Cold Gas Spraying

What is Cold Gas Spraying?

Cold gas spraying is a thermal spray process we utilize at Wulf Johannsen to restore and repair components made of cast iron, aluminum, steel, and bronze—quickly, effectively, and cost-efficiently.

What are the typical applications of cold spray technology?

This process is ideally suited for the repair of wear and damage on metallic components, such as Bearing seats, on engine crankcases, cylinder liner fits, on engine blocks or other sealing surfaces.

What is the functional principle behind cold spray coating?

The process is based on the acceleration of metal powder particles by a carrier gas heated to approximately 150–400 °C. The powder is propelled onto the surface at supersonic velocity, where the particles plastically deform upon impact and form a solid metallic coating. This newly formed layer can then be machined using conventional processes such as turning, grinding, and drilling.

What are the advantages of the cold spray coating process?

- No minimum layer thickness required
- Direct application possible after prior blasting
- Coating can be interrupted by the base material (selective coating)
- Tapering to zero coating thickness is achievable

Additional benefits of the cold spray process:

- Cold gas spraying enables the cost-effective restoration of high-value parts. For example, repairing an engine block may cost only €4,000, compared to €40,000 for a full replacement.
- Minimal or no mechanical pre-machining required
- Very little thermal distortion of the component during processing
- No changes to the microstructure of the base material
- High coating density with low porosity for excellent sealing performance
- Mobile and on-site application possible

For components that are less sensitive to heat, we provide wire flame spraying as an alternative surface treatment method. Feel free to contact us for more information or individual consultation!









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Also, check out our video on cold gas spraying.



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