



Introduction

Thin Film System TFS 500 batch type ALD tool is designed for various thin film processing purposes including deposition of oxides, nitrides, metals and other typical ALD materials. Substrate alternatives include wafers and other planar substrates, powders and porous substrates as well as complex 3D substrates. TFS 500 can be equipped with a manual load lock for rapid wafer processing. Variable reaction chambers can be easily fitted inside the vacuum chamber making it possible to optimize the reaction chamber design according to the application.

TFS 500 meets both reliability and batch size demands of industrial production as well as high flexibility requirements of research work. Structure of TFS 500 is robust and modular, and meets CE requirements. The source system includes gas, liquid and hot sources. Hot solid source with maximum temperature of 500°C adds flexibility to precursor selection. The source configuration varies from a minimum of two precursor sources to very extensive, depending on the customer's needs.

Features

Thin Film System - TFS 500

Innovative and Unique Design

- Compact foot-print combined with high usability
- Compact solid precursor source with easy and semi-inert loading
- Ergonomic design with all daily operations above waistline

Flexibility

- Various reaction chambers available – can be changed without any tooling
- Modular construction allows easy change of reaction chamber, sources and tubing
- Easy upgrading and later modifications
- Convenient, small chemical containers and easy container change
- Possibility to use higher deposition pressure for high surface area substrates
- Manual load-lock available for rapid wafer processing
- Cold-wall vacuum chamber design for quick heating and cooling
- Extra vacuum chamber ports for plasma, in-situ monitoring etc
- Clean room compatible and possibility for clean room wall assembly

Safety

- All components inside the tool frame
- All chemicals in ventilated hood
- Over pressure build up in vacuum chamber prevented by design

Easy Maintenance

- Easy access to maintenance objects
- Hinged back flange with heaters on sliding rails for easy on-site cleaning
- Good visibility to all connections due to innovative vacuum chamber design
- All cover sheets and hood window panes easy to open

Technical Specification

- Standard reaction chamber sizes (custom sizes on request)

Single or dual wafer chamber 200 mm (Ø)
 3D chamber 200 x 170 mm (Ø x H)
 3D chamber 450 x 500 mm (Ø x L)

- Precursor sources, max

3 gas (incl. ozone)
 4 liquid
 2 hot
 (hot solid source max 500°C/hot liquid source max 200°C)

- Deposition temperature, max
- Deposition pressure
- Main dimensions
- Weight
- Connection power
- Control system

500°C
 Typically 5 mbar (optionally up to 1000 mbar)
 1600 x 900 x 1930 mm (L x W x H)
 700 kg
 10 kW
 PLC control with PC user interface and data logging

Options

- Vacuum pumps according to application
- Manual load lock

- Nitrogen generator
- Ozone generator



TFS 500 with a Single wafer reaction chamber



TFS 500 with a 3D reaction chamber