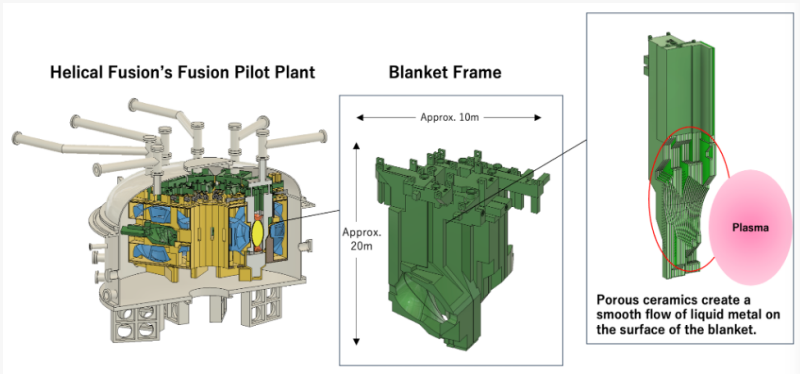
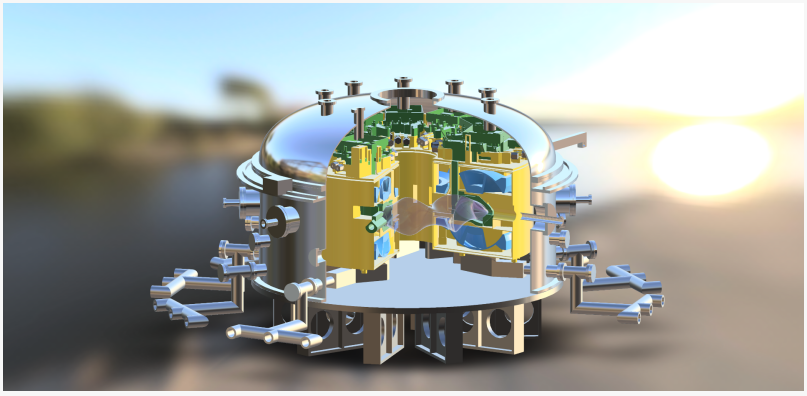
Helical Fusion and MITSUI KINZOKU Enter into Joint Development Agreement for Fusion Reactor Blanket

Strategic partnership targets key breakthrough in fusion blanket tech—paving the way for steady-state fusion energy.

TOKYO, JAPAN, April 11, 2025 /EINPresswire.com/ -- Helical Fusion Inc. (Headquarters: Chuo-ku, Tokyo; CEO: Takaya Taguchi), a startup aiming to realize the world's first steady-state fusion reactor, has signed a joint development agreement with MITSUI MINING & SMELTING CO., LTD. (Common name: MITSUI KINZOKU) (Headquarters: Shinagawa-ku, Tokyo; President and Representative Director: NOU Takeshi) for the development of a fusion reactor blanket—a key component for commercial power-generating fusion reactors.



A porous structural material for the first wall of the reactor blanket—a surface that directly faces the fusion plasma.



The image of Helical Fusion's Fusion Pilot Plant. Green parts inside the reactor structure are the blanket chassis.

Helical Fusion Logo

-The Significance of Fusion Development

With the global population expected to increase and AI-driven digital infrastructure rapidly expanding, existing energy sources alone may not be sufficient to meet the surging demand. Fusion energy, which operates on the same principles as the sun, is a clean, safe power source that uses fuel derived from seawater—virtually limitless in supply. As such, fusion is seen as a transformative solution to the world's long-term energy challenges.

The fusion power plant and energy market is projected to grow to an annual value of $550 billion globally by 2050.* Helical Fusion aims to realize the world's first steady-state fusion reactor by 2034 and deploy it commercially around the world to provide a sustainable energy infrastructure.

* FusionX/Helixos report Global Fusion Market Analysis: Electricity, Supply Chain & Construction (https://fusionxinvest.com/data-analysis/analysis/)

-Why Blanket Development Matters
Helical Fusion's helical-stellarator fusion reactor builds on more than 70 years of research conducted at the National Institute for Fusion Science in Japan, one of the world's leading fusion research institutions. From both plasma physics and reactor design perspectives, the helical-stellarator has already cleared most technical hurdles for practical implementation. However, one of the few remaining challenges is the development of the fusion blanket.

The blanket must fulfill multiple complex functions, but no fully implemented system exists anywhere in the world today due to its high technical difficulty.

Through this collaboration, Helical Fusion will combine its deep expertise in reactor design with MITSUI KINZOKU's advanced materials development capabilities to accelerate progress toward the world's first functioning fusion blanket system.

-About MITSUI MINING & SMELTING CO., LTD. (MITSUI KINZOKU)
Founded in 1950, MITSUI KINZOKU is a global leader in non-ferrous metal smelting and materials innovation. Its business portfolio includes functional materials, electronic components, resource development, precious metals recycling, advanced materials, and automotive parts manufacturing and sales. With the purpose of "We promote the well-being of the world through a spirit of exploration and diverse technologies," the company actively promotes open innovation in emerging fields. In 2023, MITSUI KINZOKU made a strategic investment in Helical Fusion through its corporate venture capital arm, laying the groundwork for this deeper partnership.

naho yoshimura
Helical Fusion Co., Ltd.
email us here
Visit us on social media:
Facebook
LinkedIn
YouTube

try to be careful about weeding out false and misleading content. As a user, if you see something we have missed, please do bring it to our attention. Your help is welcome. EIN Presswire, Everyone's Internet News Presswire™, tries to define some of the boundaries that are reasonable in today's world. Please see our Editorial Guidelines for more information.