

Outstanding Features

The OBERON includes five outstanding features, as compared to the current Laser Welder, which serve to enhance the welding quality, integrity of spacer grid, design margin of spacer grid, and overall productivity. In addition, it also reduces the possibility of accidental injury of an operator.

1. Optimize Welding Quality

The OBERON consistently places the welding on the precise position, thereby reducing the need for re-welding and dramatically optimizing welding quality.

2. Enhance Integrity of Spacer Grid

The OBERON assures optimal welding quality and reduces HAZ to a minimal level. As a result, integrity of spacer grid after post-irradiation in a reactor is increased.

3. Improve Design Margin of Spacer Grid

The OBERON includes a multi-axis laser welding head with a tilting axis, which enables the OBERON to consistently make a precision weld for any complex welding position. As such, this enables increased design flexibility for spacer grid.

4. Upgrade Productivity

The OBERON features a high-performance welding chamber, optimized laser beam delivery system, and automatic welding fixture loading/unloading function, which contribute to upgraded productivity and improved operational efficiency.

5. Reduce Incidents of Accidental Injury to Operator

The OBERON includes an automatic welding fixture loading/unloading function that is ergonomically positioned to minimize incidents of accidental injury to the operator.

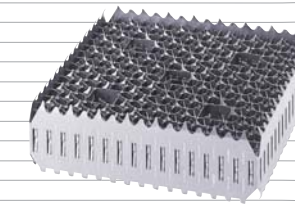


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OBERON

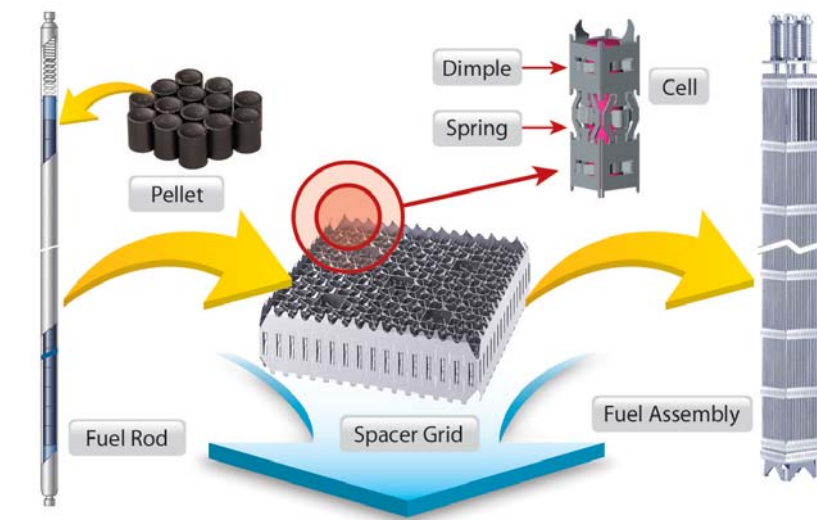
Advanced Laser Welder
for Spacer Grid



OBERON*

Focus on Welding Quality and Productivity of Spacer Grid
High performance Capability of Advanced Laser Welder

KEPCO NF's OBERON, an upgraded version of the current Laser Welder, has been developed to satisfy the requirements of next generation spacer grid design and to enhance the integrity and the welding quality of the spacer grid. The OBERON is fully compatible with most types of spacer grid designs.

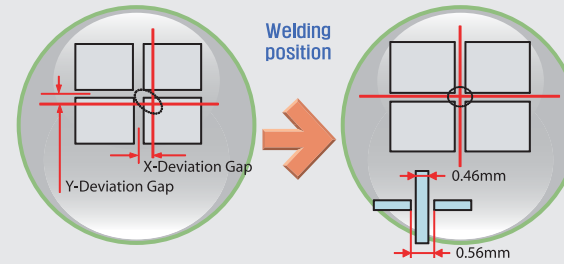


Grid
Integral element of Fuel Assembly to maintain proper spacing between the fuel rods, secure the fuel rods, and to mix coolant in a reactor vessel.

