

Track repair using DED laser powder

Technological Description

DED laser powder technology uses a directed energy disposition process via laser that melts down a material in powdered form while at the same time being deposited directly on the surface that needs to be repaired.

Application

“DED utilizes a high-powered laser to melt metal wire powder, depositing it layer by layer onto the damaged track area. This enables:

- **Localized repairs:** Material is applied only where required, minimizing waste and reducing repair time.
- **High-quality materials:** Specific metal alloys are used to ensure durable repairs that can withstand harsh railway conditions.
- **Complex geometries:** DED can create intricate 3D shapes, accommodating various damage types and sizes.
- **High levels of automation:** Processes are highly automated, ensuring precision and efficiency.”

Technical specifications

Welding electrode material in powdered form, OK7575.

Benefits

1. Process automation.
2. Greater accuracy and control.
3. Reduction in repair time.
4. Less environmental impact.
5. Greater durability in terms of repairs.
6. Versatility in terms of choice of materials.
7. Reduction in costs.
8. Greater safety: minimises workers' exposure during repairs.

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Knowledge driving the Railway Industry

Ceit, as a leading technology center, offers innovative and tailored solutions for the railway industry, leveraging the capabilities of additive manufacturing (AM). Our extensive expertise across the AM value chain enables us to address the specific challenges of the railway sector. From optimizing materials (metal powders) and developing AM processes tailored for railway components to mechanical and micro-structural characterization and non-destructive testing.