

Cold Spray for Defense Applications

Copper rotating bands for
large caliber projectiles



Missile components



Warhead components



Dimensional and structural
vehicle repair (air, land, water)



Additional applications



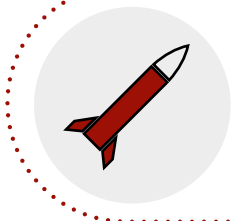
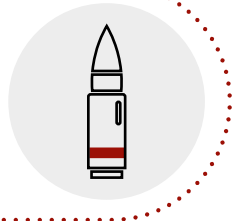
Pushing Production Boundaries

Cold Spray is a Revolutionary Technology for High-Performance Metal Coatings and Additive Manufacturing – A Solid-State Process without Melting Materials.

Cold Spray for Defense Applications

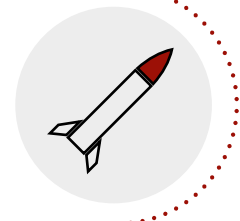
Copper rotating bands for large caliber projectiles

- No firing disruption due to perfect fit to the projectile
- High flexibility for different projectile types with minimal set-up effort
- Easy to scale due to fully automated production process



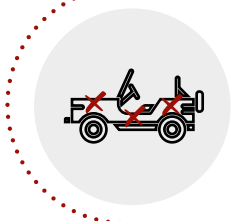
Missile components

- Efficient lightweight propulsion components with multi-material designs
- Wear resistant refractory propulsion components at low buy-to-fly ratio
- Flexible production of lightweight components (fuel tanks, rocket bodies)



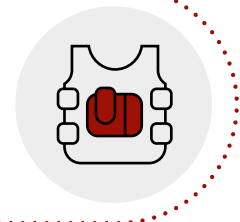
Warhead components

- Brittle consolidation of reactive materials for controlled explosions
- Adjustable mechanical properties of warhead structural components
- Non-alloyable multi-material consolidation for fragmentation warheads



Dimensional and structural repair (air, land, water)

- On-site repair without disassembling to reduce downtime and costs
- Repair and restoring of non-weldable materials (Aluminum parts, tank wheels)
- Restoring of damaged components without heat-affectation of parts



Additional applications

- Armors with unique properties
- Protective and functional coatings for harsh and corrosive environments
- Large-scale additive manufacturing of lightweight components

Impact Innovations EvoCSII Systems Hard Facts

Process gas temperature at heating elements
up to 1850 °C / 3362 °F

Inlet pressure at the control unit max. 100 bar / 1450 psi

Process gas temperature at nozzle entrance
up to 1100 °C / 2012 °F

Process gas pressure at nozzle entrance
up to 60 bar / 870 psi

Top particle velocity >1000 m/s with process gas nitrogen

Lightweight spray gun with
integrated heater < 30 kg / 66 lb

Continuous control of more than 150 process
parameter and system data

Ready for 24/7 operations

High deposition rate of up to 60 kg/h / 132 lb/h

High deposition efficiency up to 99,8%



impact

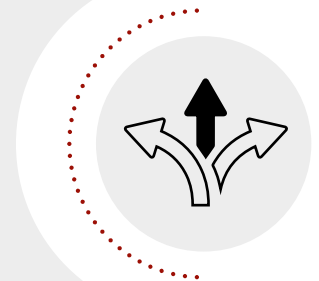
Pioneering Technology & Tailored Solutions

Impact Innovations is the **Global Technology Leader** for industrial Cold Spray equipment – Your Solution Partner from **Application Development to Industrialization**.

Why Impact?

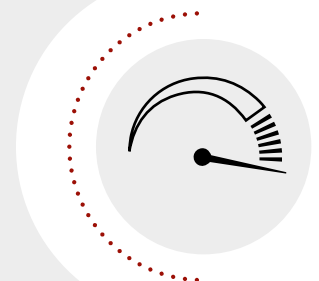
Flexible system solutions from R&D to industrial scale manufacturing

- Material flexibility with widest range of metals and alloys
- From thin coatings to additive manufacturing of large components
- From individual repairs to scalable 24/7 mass production
- Modular plug-&-play hardware for tailor-made solutions



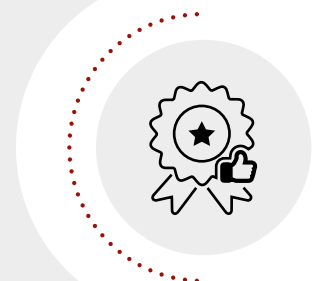
Best performing metal coatings and structures

- No phase transformation and oxidation due to a solid-state process
- Outstanding and adjustable material properties
- Unique material combinations to maximize component performance
- Assured and repeatable quality from prototypes to high volumes



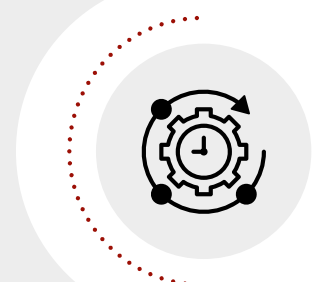
Top quality Made in Germany

- Robust cold spray hardware developed for industrial use
- Continuous online process monitoring and quality control
- Maintenance and user-friendly equipment design
- Future-proof system architecture for digital manufacturing



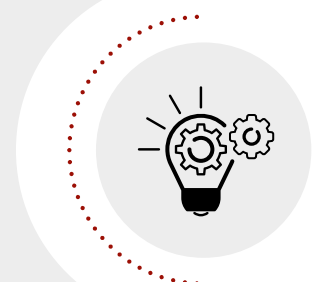
High resource-efficiency for sustainable production

- Fast spray process with up to 99,8% deposition
- Short cycle time due to high spray rates up to 60 kg/h / 132 lb/h
- Low Total Cost of Ownership (TCO)
- Green process with zero emissions



Innovation partner from idea to industrial success

- Application development experts pushing the technological boundaries
- Solution partner for application specific engineering and industrialization
- On-site and online customer support and service
- Groundbreaking results enabled by pioneering hardware



impact



Excited?

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