【 Diagram of Spacer Grid 】

Core Technology

Welding position misalignment due to combination of material deviation and equipment tolerance

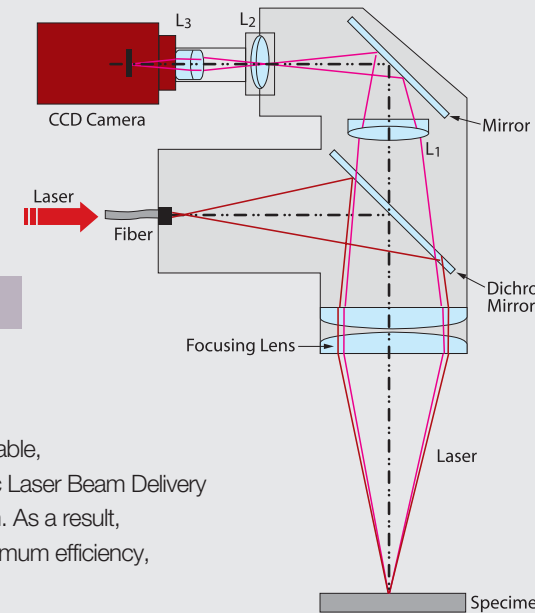


IPST (Image Processing System & Technology)

Make weld at the precise position by detecting and compensating for deviations of the material and the equipment tolerance.

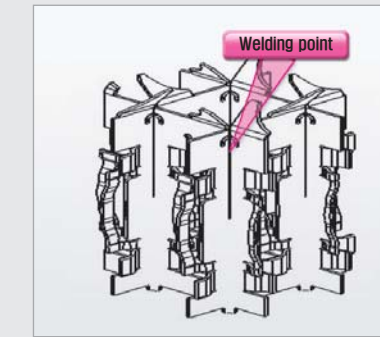
Fiber Optics Laser Beam Delivery System

Based on optimal laser oscillator and fiber optics cable, KEPCO NF designed a most optimized Fiber Optic Laser Beam Delivery System that includes a lighting and camera system. As a result, the innovative Laser Welding System assures maximum efficiency, precision, and automation.

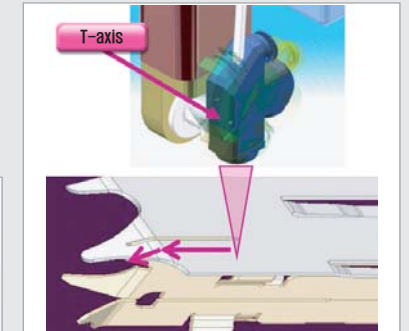


Multi-axis Laser Welding Head

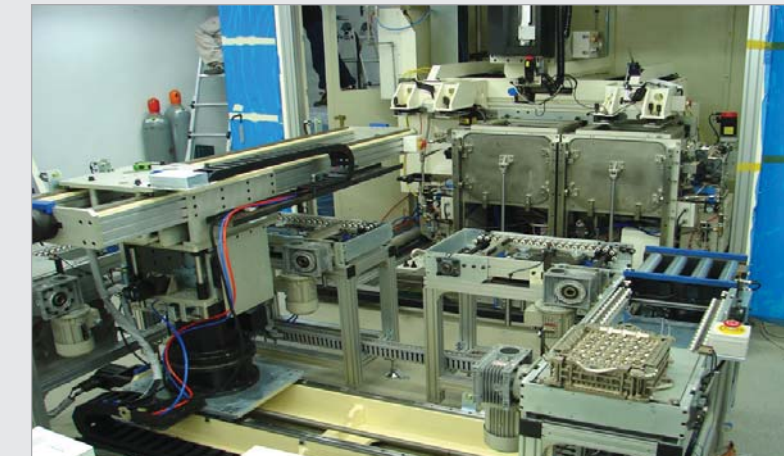
Optimize a precise welding on a hideous cross-point and continuous welding along angled surface of outside spacer grid.



Hideous cross-point welding



Angled outside surface welding



Automatic Welding Fixture Loading/Unloading Function

Improve productivity and prevent accidental injury to operator.

*OBERON : Oh Byeong Eun's Reliable & Optimized techNology