thermal spraying

aalberts surface technologies

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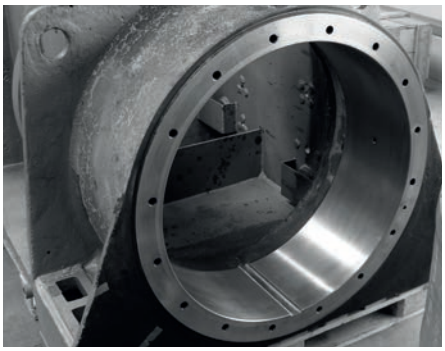
In thermal spraying, a coating material in the form of wire or powder is melted or fused and accelerated onto the component to be coated. Before coating takes place, the surface is cleaned and roughened by blasting with corundum. The roughness of the surface enables mechanical bonding of the spray particles and ensures the adhesion of the coating.

Depending on the type of coating and the application, the usual coating thicknesses for thermal spraying are between one tenth and several mm.

The coatings are suitable both for the protection and functionality of new parts as well as the repair of worn components.

With molybdenum coated bearing seats of a drive shaft to prevent adhesive and abrasive wear.



Repairing the bearing bore of a pillow block bearing by flame spraying with chrome-nickel steel.

Wear protection of screw conveyors by flame spraying and smelting of a nickel hard alloy.

thermal spraying	process details
Coating materials	Coating materials in thermal spraying are metals, alloys, hard metals or ceramics. Thermal spraying is superior to many other coating processes due to the large selection of materials for the targeted adjustment of functional properties. Common coating materials are: • metals and alloys: aluminum, copper and nickel alloys, molybdenum, bronze, white metal, chromium and chromium-nickel steels; nickel and cobalt-based hard alloys • hard metals: tungsten and chromium carbide in metal matrix of nickel, cobalt or chromium • oxide ceramics: oxides of aluminum, chrome, titanium and zirconium
Process	Thermal spraying processes differ in the form of the spray material and in the type of thermal and kinetic energy used to melt and accelerate the spray particles. The coating properties, such as wear and corrosion resistance, hardness or adhesion, are determined not only by the coating material but also by the spraying process. The processes we employ are: • powder and wire flame spraying • flame spraying and melting • high velocity flame spraying • plasma spraying • arc spraying
Applications	Thermal spray applications include wear and corrosion protection, electrical and thermal insulation or conductivity, and the generation of certain friction and anti-friction properties. Examples are: • plain bearing and sealing seats of turbine and compressor rotors • bearing and coupling seats of drive shafts • piston rods and cylinder running surfaces of compressors • bearing bores of pedestal bearings, gear housings or gear wheels • erosion and corrosion protection of turbomachinery components • fan blades and conveyor elements
Service	Our services in connection with coating: • pre-machining and finishing of coated components • complete preparation of components • restoration of geometry and function of damaged components • quality assurance coating and component testing • technical advice on coating selection and design • application-oriented coating development