

Custom High Voltage Power Supplies (HVPS) for Fusion and Advanced Applications

Jema Energy is a well-established expert in the design and manufacturing of custom high voltage power supplies (HVPS). Through its collaboration with Fusion for Energy (F4E) in projects such as JT-60SA, the company has further strengthened its capabilities to deliver reliable, high-performance HVPS solutions for complex and mission-critical environments.

The HVPS delivered for JT-60SA

Jema Energy has supplied HVPS systems for the multi-frequency gyrotrons in the ECRH heating system of JT-60SA and is currently executing a second contract for an additional unit.

The system delivered includes:

- 1 × Main HVPS 60kV / 2×55A, 100s
- 2 × BPS 35kV / 100mA
- 2 × APS 50kV / 100mA

Key features:

- Modular design using IGBT converters
- Fast shutdown response <10 µs and energy dump <10 J
- Full power testing conducted at factory before delivery

Advantages and Potential Applications

- **Extensive background in custom HVPS design**, applied across scientific and industrial sectors.
- **Proven performance in developing solutions for critical environments** such fusion applications, under contracts with F4E and top European laboratories.
- **High reliability and safety**, thanks to advanced protection mechanisms.
- Scalable and versatile solutions, suitable for fusion heating systems, magnetic control, particle accelerators, and other high-demand installations.

Collaboration opportunities

Jema Energy offers its advanced HVPS capabilities to companies and research institutions across all sectors requiring custom high-voltage power solutions. Whether for fusion energy systems, scientific infrastructure, industrial testing, or other demanding applications, Jema is ready to design, develop, and deliver tailored power supply systems that meet specific performance, safety, and integration requirements.

Fusion for Energy Technology Transfer
Programme

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