



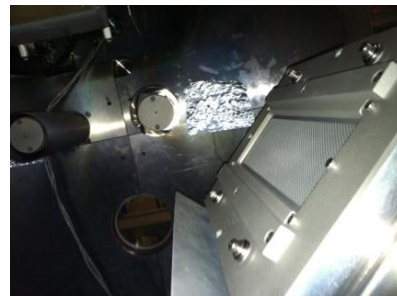
PVD Products CC Deposition Systems



IBAD/Homo-Epi ebeam Evaporation R2R Deposition System.

PVD Products provides a wide variety of field proven reel-to-reel deposition tools for production length coated-conductor applications. These include PLD, IBAD evaporation, IBAD sputtering, and DC/RF and reactive DC sputter deposition for a wide variety of material systems. PVD Products can also provide Solution Dip Planarization equipment. PVD Products has been delivering reel-to-reel solutions for CC applications for 10 years with multiple repeat customers all around the world. Our systems can be built for single pass or multi-pass applications for tapes from 1 to 10 cm in width. Our tape transport systems include in-situ

closed-loop tension measurement and control along with speed measurement and control. Tape velocity can vary from 1 to 300 m/hour depending on the requirement. We can provide contact or non-contact substrate heaters along with in-situ scanning RHEED diagnostics of epitaxial film growth.



PLD Systems



PLD Reel-to-Reel Deposition System for 1 km of Tape

PVD Products has fielded multiple PLD reel-to-reel systems and is currently designing its 2nd generation machine. These systems have been used for the deposition of REBCO materials as well as buffer layers such as CeO₂. Our systems utilize a unique XYθ target manipulator which keeps the laser beam perpendicular to the target for extended periods of time. We also provide a unique Intelligent Window to keep the optical path clean for extended depositions. Our multi-zone heater is capable of heating tape in contact mode to 850°C at speeds up to 100 m/hour. Systems come complete with our tape transport system, variable target-to-substrate distance, full computer control, data logging, and Coherent production lasers.

Multi path systems for 1 or 1.2 cm wide tape are readily available with multi plume capability as seen below.



Multiple Ablation Plumes of YBCO



IBAD Systems



IBAD Sputter R2R Deposition System with Scanning RHEED

PVD Products has fielded multiple reel-to-reel sputter IBAD systems. These systems have been used for the deposition of highly oriented films of MgO on Hasteloy or SS tapes from 1 cm to 10 cm in width. We utilize Veeco linear ion sources 6 x 22 or 6 x 66 cm in length. We can provide Multi Path systems for narrow tapes. Our systems use a Staib scanning RHEED system to interrogate each lane of tape in succession very quickly during the growth process. The systems make use of our field proven tape transport

system and complete computer control and data logging.



Internal View of IBAD System.



Sputter Systems



Magnetron Reel-to-Reel Sputter Deposition System for 1 km of Tape

PVD Products has fielded multiple reel-to-reel sputter systems for tapes up to 1 km in length. These systems have been used for the deposition of a wide variety of buffer layers and silver. We can provide systems with single or multiple sputter sources 12" x 4" in size with RF/DC and reactive sputter capabilities. Our multi-zone heater is capable of heating tape in contact mode to 850°C at speeds up to 100 m/hour. We can also provide a water cooled stage for deposition of Ag onto tape. These systems both allow variable target-to-substrate distances. Systems come complete with our tape transport system and full computer control and data logging. Multi path systems for 1 or 1.2 cm wide tape are readily available for increased throughput.



Linear Magnetron with Metal Target and gas injection ring