Dendritic Identifiers: Revolutionizing Equipment Repair and Reuse

DENSEC ID

Problem Statement

Industrial equipment repair faces several challenges that lead to inefficiencies, increased costs, and environmental impacts

- Lack of accurate part tracking leads to inefficient repairs.

- Technician shortages increase downtime and repair costs.

- Incomplete visibility into part lifecycles reduces efficiency.

- High levels of waste due to lack of reuse and refurbishment options

Innovation Synopsis

This is just a **stamping** process.

Dispense ⟹ Compress ⟹ Separate

- Unique and robust *physical identifiers* applied to parts at crirtical points in the supply chain to securely link objects to their digital presence

- Can be read during fabrication, maintenance, and recycling to provide item-specific information and guidance.
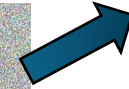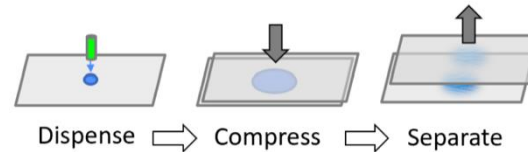
Description of Technology

Dendritic Identifiers are universal digital triggers which link the real world to secure databases.

This is a novel low-cost way to give each item in the supply chain its own unique and secure fingerprint

- Applied directly to parts via a simple stamping process
- Readily available bulk materials to automatically yield a unique pattern every time
- Robustness helps guarantee readability
- Cellphone & machine readable using a proprietary algorithm to prevent unauthorized access
- Can be used from cradle to grave

Specific Benefits for Manufacturing ReX supply chains

Replaces inadequate printed codes, serial numbers, and limited use RFID tags at a cost that is approximately the same as printed labels with higher performance

- Higher manufacturing efficiency
- Faster repairs with real-time access to data
- Extended equipment lifecycles through better maintenance
- Integration with AR/VR for real-time repair guidance.
- Supports sustainability and circular economy principles
- More supply chain/inventory transparency
- Better quality control
- Increased personalization of parts and processes
- Less waste throughout the asset lifecycle