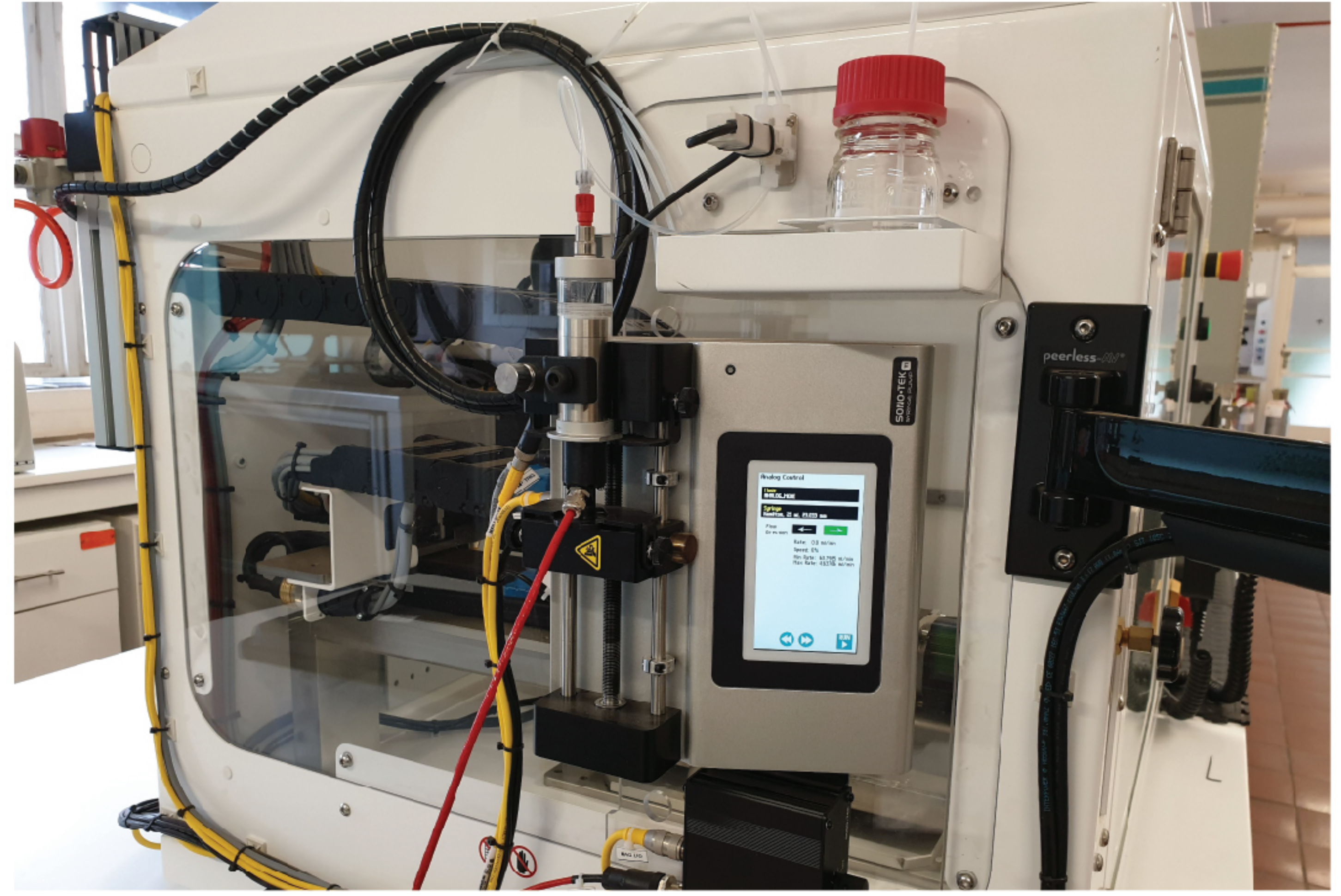
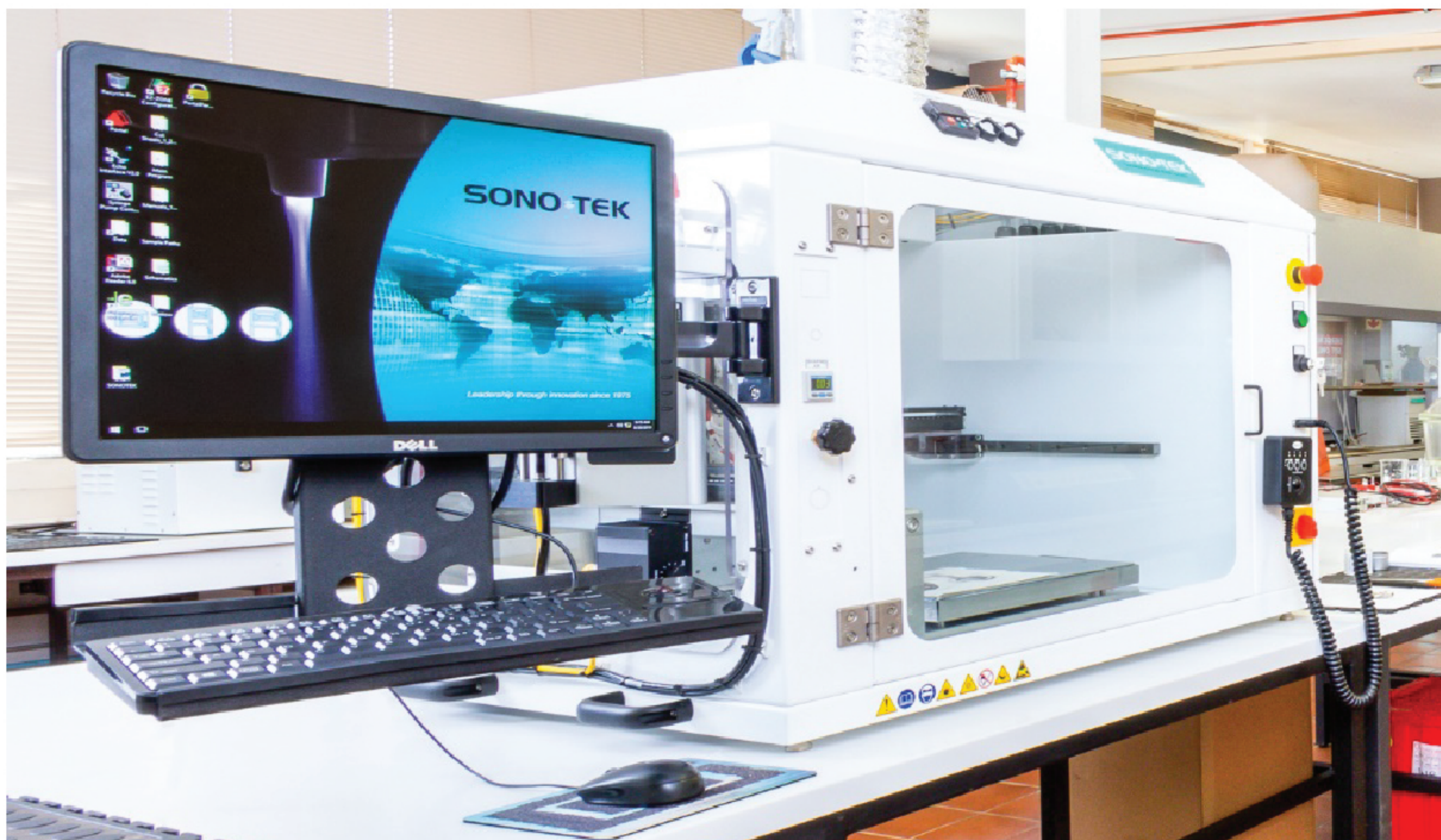


