About Us

Kyoto Fusioneering is at the forefront of creating cutting-edge, efficient, and market-ready technologies specifically tailored for the fusion energy sector. Our expertise encompasses critical components of commercial fusion power plants, including advanced gyrotron systems, tritium fuel cycle solutions, and breeding blankets essential for tritium generation and power conversion.

Our collaborative efforts with international fusion innovators, both public and private, are driving the quest to establish fusion energy as humanity's ultimate power solution.

Locations

Head Office
5th Floor Inspired.Lab, Otemachi Building, 1-6-1 Otemachi, Chiyoda-ku, Tokyo, 100-0004, Japan

Kyoto Fusioneering UK Ltd.（UK）
Office 205, Reading Green Park, 200 Brook Drive, Reading, Berkshire, RG2 6UB, United Kingdom

Kyoto Fusioneering America Ltd.（U.S.）
Plaza 600, 600 Stewart Street, Suite 400, Seattle, Washington, 98101, United States

2019/10
Founded Kyoto Fusioneering

2021/07
Inaugurated Tokyo Office

2021/10
Founded Kyoto Fusioneering UK Ltd.

2022/09
Founded Kyoto Fusioneering America Ltd.

2023/07
Relocated the head office to Tokyo

2023/09
Inaugurated Kyoto Research Centre

2023/10
New management structure

KYOTO FUSIONEERING

FUSION for the FUTURE

From Japan to the World: Pioneering a New Era in Fusion Energy Technology

- Engineering Excellence -

KYOTO FUSIONEERING

Gyrotron System

The gyrotron system stands as a crucial high-power, high-frequency heating device essential for sustaining plasma in magnetic confinement-type fusion power plants. Kyoto Fusioneering has successfully commercialized this technology and made it globally accessible, by capitalizing on decades of research and development efforts from various national research institutes and engineers in Japan. Our commitment to advancing R&D continues, with a focus on enhancing frequencies and extending output duration to optimize performance for industrial applications.

Thermal Cycle System

This system captures the energy generated by the fusion reaction as thermal energy and converts it into electricity and other utilisable forms such as hydrogen. Due to the unique environment of a fusion plant, such as high energy and flux neutron irradiation, elevated magnetic field conditions, and extreme temperatures, our equipment is specifically engineered to endure without compromising thermal efficiency.

We are constructing the world’ s first fusion power generation test plant called UNITY-1 on the thermal cycle system to harness heat from the fusion core.

