first links and the end effector are configured to transfer substrates to and from the process chamber along one or more first degrees of freedom;

wherein the one or more second links are configured to position the sensor within the process chamber along one or more second degrees of freedom;

wherein the one or more first degrees of freedom are independent from the one or more second degrees of freedom; and

wherein the sensor is configured to take measurements inside the process chamber.

7. The transfer chamber robot of claim 6, wherein the sensor comprises at least one of an accelerometer, a distance sensor, a camera, a capacitive sensor, a reflectometer, a pyrometer, a laser-induced fluorescence spectroscope, and fiber optics.

8. The transfer chamber robot of claim 6, wherein the sensor is coupled to a power-link capable of providing electrical power to the sensor.

9. The transfer chamber robot of claim 6, wherein the sensor is coupled to a data-link capable of sending the measurements to a user interface or a data storage system.