

Company Presentation
Jema Energy

HG2022
16–19 May 2022

www.jemaenergy.com

Company information

- Founded in 1953
- Headquarters in Lasarte-Oria, Spain
- 170 employees (>45M€ turnover)
- Part of Irizar Group (3.300 employees, >750M€ turnover)
- High power test facility (30 kV - 22 MVA, 17MW test-load)

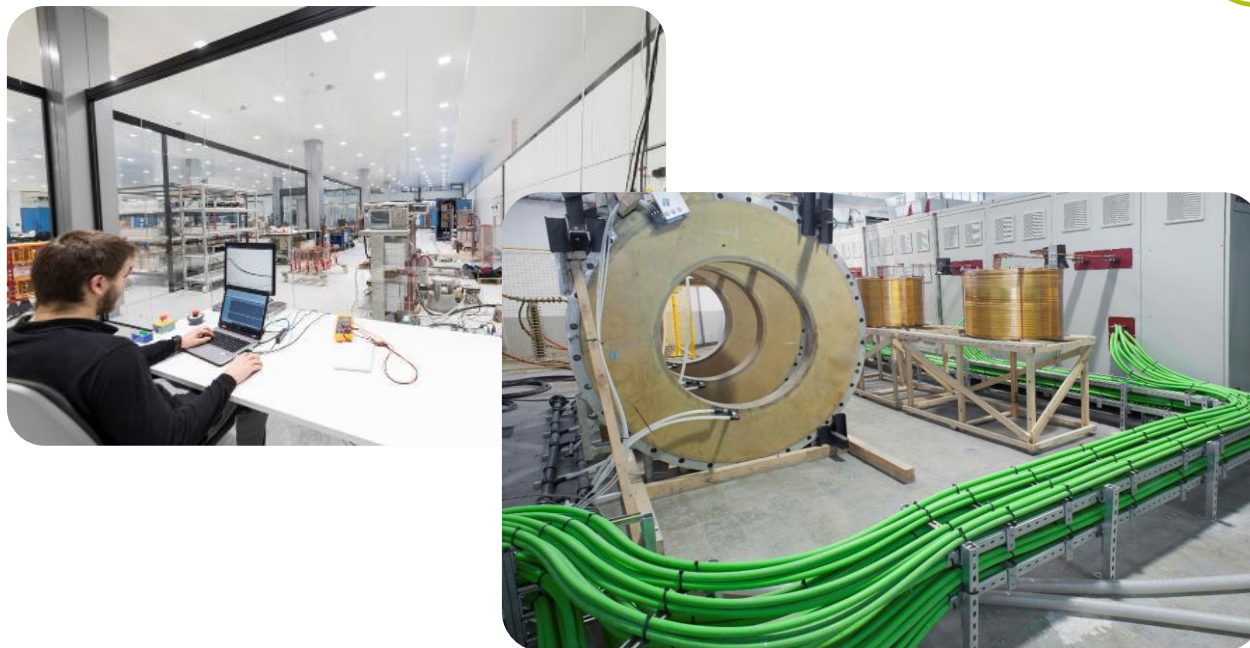
Big Science



Transport



Energy



Products for Big Science (Nuclear Fusion + Particle Accelerators)

Customized power conversion systems

- High voltage power supplies (e.g. klystron, tetrode, magnetron, NBI, IOT and gyrotron)
- Pulsed and continuous
- High current power supplies (up to 250kA)
- High precision power supplies



Klystron Modulators

Jema Energy has made a broad range of klystron modulators with different topologies:

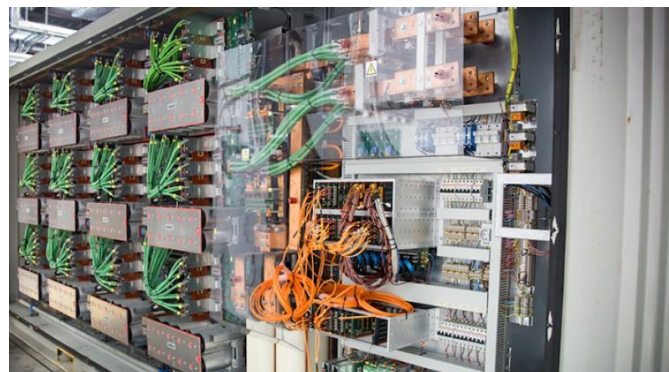
- Pulse length from 1 μ s to 3,5 ms
- Peak power up to 15 MW (higher power possible)
- Average power up to 1,25 MW
- Rep rates up to 800Hz
- Pulse to pulse stability up to 10ppm



180kV 60A 220 μ s 5Hz



150kV 100A 4 μ s 400Hz



85kV 160A & 120kV 60A 9% duty cycle



115kV 100A 3.5ms 14Hz



120kV 90A 18 μ s 800Hz

Klystron Modulators

- Modular and scalable solution
- Two topologies available: switching modules in **parallel** or in **series**
- Series topology:
 - up to 50kV without pulse transformer, >50kV with pulse transformer
 - can be used to replace PFN-type modulators (re-using the pulse transformer)
- High precision capacitor charger
- Each switching module includes:
 - Storage capacitors
 - IGBT switch
- Optional programable bouncer to correct voltage droop

