



Cemantica Technologies
Conjuring Science Curating Tech

MASTER PRODUCT CATALOGUE – PULSED POWER PRODUCTS



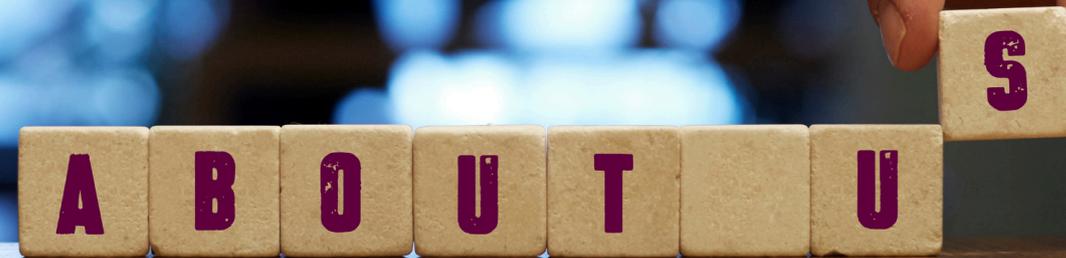
CEMANTICA TECHNOLOGIES PVT LIMITED

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ABOUT US



We provide deep technology services focusing on defense, space, and critical sectors across various industries.

Cemantica Technologies Pvt. Ltd., in addition to other domains is a technology-driven organization specializing in high-voltage engineering, pulsed power systems, plasma generation technologies and electromagnetic effects testing systems.

The company designs and develops advanced electrical systems for defence research, academic institutions, industrial R&D laboratories and application-oriented pilot plants.

Cemantica's solutions are engineered with emphasis on performance, reliability, safety and customization, enabling deployment in both laboratory and field environments.

PULSED POWER & HIGH-ENERGY SYSTEMS

Pulsed power systems are designed to generate and deliver extremely high voltage, high current, or high energy in very short durations. These systems play a critical role in advanced research, defence applications, electromagnetic effects testing, material studies, lightning/EMP simulation and shock-wave generation. The portfolio includes capacitor-based pulse power sources, PFN (Pulse Forming Network) generators, Marx generators and high-energy shock wave systems. These platforms are engineered to achieve fast rise times, controlled pulse widths and repeatable performance under demanding operating conditions.



HIGH VOLTAGE PULSE POWER SOURCE MODEL NO: Z/41/01

- Working Voltage: 15 kV DC
- Capacitance: 175 $\mu\text{F} \times 2$
- Stored Energy: 40 kJ Peak
- Current: ≈ 200 kA
- Application: High-energy pulsed experiments, EM effects testing



PFN BASED PULSE GENERATOR MODEL NO: Z/34/42

- Working Voltage: 20 kV
- DC Test Voltage: 30 kV
- DC Capacitance: 50 μF
- Pulse Width: 100 μs
- Energy per Shot: 5 kJ
- Impedance: 1 Ohm



HPFN BASED PULSE GENERATOR MODEL NO: Y-1593

- Input: 35–38 kV DC / Pulsed
- Output: \approx 480 kV pulsed
- Insulation: HT Oil
- Gas Pressure: SF₆ (4 PSI) + N₂ (40 PSI)
- Weight: 125 kg



HV LOW INDUCTANCE MARX GENERATOR MODEL NO: Z/20/123, S/14/77

- Output Voltage: 1000 kV
- Erected Capacitance: 200 pF
- Rise Time: 130 ns
- Minimum Load Resistance: 50 Ohms
- Pressurization: Nitrogen (30–50 PSI)



MINI MARX GENERATOR MODEL NO: Y-Z/34/139

- Maximum Output Voltage: 200 kV
- Energy: 20 Joules
- Pulse Repetition Rate: 5 ppm
- Operating Pressure: 20 PSI air
- Weight: < 45 kg



PULSE POWER SHOCK WAVE GENERATOR MODEL NO: Z/46/12

- Output Voltage: 5–30 kV
- Peak Current: up to 100 kA
- Energy: 2.5 kJ to 150 kJ
- Pulse Rate: max 30 pulses/hour
- Weight: 240 kg

HIGH VOLTAGE SWITCHING & TRIGGERING DEVICES

High-voltage switching and triggering devices form the backbone of pulsed power and high-energy systems. These components enable precise control of voltage application, timing, pulse repetition and safe discharge of stored energy.



