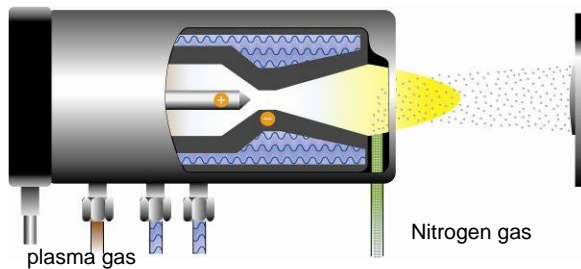


## PST – Plasma

### The Technology

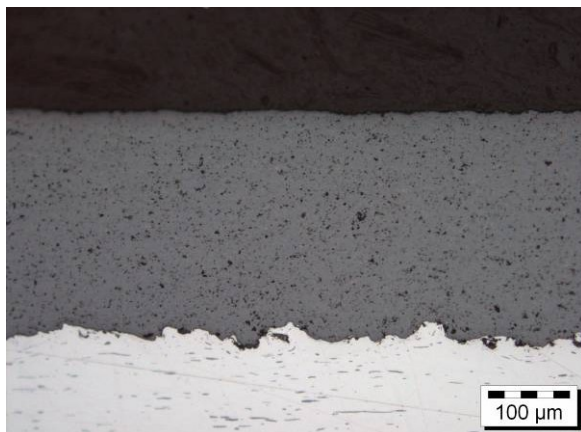
Praxair plasma spray coating technology is high-energy plasma with temperatures of up to 20.000K, generated within the coating gun with the help of an arc. The inert plasma gas, generally, argon, nitrogen and hydrogen or a mixture thereof, is dissociated and accelerated in a nozzle through expansion. The acceleration material is added to the gas flow in powder form. Then, the particles are melted and hurled towards the substrate as droplets. Compared to conventional plasma systems, the high particle/droplet speeds attained allow the production of dense coatings with good adhesive strength. In spite of the high plasma temperatures, the material's thermal impingement is low compared to the usual thermal coating processes. Plasma coatings are especially suitable for ceramic spray coating materials; oxidation-sensitive materials can be processed with the help of a protective gas envelope. The coating distance is approximately between 60 to 140mm, while the coating process itself is done at an angle between 60 degrees and 90 degrees.



PST – Plasma

### **PST-Plasma Characteristic Features:**

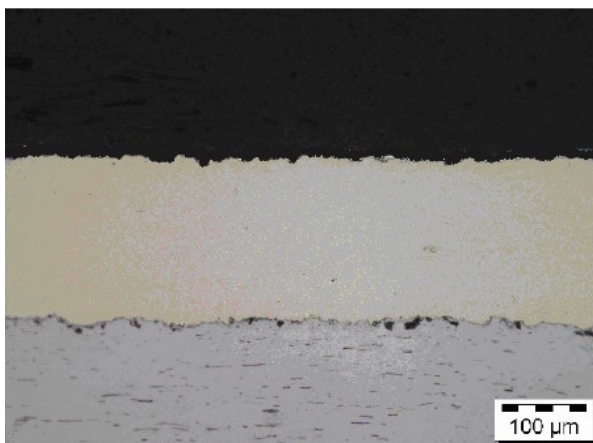
- Continuous coating process
- High Energy Plasma,  $T > 20\,000\text{ K}$
- High particle speeds
- Focuses spray jet coating



Cr<sub>2</sub>O<sub>3</sub> spray coating on unalloyed steel

### **PST-Plasma Process Advantages:**

- High flexibility with regard to choice of material
- High particle impact speeds
  - Good adhesive strength, even with material hardness of up to 45 HRC
  - Comparatively dense ceramic coatings
- Internal coating through compact burner design possible



Ni spray coating on unalloyed steel

### **PST-Plasma Coatings:**

- Porosity: 1 to 2 %
- Adhesive strength: 30 to 60 MPa
- Coating thickness from tenth to several millimetres
- Roughness unprocessed 2 to 3  $\mu\text{m Ra}$ , processed  $< 0,1\ \mu\text{m Ra}$
- Oxide ceramic coatings, such Cr<sub>2</sub>O<sub>3</sub>, can be produced with high resistance to wear