

PT-50: 50 kW Plasma Torch

Ref-Nr: 1286



Technology abstract

PT-50 is being offered by an Italian company based in Pisa. This plasma torch is a scaled and “terrestrialised” arcjet thruster. PT-50 is intended for processing residual gaseous or liquid substances but it can be used also with hazardous wastes, such as asbestos, toxic

chemicals and biologic or infectious waste.

ESA Broker Italy

- Tanya Scalia -

[Read more about this broker](#)

Technology Description

The PT-50 plasma torch is relying on the donor know-how and technologies in the Electric Propulsion sector. In particular, the plasma torch is a scaled and “terrestrialised” arcjet thruster. PT-50 is intended for processing residual gaseous or liquid substances, produced by waste vitrification plants. Due to its characteristics, PT-50 can be used even with hazardous wastes, such as asbestos, toxic chemicals and biologic or infectious waste. Its design implements some of the most effective solutions for enhancing torch efficiency and durability, as hollow configuration for electrodes, presence of an external magnetic field for arc stabilisation and dualmode fluid injection system. Moreover the arc ignition system allows for the creation of an electric arc of considerable length (several centimeters, adjustable), reducing the operating current level with immediate benefits on torch operation.

Innovations & Advantages

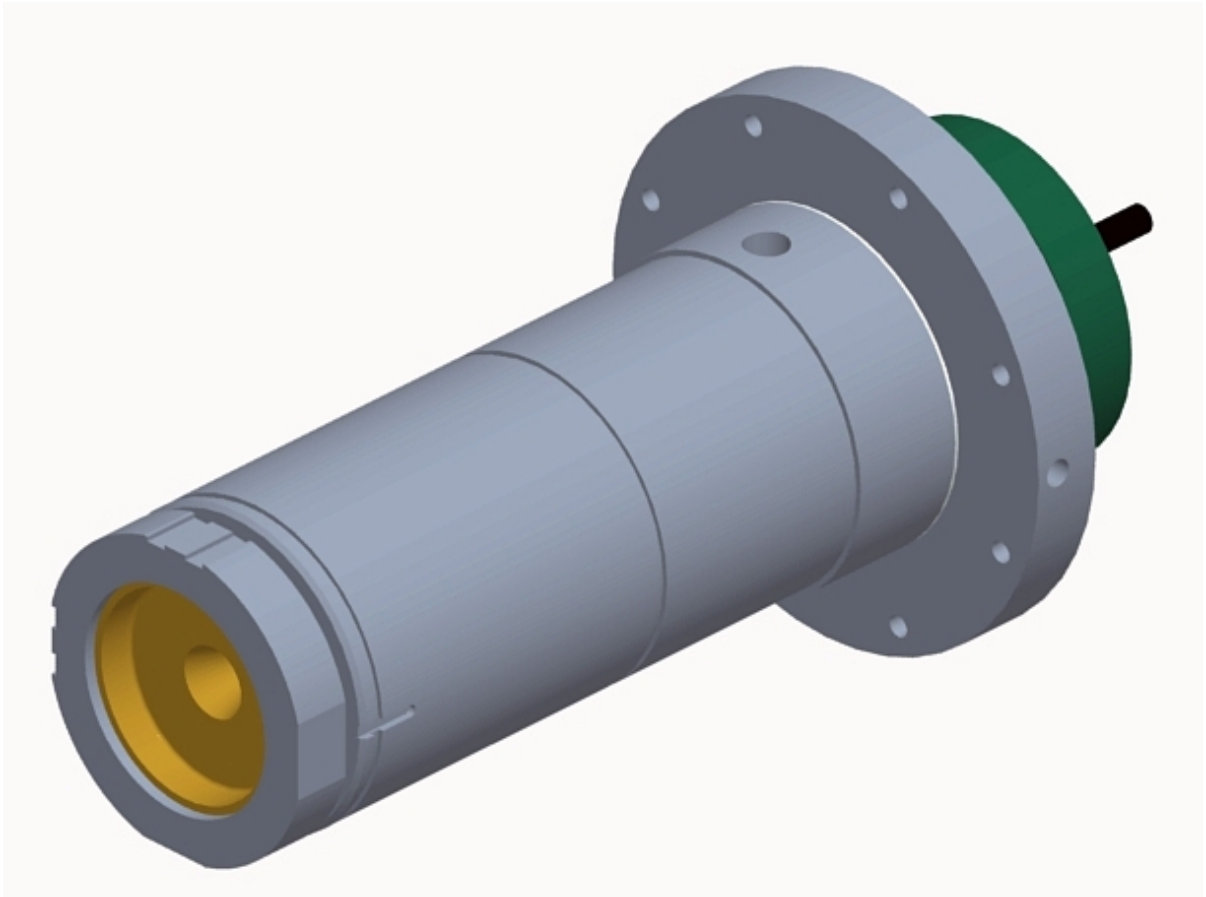
The PT-50 design is easily scalable to different electric power levels and/or applications (plasma spraying, plasma cutting, fly-ashes or solid waste vitrification) according to customer specifications. Working fluids can be chosen by the Customer. Argon is the optimal fluid, but the PT-50 has been successfully operated also with nitrogen.

