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# **Reconditioning of components with Thermal Spray Coatings**

The application of Thermal Spray coatings by South Africa's leading surface coating specialists, Thermaspray, can lead to an enhancement in performance and an extension of service life of expensive engineering parts and industrial components, leading to substantial reductions in downtime and production costs.

Engineering components and parts in production processes are subject to degradation through wear, corrosion, oxidation and cavitation. Thermaspray, Managing Director, Dr. Jan Lourens, points out that as all these degradation processes are active on the surface of components, a suitably selected and correctly applied surface coating like Thermal Spray can effectively re-condition production equipment to 'as new'. "In fact", adds Dr. Lourens, "very often, through degradation analyses and the selection of a superior coating, a thermal spray coating makes it possible to provide virtually as good as new a component. Most importantly for the end user, this means substantial cost savings through improved performance, extended uptime and increased production levels."

Thermaspray is a market leader in coating solutions in terms of equipment, skill set and expertise and offers a full range of thermal spray coating solution services to customers in the chemical and petrochemical, printing and packaging, paper and pulp, textile, steel and minerals and minerals processing industries.

"Thermal Spraying is a group of coating processes in which finely divided metallic or non-metallic feed materials are melted or heated and then sprayed on to a surface to form a protective coating," explains Dr. Lourens. Feed material which can be in the form of a powder, a ceramic rod, wire or molten material, and can be generally classified as pure metals, metal alloys, ceramics, ceramic metal composites or carbide coatings. As virtually any material that can be produced in wire or powder form can be processed into a coating, literally thousands of possible coating materials are available.

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In addition, the same material can be applied as a coating using different coating processes to produce coatings with unique functional properties such as for example, low or high coefficients of friction, electrical or thermal insulation and non-stick properties.

Dr. Lourens advises that great care must be taken in material and process selection to ensure that the desired functional properties are achieved with a coating. The coating processes at Thermaspray include High-Velocity Oxy-Fuel (HVOF), High-Pressure High Velocity Oxy-Fuel (HP-HVOF), plasma, electric arc, combustion wire and flame spraying. All processes are applied using 6-axis robotic gun manipulation to ensure accurate process control and repeatability and all work is performed in accordance with Thermaspray's DQS ISO 9001:2008 certified Quality Management Systems.

Thermaspray is the only private sector company to have a complete in-house metallurgical laboratory and the only company in South Africa to be wholly compliant with the emission requirements of the Department of Environmental Affairs' Clean Air Act of 2010. Thermaspray has crane facilities and part manipulators to handle a wide variety of different component sizes and geometries and offers a complete range of supporting finishing technologies, including machining, grinding (traditional and diamond), finishing and super finishing services.

Thermaspray, in a joint venture with Surcotec, offers an extensive portfolio of engineering and thermal spray coating solutions that extend component life cycles to assist OEM and end-user clients across southern Africa in reducing costs and increasing production. Based in Gauteng and the Western Cape respectively, Thermaspray and Surcotec's world-class quality wear- and corrosion-resistant thermal spray coatings, Plasma Transferred Arc (PTA) cladding and Polymer coatings (in partnership with Plasma Coatings USA and Diamant Metalplastic Germany) are augmented by a host of specialised allied services. These include coating finishing technologies such as machining, grinding, diamond grinding, probe track burnishing, electrical run out measurements/reporting, linishing, and super finishing. / Ends

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## Caption to photos

- The application of Thermal Spray coatings from Thermaspray can lead to enhancement in performance and extension of service life of industrial components
- 2. Thermal spray technology is a powerful tool for improving wear and corrosion resistance of critical surfaces in components and equipment
- 3. Thermaspray offers a comprehensive range of thermal spray coating solutions, support capabilities and specialty services such as Probe Track Burnishing and Electrical runout measurement as shown in figure

### **About Thermaspray**

Thermaspray, headquartered in Olifantsfontein, Johannesburg, has close to 20 years' experience in wear- and corrosion-resistant thermal spray coatings. In addition to providing a comprehensive range of support coating finishing technologies in the bespoke finishing shop, Thermaspray also refurbishes industrial components damaged by wear and corrosion. The company's in-house, metallurgical laboratory is the only dedicated facility of its kind in Africa's thermal spray industry and is equipped to undertake world-class developments and quality control. Thermaspray is a DQS ISO 9001 Quality Management and Eskom level 1 certified company.

#### **About Surcotec**

Surcotec is the oldest established thermal spray coating company in the Western Cape. The company has a wealth of experience in thermal spray coatings and mechanical component refurbishing. Surcotec's coating services are supported by a fully equipped engineering workshop and an on-site machining division. A level 1 B-BBEE company, Surcotec is TNV ISO 9001 Quality Management certified and is certified as a level 2 nuclear supplier to Eskom.

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