A method for refurbishing and optimising surface properties

Thermal Spraying

Thermal Spraying in brief

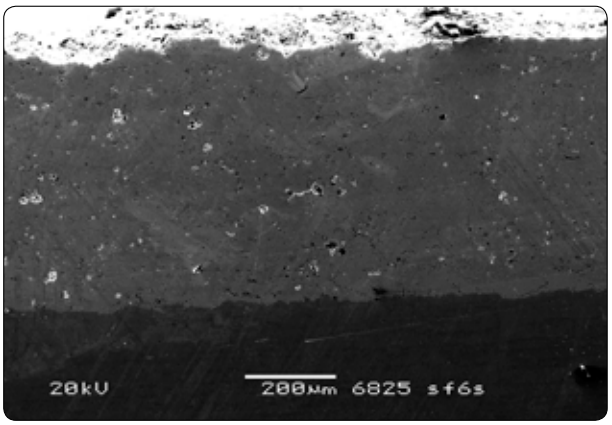
FORCE Technology's thermal spraying processes enable the modification of specific surface properties, such as wear- or corrosion resistance, thermal barriers or conductive properties. This is done with precision and accurate control of layer thickness.

The spraying process does not induce material changes in the workpiece, as the substrate temperature does not exceed 150°C.

Thermal spraying can be used on various base materials, amongst others metals and polymers. The process can be applied to both new and wear damaged workpieces, and typically requires no or limited subsequent treatment. The surface properties can be tailored to the specific needs for an application, e.g. for enhancing the wear resistance of the component.

Thermal spraying can reduce the cost of replacement and/or redesign of critical industrial components, as the process permits local improvements to the surface.

As a supplement to thermal spraying, FORCE Technology also provides post laser treatment such as LASER Fusing of thermal sprayed coatings.



Cross section of thermal sprayed Stellite 6:
Low porosity, no heat affected zone, minimal post treatment needed if necessary

Repair by thermal spraying of large and costly application on-site

Application examples

- Repair and refurbishing of scratched, dented or worn surfaces of large and/or costly parts, e.g. shafts, bearing houses etc.
- Protection against wear of critical areas by local application of hard and wear-resistant layers, e.g. devices in food processing, sleeves etc.
- Corrosion-resistant surface coatings on materials with other desirable properties, such as strength and heat conduction, e.g. vessels, tubes, heat exchangers etc.
- Thermal barriers coatings for protection of material exposed to heat, for instance a component in a combustion chamber
- Di-electric coatings, for protection of an electrical device, PCBs etc.

Features

- Limited heat input eliminates heat induced deformations
- Layer thickness up to several mm
- Build-up of sandwich layers possible
- Customized chemical composition of individual layers
- Smooth surface finish requires only limited post-processing
- Object size up to app. 2,000 kg
- Applicable surface areas less than 1 cm^2 to unlimited m^2.

We offer

- Job-shop manufacturing at FORCE Technology's state-of-the-art thermal spraying facility
- On-site repair
- Repair or optimisation of single components
- An array of alternative thermal spraying processes including plasma spraying, flame spraying and arc spraying
- High volume production possible
- Thorough testing of thermal sprayed parts
- Advice with regard to selection of applicable surface material
- Design and consultancy related to implementation of a thermal spraying production line
- 25+ years of experience in thermal spraying, laser treatment of metals and alloys, welding and testing.

Contact

Please do not hesitate to contact FORCE Technology for a non-binding discussion of your application.

Further information
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