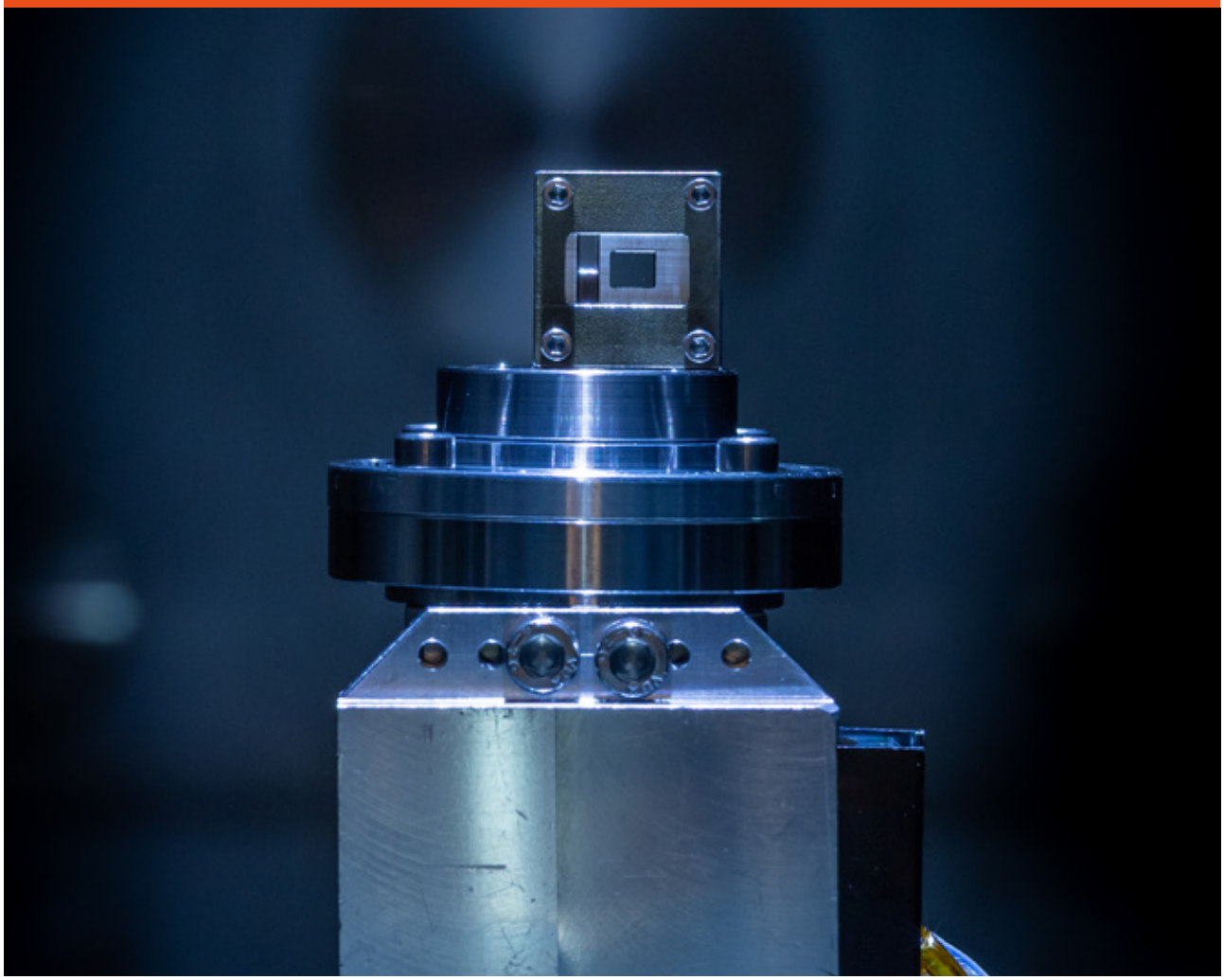
TECHNOLOGY

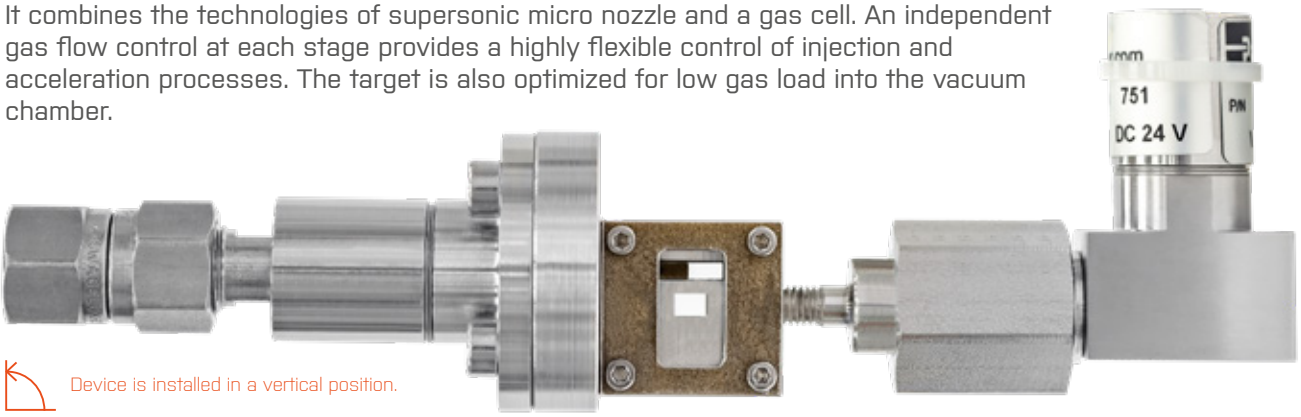
DUAL-STAGE GAS TARGET FOR LASER PLASMA ELECTRON ACCELERATION



FEATURES	BENEFITS
Variable gas cell length: possibly up to 1 m long	Large scalability
Stainless steel body with side windows	Easy diagnostics of the inner plasma processes at both stages of the target
Various adapters for connection with valves	Easy to connect with the high speed valves commonly used in the laser plasma community
Robust solid body of the target	Easy to use and damage resistant solution
Separate gas inlets for each stage	Can be used for ionisation injected LWFA
Low manufacturing costs	Set of various lengths and few pieces per kind can be ordered

HOW DOES IT WORK?

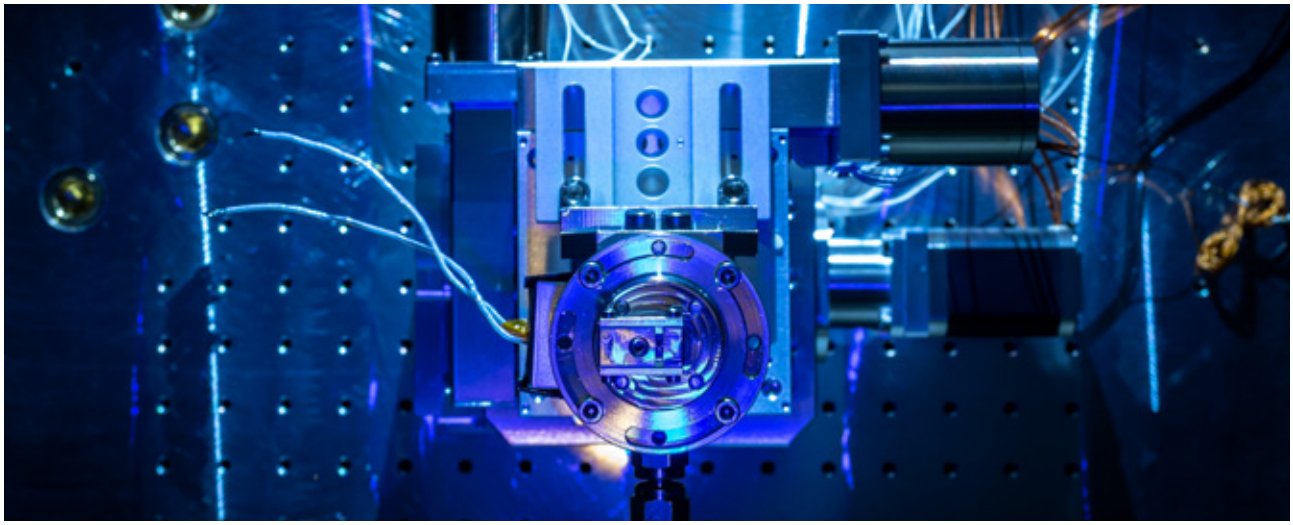
The device serves as a gas target for stable laser plasma electron acceleration (LWFA). It combines the technologies of supersonic micro nozzle and a gas cell. An independent gas flow control at each stage provides a highly flexible control of injection and acceleration processes. The target is also optimized for low gas load into the vacuum chamber.



Device is installed in a vertical position.

APPLICATIONS

- Laser-based electron acceleration beamlines in research infrastructures
  - Density downramp injected Laser wakefield electron acceleration
  - Ionisation injected Laser wakefield electron acceleration
- X-ray sources driven by relativistic electron beams
- Laser-based beamlines for electron radiotherapy



ABOUT US

ELI Beamlines is an international user facility involved in the development and operation of state-of-the-art laser systems, including some of the most powerful lasers in the world.

Our in-house development of high power lasers has led to many new and unique engineering solutions for highly demanding applications where no commercial solutions were available to satisfy our stringent requirements.

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