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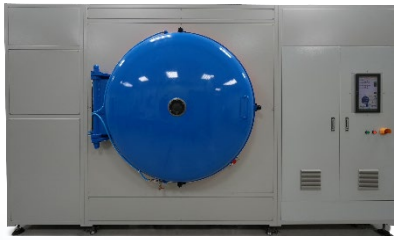
Micro Complex Internal Pipe Coating System Technology

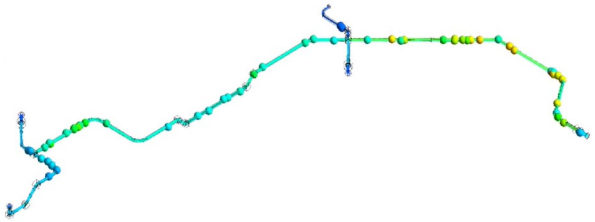
MIRDC

Introduction

- In the energy resource, petrochemical, and food/beverage industries, it is common to transport through pipes. To extend the lifespan and reduce the frequency of replacements, a thin film will be coated onto the inner surface of the pipes to enhance corrosion resistance, wear resistance, and fluid transmission efficiency. However, the internal coating of small diameter and elongated pipes has always been a challenge that the industry has yet to fully resolve.
- The Micro Complex Internal Pipe Coating System Technology use a low pressure chemical vapor deposition (LPCVD) process by integrating multi-channel nozzle design and simulation analysis to provide high quality coating. Even for 4 mm inner diameter thin pipe with curved pipelines and 3D complex geometries, it can still achieve 100% excellent coverage and increase corrosion resistance by more than 50%.
- The Micro Complex Internal Pipe Coating System has been applied to the inner surface of fuel pipes in satellite propulsion systems to provide high uniform, hardness and corrosion resistance coatings. Compared with existing coating technologies, the cost can be saved by more than 50% and the time is saved by 80%, and the coating uniformity is improved by more than 15%.



Low Pressure Chemical Vapor Deposition (LPCVD)



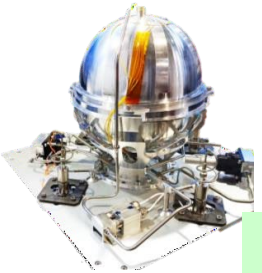
Fluid simulation technology

Patents

- 3 patents applied for anti-oxidation metal pipe manufacturing methods and multi-channel pipe fittings chemical vapor deposition coating system.

Industrial Applications/ Case Studies

Aerospace industry
Pipes for transfer high concentration or reactive chemicals



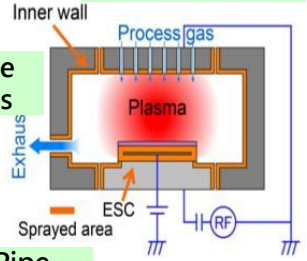
Micro pipes for Fuel Tank

Gas flow controller

Storge cylinder

Valve parts

Pipe fittings



Chemical industry
Pipes for transfer high concentration or reactive chemicals

Semiconductor industry
Anti-Plasma, special gas applications