FAST RISE TIME TRIGGER GENERATOR
MODEL NO: S/20/220, Z/51/146

- Output: 50 kV pulse
- Energy: 5 Joules/shot
- Rise Time: ≥ 5 kV/ns
- PRR: up to 10 ppm



HIGH VOLTAGE MODULATOR SWITCH
MODEL NO: Z/46/82

- Input: up to 60 kV DC
- Switching Frequency: 1–100 Hz
- Pulse Width: $24 \mu\text{s} \pm 15\%$
- Weight: 36.5 kg



HV MODULATOR SWITCH – COMPACT VERSION

MODEL NO: Z/45/150

- High Voltage Rail Gap
- Working Voltage: up to 40 kV
- Switching Frequency: 1 Hz – 30 kHz
- Output Current: up to 1 A
- Pulse Shape: Rectangular



HIGH VOLTAGE RAIL GAP

MODEL NO: Z/53/120

- Working Voltage: 100 kV DC
- Peak Current: 100 kA
- Switching Type: Spark gap



HV MECHANICAL PLUNGER

MODEL NO: Z/50/48

- Operating Voltage: 45 kV DC
- Current Capacity: 5 kA
- Medium: Oil ON
- Duration: max 10 sec

PLASMA GENERATION SYSTEMS

Plasma generation systems enable controlled creation of ionized gases using cold plasma, dielectric barrier discharge (DBD) and high-frequency excitation techniques. These systems are widely used in surface treatment, material science, biomedical research and environmental studies.

Products & Technical Specifications



CBD PLASMA GENERATOR
MODEL NO: Z/45/19

- Output: 0–50 kV AC at 50 mA
- Power: 2.5 kVA / 5 kVA
- Weight: 350 kg



HV CBD GENERATOR SUPPLY
MODEL NO: Z/52/130

- Output Current: 50 mA
- Frequency: 20–40 kHz
- Power: 100 W



DBD ELECTRODE SYSTEM

MODEL NO: Z/52/130

- Output Voltage: 0–20 kV p-p
- Frequency: 25 kHz
- Power: 500 W



HIGH VOLTAGE COLD PLASMA SOURCE

MODEL NO: Z/42/28

- Output Voltage: 20–40 kV HF
- Power: 1600 W
- Plasma Generation: Torch based



HIGH VOLTAGE PLASMA TORCH

MODEL NO: Z/52/130

- Frequency: 20–50 kHz
- Voltage: 25 kV HF
- Gas: Argon

HV HF & TESLA-BASED SYSTEMS

High-frequency, high-voltage systems are used for plasma excitation and experimental research. Tesla-based sources and HF inverters provide compact and efficient excitation platforms.

Products & Technical Specifications



HV HF TESLA SOURCE
MODEL NO: Z/41/23

- Output Voltage: 40–50 kV p-p
- Power: 200–400 W



**HV HF TESLA SOURCE
(ADVANCED VARIANT)**
MODEL NO: Z/41/23; Z/42/72

- Output Voltage: 30 kV p-p
- Frequency: kHz range
- Working Time: 20–40 sec



**HV HF INVERTER FOR PLASMA
GENERATOR**

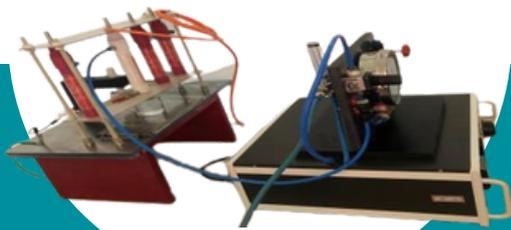
MODEL NO: Z/42/28

- Output Voltage: 0–20 kV p-p
- Frequency: 25 kHz
- Power: 500 W

APPLICATION & SOLUTION-LEVEL SYSTEMS

Application-level systems are complete solutions derived from pulsed power and plasma technologies. These systems are designed for pilot studies, process validation, and applied research.

