

# Total Vacuum Solutions

*for Solar and Thin Film Technologies*



## **Vacuum products:**

- Roots and screw design dry vacuum pumps with lowest CoO.
- Magnetically levitated turbo molecular pumps.

**Abatement systems** for an efficient treatment of waste gases:

- Burner washers
- Wet scrubbers
- Dynamic oxidation systems

**Equipment monitoring systems** for highest performance and reliability of EBARA products.

**Project planning**, system engineering, installation, maintenance, consulting, training.

**EBARA** provides high quality vacuum + abatement products and services for semiconductor, solar and thin film technologies



# EBARA Dry Vacuum Pumps Technology

for the PV Industry



EBARA's dry vacuum pumps are designed for all applications such as physical vapour deposition (PVD), chemical vapour deposition (CVD), low pressure chemical vapour deposition (LPCVD), plasma enhanced chemical vapour deposition (PECVD) and metal etch, among them the harshest known in the industry.



EBARA offers **Different vacuum pump types** optimised for the use in various applications

- robust, compact
- economical in use
- dual-voltage capability
- harsh processes
- H<sub>2</sub> rich processes

**Multi-stage roots type models** for H<sub>2</sub> rich thin film processes in the pumping speed range from 150 m<sup>3</sup>/h to 3,000 m<sup>3</sup>/h

- ESA25-D
- ESA70W-D
- ESA70W-D plus booster
- ESR300WN
- ESR500WN

**Screw type models** for harsh Silane-like depositions in crystalline PV applications with pumping speeds from 600 m<sup>3</sup>/h to 3,000 m<sup>3</sup>/h

- EST100WN
- EST300WN
- EST500WN

# EBARA Environmental Technology

*Solar and Thin Film Technologies*



EBARA offers a broad range of point-of-use **Waste gas abatement systems** for an efficient treatment of waste gases for Si, Si<sub>3</sub>N<sub>4</sub> and CIGSSe technologies:

- **Burner washers** EBARA GDC 250 and G5 – using thermal decomposition by combustion.
- **Wet scrubbers** Airgard Cyclone and Airgard Metal Etch – highly efficient systems for the abatement of water soluble gases.
- **Dynamic air oxidation systems** S.DOC and E.DOC from Pure Air Systems (PAS) – operating without burning gas and oxygen.

EBARA offers **Complete environmental solutions** including wastewater treatment.



PV thin film manufacturing generates hazardous solid by-products and waste gases. These processes produce toxic, reactive, ignitable or corrosive gases. With the ever increasing stringency of environmental regulations hazardous gases need to be treated before being released onto the atmosphere or water systems.



# Global Support Network

## Our Services

EBARA Precision Machinery Europe's reputation is based on proximity to the customer, fast responsiveness, complete service coverage and its full commitment to quality and customer satisfaction. Product reliability and robustness is also a key to our success and reputation.

### The service offering includes:

Installations  
Overhaul service  
Preventive maintenance  
Project planning and system engineering  
Training  
7 days a week, 24 hours service contracts  
24 hours on call service

The largest companies in the industry rely on EBARA's superior service coverage by sub-contracting installation, spare part exchange, full time preventive and corrective maintenance and data evaluation to our local service offices.

In Europe – our overhaul centre in Livingston/Scotland with a capacity of 800 pumps a year is fully equipped with the most advanced facilities and tools to provide fast failure analysis, decontamination and repair of dry, turbomolecular and cryo pumps.



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