

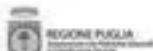
MRS is a start-up company born in March 2011 thanks to the funding provided by Apulia Region (Principi Attivi Award).

Our mission is the design of system for industrial purposes, with the aim to improve process efficiency and recover waste materials.

Every task is performed internally and within an interdisciplinary approach: the team takes care of all the details from mechanical to electronics design.



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>> Material Recovery Systems

? Problem

The thin-film deposition is used to give a bulk material particular surface properties by the deposition of an additional layer of a different material (source).

One of the most used techniques is the Physical Vapour Deposition (PVD) that has high percentages of waste material (up to 90%) and difficult / dangerous maintenance procedures. Besides, the wastes have a high value because the source material is often a precious metal like gold or platinum.

! Solution

Our solution is an electro-mechanical system able to recover high percentages of wasted materials in deposition facilities. This system must be installed inside the vacuum chamber and it is composed by metallic blades, covered with a polymeric layer.

The blades, able to rotate, permit the selection among materials already during the process. At the end of their lifetime, the blades are replaced and the material is recovered through an etching process.

😊 Results

The advantages of our proprietary solution are:

- * Easy separation and recovery of 70% of a selected materials used in the process. The system was tested in a standard deposition involving 300 nm film of gold and it was able to recover 1.2 g of it.
- * Reduction of downtimes due to maintenance. In fact, replacing the blades needs approximately only 1/10 of the time actually required.
- * Reduction of risks for the operators during maintenance.
- * Longer facility's lifetime.