Fuel Cycle System

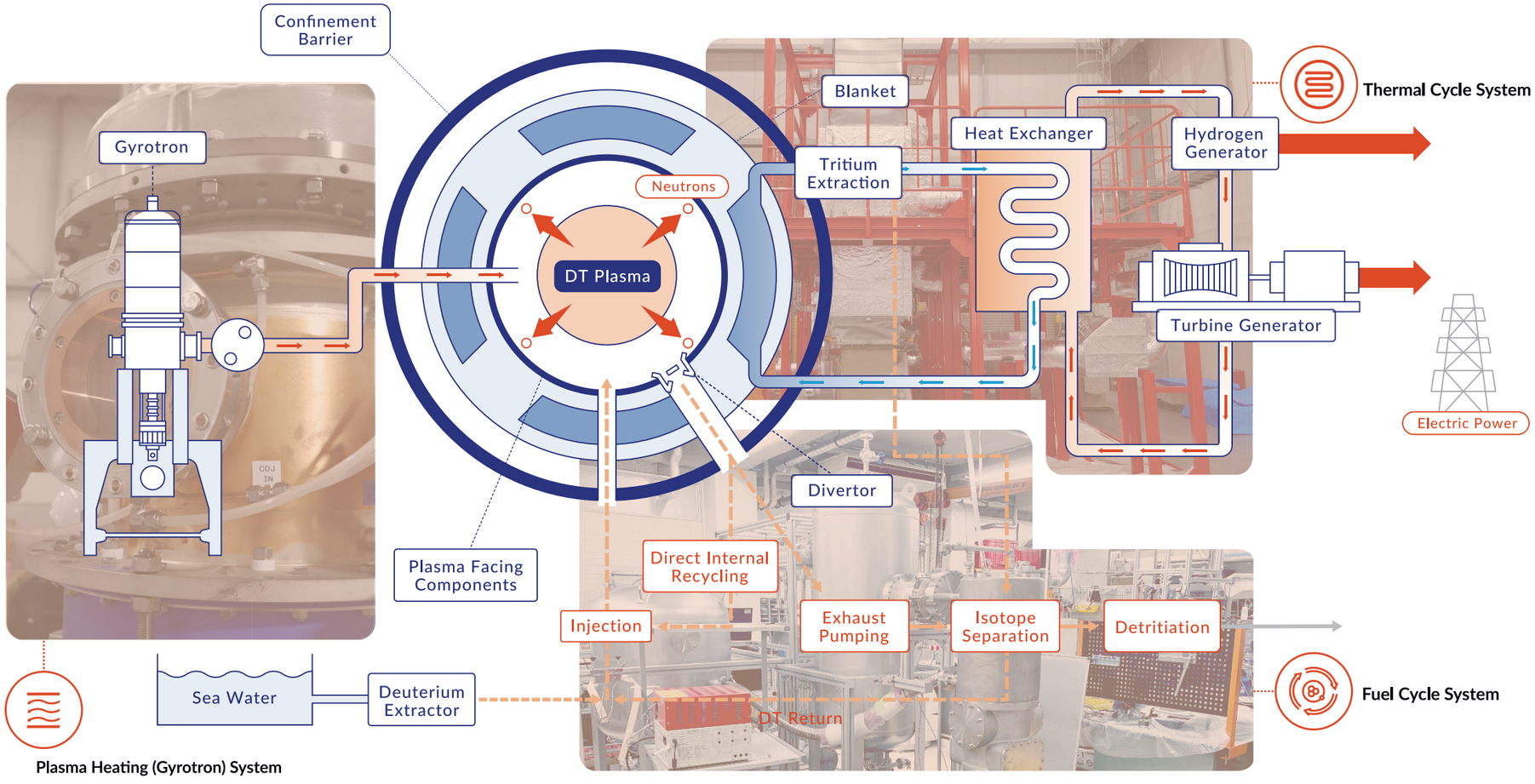
One of the most significant challenges for the fusion industry is to secure a continuous fuel supply. The technologies are designed to exhaust, separate, and circulate hydrogen isotope gases, such as deuterium and tritium, which serve as fuels for the fusion core.

Kyoto Fusioneering collaborates with Canadian Nuclear Laboratories, to develop UNITY-2, to further enhance this critical area of research. This will serve as a platform to develop and deploy deuterium-tritium (D-T) fuel cycle systems for fusion plants through testing, verification, and demonstration. This unique facility will be a global hub for the development of commercial fusion fuel cycle systems.

UNITY Projects

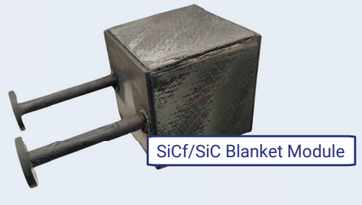
The UNITY (Unique Integrated Testing Facility) projects will construct two unprecedented test facilities, each focused on pivotal aspects of fusion power plant systems.

These facilities, UNITY-1 and UNITY-2 are designed to facilitate groundbreaking development and demonstration of integrated systems for fusion power and fuel cycles, respectively. Their goal is to showcase these systems at a scale directly relevant to operational fusion power plants, marking a significant stride in fusion technology advancement.



Fusion Materials

The selection of materials for the components within a fusion power plant is of paramount importance. Kyoto Fusioneering, in close partnership with Kyoto University in Japan and the UK Atomic Energy Authority, conducts pioneering research to develop durable engineering materials for fusion power plants. This research addresses the critical need for materials that can withstand the extreme conditions inherent to fusion environments.



SiCf/SiC Blanket Module