

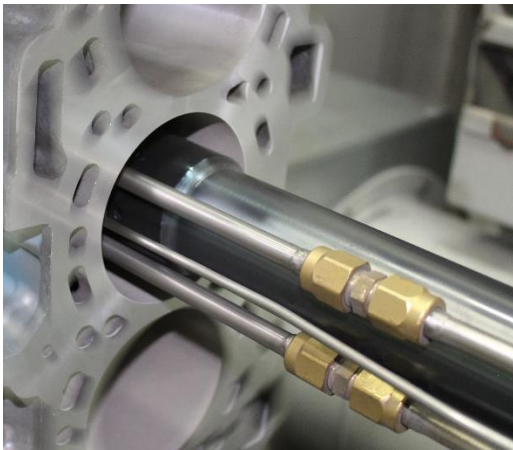
# Cold Spray as a cylinder bore coating process for automotive application

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- Cold Spray coating inside cylinder
- Coating and powder metallurgy study
- Tribology properties (friction reduction and wear resistance)

## **Abstract:**

Cold gas dynamic spray, namely cold spray, is one of the most innovative thermal spray processes. The number of industrial applications for cold spray has been growing dramatically over the past 10 years. However, some parts remain rather far from application for the process due to specific characteristics. Among them, one may mention the automotive cylinder bore for which an inner coating can be required as a substitute for a liner. A practical objective of the thesis work is to develop cold spray successfully for that from the use of an ID (inner diameter) spraying gun, which has just come out. The scientific objective is to go into basic changes in the coating build-up process due to processing in a confined medium (i.e. in the cylinder bore). The study will show the various following stages:

- Study powder composition and characteristics for cold spray
- In-flight particle velocity measurements
- Numerical simulation of particle impact and modeling of coating build-up
- Microstructural study and testing of the coatings
- Tribology testing for friction and wear behaviors