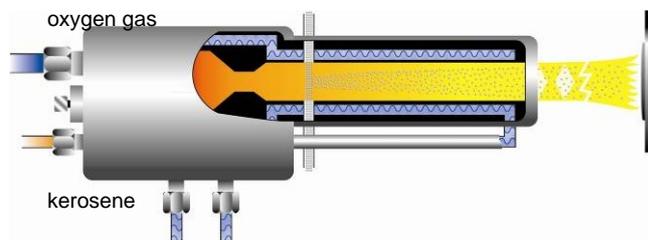


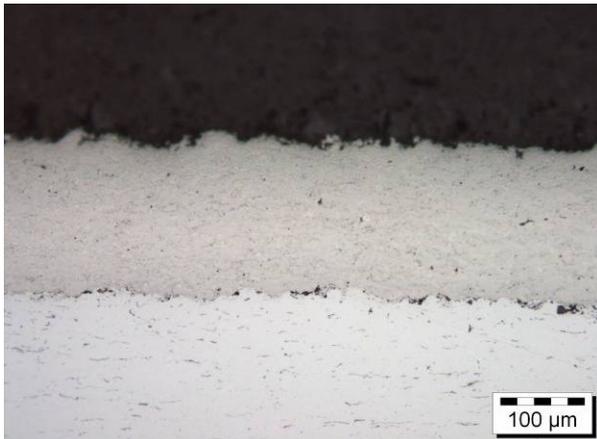
PST – JetPlate™

The Technology

Praxair JetPlate™ coating technology is based on a kerosene-oxygen mixture that is burned continuously in a reaction chamber. After the combustion gases have expanded, they are accelerated in a Laval nozzle to supersonic speed. Immediately after the Laval nozzle, the coating material is injected into the gas jet in powder form. When the particles leave the acceleration tube, they reach speeds of about 500 to 700 m/sec. Owing to the high particle speeds, dense and adherent coatings can be produced without the full melting of the coating material. Compared to standard flame spraying, particle retention time in the flame is limited, thus significantly reducing detrimental effects such as oxidation. JetPlate™ coating technology is particularly suitable for the manufacturing of carbidic anti abrasion coatings. The coating distance is about 350 to 400 mm. The coating process itself is done at an angle of at least 40 degrees although best coating properties are achieved with the angle of deposition is close to 90 degrees to surface.



PST - JetPlate



WC-CoCr on unalloyed steel



CrC-NiCr on unalloyed steel

JetPlate™ Characteristic Features:

- Continuous combustion

- Kerosene used as fuel
- Supersonic gas jet
- Only partial incipient melting of the coating material
- $T < 2000\text{ }^{\circ}\text{C}$, $v_{\text{Particles}} 500 - 700\text{ m/s}$
- Suitable for composite materials containing carbides and a metallic matrix

JetPlate™ Process Advantages:

- Comparatively low thermal stress of the spray coating material, thus:
 - Less oxidation
 - Prevention of heat-induced residual tensile stress
 - Prevention of uncontrolled phase transformations
- Very good adhesive strength with a substrate hardness of up to 55 HRC
- High spray rate of up to 6 kg/h

JetPlate™ Coatings:

- Porosity $< 0,5 - 1\%$
- Adhesive strength $> 70\text{ MPa}$
- Coating thickness 0,02 to 10 mm
- Roughness unprocessed 2 to 5 $\mu\text{m Ra}$, processed $< 0,05\text{ }\mu\text{m Ra}$
- Residual compression stress
- Outstanding resistance against abrasive and erosive wear