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***'21<sup>st</sup> Century'***  
**Thin Film Processing**



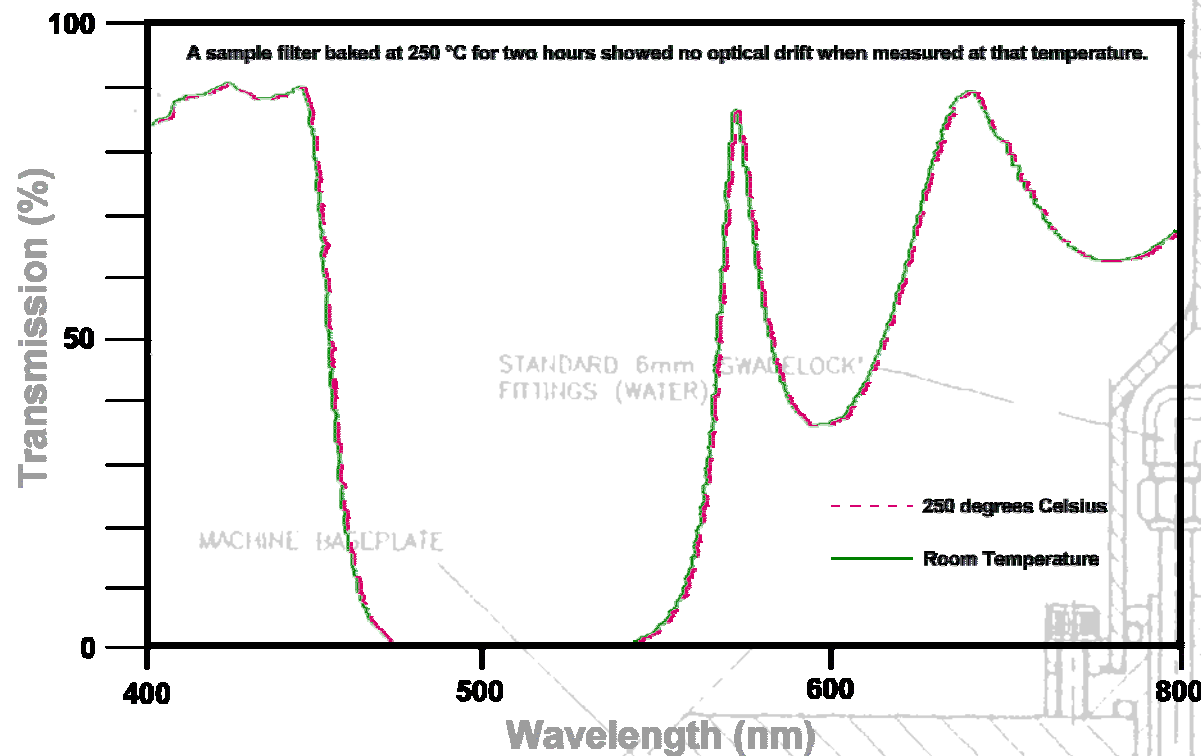
Thin Film Solutions now offers a compact retrofittable high-energy plasma source for use in conjunction with thermal or electron-beam evaporation.

The patented Plasma Deposition Source - **PDS**, is capable of modifying the growing thin film's microstructure to produce dense, near stoichiometric coatings that are impervious to temperature and humidity variations. The refractive indices achieved are near those of bulk materials.



### PDS - Features

- 'Cold' processing, eliminates need for substrate baking
- Dense, near stoichiometric thin films produced
- Extremely rugged and environmentally stable films produced
- Films are impervious to humidity and moisture ingress
- High refractive index enables multi-layer design flexibility
- Plastics and temperature sensitive substrates can be coated
- Refractive indices close to bulk material values
- Spectral properties stable up to 250°C
- Cleaning by energetic 'neutral' ions prior to coating ensures a contamination-free substrate



### PDS - Applications in Precision Optical Filters

- Higher refractive indices aid thin film design.
- Stable material refractive index makes complex designs repeatable.
- Cold process: can be used for temperature sensitive substrates.
- Spectral performance constant over wide temperature range.
- Coatings insensitive to humidity variations.
- Coatings extremely rugged and durable.

Unlike ion-assisted processes, **PDS** enables film densification at higher deposition rates and reduced process temperatures with coverage over the entire workholder. Controllable plasma neutralisation over extended areas provides exceptional reproducibility in film optical properties.

**PDS** is a flexible and powerful system ideal for retrofitting into existing coating systems or installing in new equipment.



### PDS - Advantages

- Automatic feedback from heater power to control plasma characteristics
- Compact low-profile design
- Water-cooling allows use with temperature sensitive substrates
- Inductive heating of cathode (electron emitter) providing independent control of plasma neutralisation
- Long lifetime of cathode, ceramics and anodes mean low running costs
- Modifiable plasma distribution profile to match plant configuration
- High conversion efficiency: plasma energy closely related to bias voltage
- Retrofittable
- Flexible

70 CTRS      70 CTRS