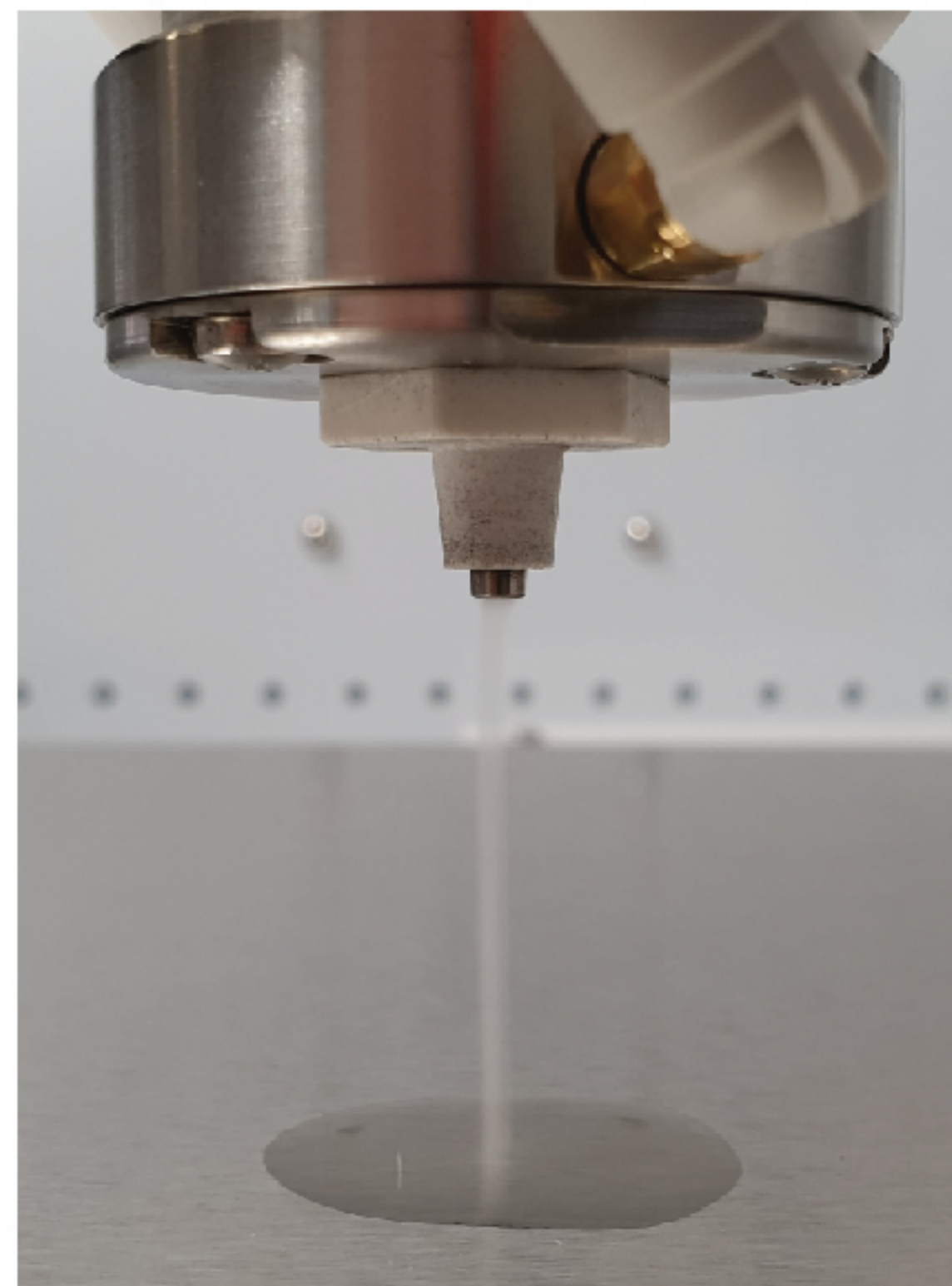
