

THERMAL SPRAY COATINGS

Purpose

Thermal spraying techniques are coating processes in which melted or heated materials are sprayed onto a surface. The "feedstock" (powder, wires, suspension) is heated by electrical (plasma or arc) or chemical means (combustion flame) and projected at high speed. Thermal spraying can provide thick coatings (approx. thickness range is 20 microns to several mm, depending on the process and feedstock), over a large area at high deposition rate.

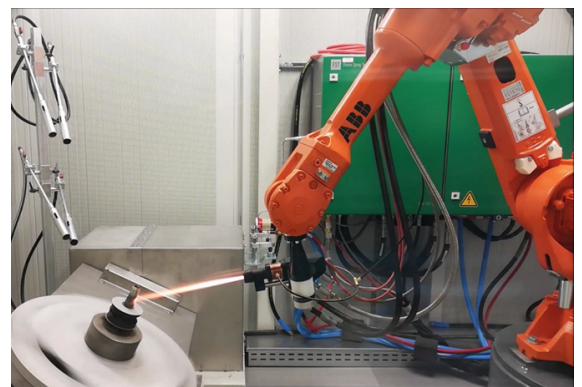


CRM Group is equipped with a 6-axis robotized thermal spray system on which different coating technologies can be adapted depending on the type of coating materials that is needed. Several technologies are available: High Velocity Oxy Fuel (HVOF), atmospheric plasma spray (APS), suspension plasma spray (SPS) and arc wire spray.

Components to be coated are mounted on a turning and tilting table that can accept parts up to 1000 kg and with a maximum size of about 1 m³. Various material chemistry can be processed as for example ceramics, metals and alloys, polymers and theirs combinations.

Results

The thermal spraying is widely used for corrosion protection (Zn, Zn Al, Al), anti-wear protection (WC-Co-Cr, Cr₂C₃/NiCr, SiC, B₄C, Mo/Mo₂C, Cr₂O₃, etc), thermal protection (ZrO₂/Y₂O₃, CoNiCrAlY, Ni-based alloys), electrical insulation (Al₂O₃, Spinel, etc), electrical conductivity (Cu, Al, Zn), etc. Robust functional and structural coatings can be printed by thermal spray using masking. For example, temperature sensors for harsh environment (1000 °C) have been produced and tested.



Technical data

- 6+2 axes robot ABB
- HVOF eGUN™ torch (FST)
- Plasma SG100 torch (Praxair)
- Cascade plasma cGun™ torch (FST)
- Twin arc wire torch (SMS Group)
- 2 powder feeders, 2 wire feeders
- 1 suspension feeder
- Capability: 1m³, 1000 kg

Sample

Flat surfaces up to 1m²,
3D complex shapes
objects, tubes, etc