Current and Potential Domains of Application

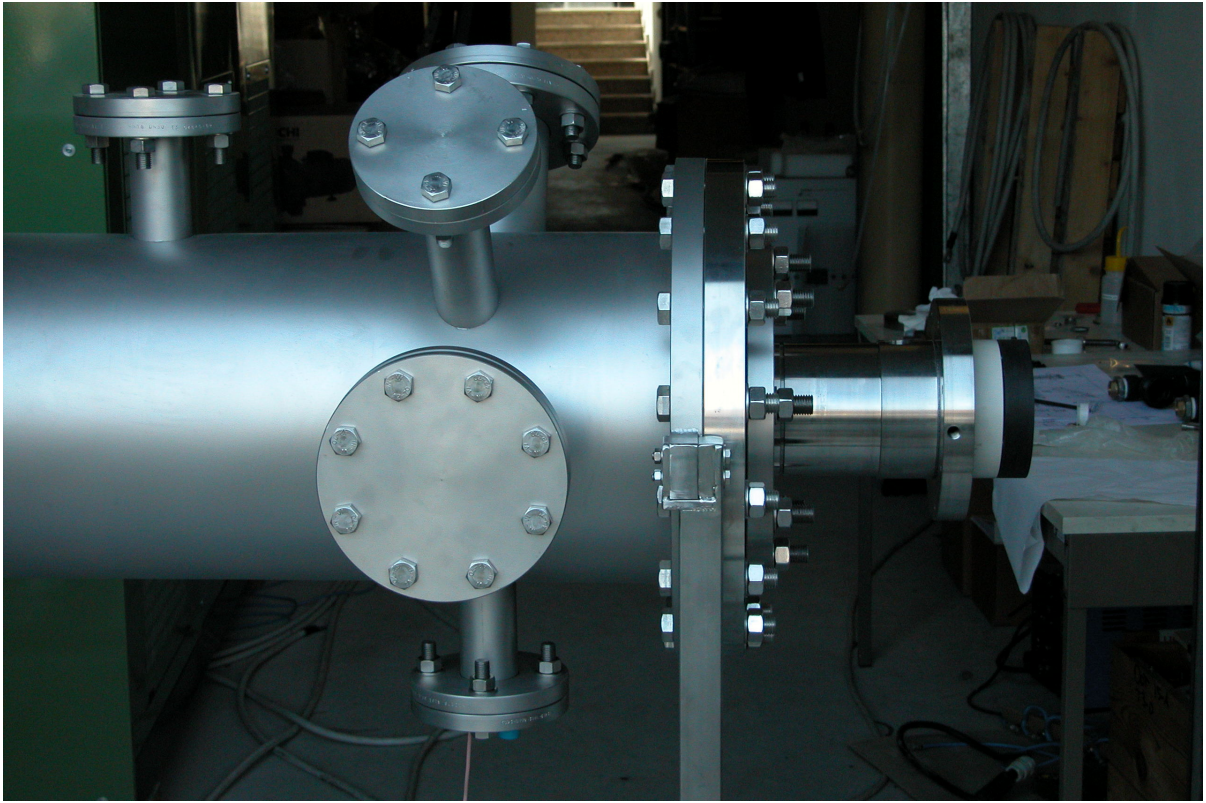
PT-50 could be used in various industrial scenarios:

- Fly-ashes or solid wastes vitrification;
- Plasma cutting
- Plasma spraying.

•



3-D view of PT-50 torch model



The 50-kW torch mounted on the reactor for dangerous gases processing