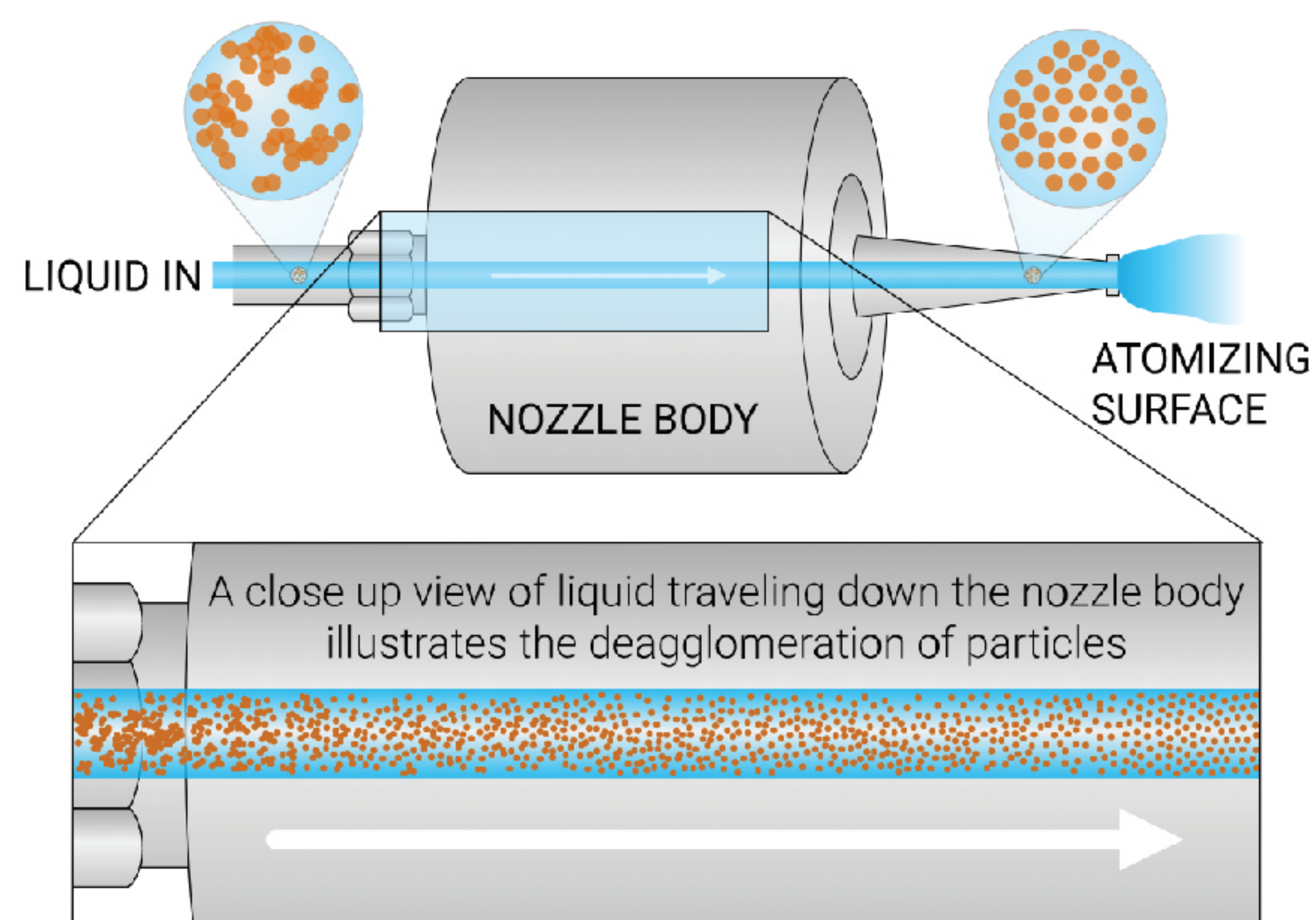
Overview

