

ProtoFlex Corporation

Thin film engineering solutions



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ProtoFlex is a Colorado based C-corporation, founded in July 2001.

FLEX1000- stand alone single chamber Tool



FLEX1000- stand alone single chamber process tool with deposition up to 2'' (1002), 4'' (1004) and 8'' (1008) round wafers. Any single process of PECVD, HWCVD, ICP and Sputtering can be incorporated, vertical upwards / downwards deposition & 400°C substrate temperature standard. State of the art thin film process recipe for various thin films

FLEX2000- stand alone multi-process Tool



FLEX2000- stand alone multi process chamber tool with deposition up to 2" (2002), 4" (2004) and 8" (2008) round wafers. Multiple and co-depositions up to six sources using either sputtering or thermal evaporation , substrate rotation and 400°C substrate temperature standard. State of the art thin film process recipe for various thin films.

FLEX2000- stand alone multi-process Tool



Examples of FLEX2008- Six (6) co-sputtering process zones or six (6) co-thermal process zones for vertical upwards deposition up to 8" round wafers and 800°C substrate temperature.

FLEX3000- multi-process cluster Tool



FLEX3000- Multi process and multi chambers tool, up to eight (8) process zones (Cluster Tool) with a central robotic module with deposition up to 4" (3004) and 8" (3008) round wafers. Processes include PECVD, HWCVD, ICP and Sputtering. State of the art thin film process recipe for various thin films and devices



Example of FLEX3008- Six (6) PECVD process zones with a central robotic module for vertical upwards deposition up to 8" (3008) round wafers and 400°C substrate heating capability

FLEX3000- multi-process cluster Tool



Example of FLEX3004- four (4) PECVD process zones, two (2) multi-source magnetron sputtering zones and a hot wire CVD (HWCVD) zone with a central robotic module for vertical upwards deposition up to 4" (3004) round wafers up to 400°C substrate heating capability

FLEX5000- inline multi-process Tool



FLEX5000- Inline multi process and multi chambers prototyping production tool, with deposition up to 20" square substrates. Processes include PECVD, HWCVD, ICP and Sputtering. State of the art thin film process recipe for various thin films and devices

Example of FLEX5020- four (4) PECVD process zones, one (1) multi-source magnetron sputtering zone, load / unload module, includes vertical upwards and downwards deposition on to 20" square substrates (can take nine 5" pseudo square wafers) up to 400°C substrate heating capability for HIT solar cells application.

FLEX6000- Roll to roll vertical process tool

FLEX6000- Roll to roll vertical process tool, with deposition up to 8" (6008) and 14" (6014) wide rolls. Processes include PECVD, HWCVD and Sputtering with a cold drum or 400°C web heating capability. Web materials include, Plastic, metal, Kapton, etc. State of the art thin film process recipe for various thin films.

Example of FLEX6014- four (4) multi-source magnetron sputtering zones, includes vertical sideways deposition on to 14" wide rolls.



FLEX1200- Substrate load / unload module



LL1200- Multi-purpose substrate handling load / unload module, up to up to 4" (1204) and 8" (1208) round wafers and 12" x 12" (1212) substrate handling & 200°C substrate heating capability

Custom Upgrades

- Variable inter-electrode distance
- Base pressure $< 1 \times 10^{-8}$ Torr
- Substrate temperature 800°C
- Gas manifold with 12 channels
- Substrate rotation
- Substrate biasing
- Load lock with automatic transport
- Load lock with base pressure $< 1 \times 10^{-6}$ Torr