



Pulsotron 500K-LINER Thermonuclear Fusion reactor Ignition Grade

Contains an experimental thermonuclear fusion reactor, vacuum pump, and hydrogen supply needed to configure and operate it. It is designed to allow investigators to reach Ignition Conditions that consists on generating more energy that injected in the machine.

500K-LINER is a 11 stage reactor heats electrostatically 750 Joule of plasma to a record energy 500KeV that uses a modified 9 Gigawatts Marx Generator extreme high power system added to 12 Megawatts secondary power subsystems that can be used to confine and ignite high density plasma

This scientific instrument is easy to upgrade and modify to adapt to different operation modes and it is remotely operated

- PRELIMINARY SPECIFICATIONS -

Applications



This product operation upgrades an institution to first level in the investigation of following fields:

- High efficiency electrostatic plasma heating
- Thermonuclear Fusion Physics
- High Energy
- Energy Generation
- Plasma tests
- Plasma diagnostics

Features

- 11 Stages
- Acceleration power 9 Gigawatts
- Acceleration time < 250 nanoseconds
- Designed to reach ignition conditions that generates more energy released than injected with adequate configuration and design of the power sequences
- High efficiency Electrostatics acceleration using one shot through 11 x 50keV stages that accelerates Hydrogen or Deuterium ions to 500KeV
- Low temperature electrons to allow high efficiency and high density
- High density fuel to yield high density fusion energy generation

- Anti-return magnetic coils
- Rated to clean fusion using aneutronic reactions: H-Li6 and H-Be9
- Could be used with H-B11 by using solid Boron or Boron-hydride compounds under client design
- Installation at 50-500kV operation needs X rays protection during operation
- Neutron generating reactions under installation under the responsibility of the user. Could be used to make D-D fusion by using deuterium ions hitting DLi7 as long as deuterium density in DLi7 is greater than pure deuterium solid.
- Investigators can design with their own software different discharge times to optimize operation
- Network cooperation with other colleges that uses the same installation

*Combustion chamber can be damaged if a high power ignition is reached

Design data:

11 Stages 50kV pulsed			
Particle energy	eV	5.00E+05	5.00E+05
Energy	J	1375	1375
Element		H	D
Atomic mass	amu	1	2
Particle weight	Kg	1.66E-27	3.32E-27
Particles speed	m/s	9.82E+06	6.95E+06
Kg of accelerated particles	kg	2.85E-11	5.70E-11
Number of accelerated particles		1.72E+16	1.72E+16
Plasma Cannon length	m	0.7	0.7
Acceleration time	s	142.53E-9	201.57E-9
Acceleration power	W	9.65E+9	6.82E+9

Includes

- High Power Marx generator modified 500KV 9Gigawatts
- Primary High Energy Pulse AC capacitors energy storage up to 1.2 Kilojoules
- Secondary High Energy Pulse AC capacitors energy storage up to 4 Kilojoules
- Capacitor bank charger and discharger
- Vacuum grade reactor main chamber 1m long with coils support
- The Plasma chamber walls material is non-magnetic or low magnetic with low degassing
- Anti-return coils support
- Turbomolecular pump station
- Hydrogen/Deuterium generation and injection system
- GPIO card used to control the reactor
- Magnetic sensor
- Configuration Application of coils and main parameters
- 5 Target chambers
- Included wires, screws, sealing, pipes
- 1 year support

Operation

- Remote safe operation
- Safe working installation with all capacitors discharged
- User can modify coils configuration and firing time to increase system efficiency

Pulse generators

- 22 high speed pulse generators that can be paralleled to generate peaks up to 20 kiloamps at 500V to 10Megawatt
- 2 pulse generators that allows peak discharges up to 5kA 1200V every one to generate pulses up to 12Megawatts

Dimensions, weigh and external supply requirements

- Dimensions 1200x500x300mm without vacuum pump and injection unit
- Approximate freight weight 40kg without turbomolecular pump
- 220V/110Vac 50/60Hz 3KW

Licences, Terms and uses

These are PRELIMINARY SPECIFICATIONS: Drawings and specifications can be modified without notifying

It is a designing kit oriented to experienced users to allow them mounts their device. User is responsible of maintenance, safe operation and needed certifications when assembled.

Customers are automatic joined to the consortium to allow integrate the different generated technologies, sharing the IP property accordingly its usefulness to easily integrate in production lines

Main Fusion design parameters