HySA Infrastructure has invested in a state of the art Sono-TEK ExactaCoat coater fitted with a variety of ultrasonic nozzles for membrane catalyst coating. This device enables the preparation of up to 1 225 cm² sized membranes usable in various hydrogen technologies, such as water electrolysis and fuel cells, and electrochemical hydrogen compression and purification. The nozzle design affords high precision and uniform thin-layer (micrometer scale) deposition of catalyst bearing conductive inks directly to membranes.



Controllability

Critical parameters such as catalyst ink solid and ionomer content, and catalyst layer thickness may be controlled by varying the ink flow rate and the nozzle operational wattage. Multiple layers may also be applied to a single membrane under certain conditions – allowing multiple similar or dissimilar catalyst layers to be deposited.



Working principle

- Prior to coating, high intensity aggregation keeps catalyst in suspension;
- Nozzle generates atomized micro-sized droplets;
- Aggregated catalyst particles are dispersed in droplets immediately prior to coating;
- Ultrafine spray forms a uniform thin layer on coated surface;
- Droplets dry before possible catalyst aggregation can occur.
- Coated material can be pre-heated to accelerate drying process.

Coating methods

Production capacity

Catalyst ink preparation know-how, coupled with the Sono-TEK device as well as a doctor blade coater, allows precise and rapid pre-commercial scale fabrication of purpose specific membranes.