Products & Technical Specifications



PLASMA WATER PLANT (PAW SYSTEM)

MODEL NO: Z/41/23

- Output: Plasma Activated Water
- Frequency: 2–10 kHz
- Batch Size: 50–100 ml



CONVEYOR-BASED PEF SYSTEM

MODEL NO: Z/49/112

- Electric Field Stress: 2–10 kV/mm
- Throughput: > 10 kg/min
- Exposure Capacity: 150 kg per batch





INNOVATION FOCUSED

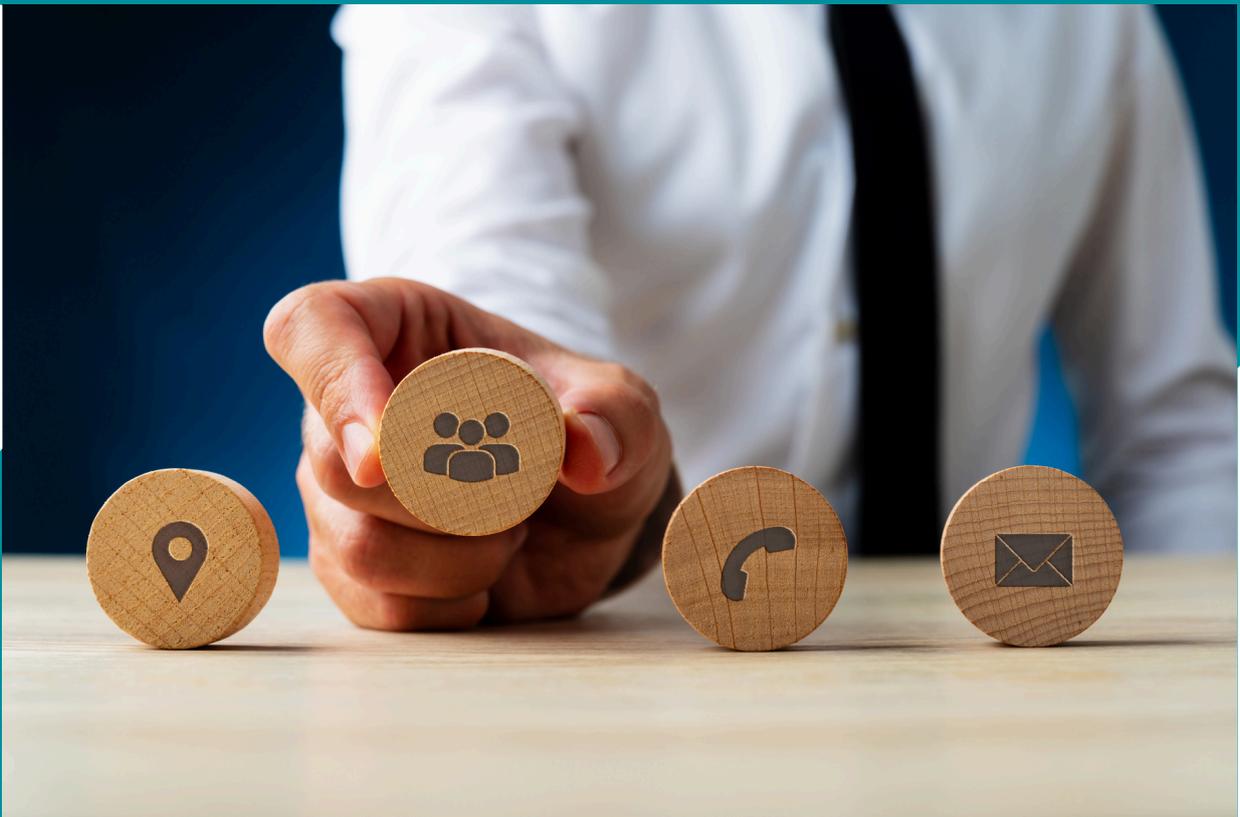
ATTENTION TO DETAILS

ADVANCE TECHNOLOGY SOLUTIONS

MEETING DEADLINES

WHY CHOOSE US

THANK YOU



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