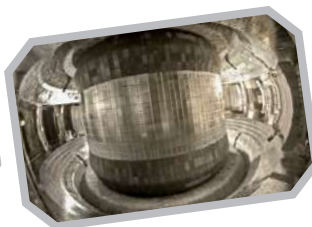


# **ZEONICS SYSTECH**

**DEFENCE & AEROSPACE ENGINEERS (P) LTD.**

## **PRODUCT CATALOGUE**

**Pioneers in Military Approved, Compact, Ultra Reliable  
High Voltage Components, Subassemblies and Systems**



**IN SERVICE OF THE NATION SINCE 1981**



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## STANDARD CABLES AVAILABLE

Sl No	Voltage	Current	Diameter	Colour
1	2kV	6A	6.5mm	White
2	6kV	2A	3.5mm	White
3	6kV	2A	3.5mm	Blue
4	6kV	2A	3.5mm	Orange
5	6kV	2A	3.5mm	Grey
6	10kV	5A	4.0mm	Light grey
7	15kV	2A	4.0mm	White
8	20kV	5A	5.5mm	White
9	25kV	10A	11mm	White
10	25kV	30A	29mm	Red
11	30kV	3A	5.0mm	White
12	30kV	6A	7.5mm	Blue
13	30kV	3A	6.5mm	White
14	35kV	2A	5.6mm	White
15	40kV	0.5A	6.0mm	White
16	40kV	8A	6.0mm	Light Grey
17	40kV	15A	6.5mm	White
18	40kv	3A	7.0mm	White
19	40kV	6A	7.5mm	White
20	40kV	10A	8.0mm	Blue
21	40kV	15A	9.5mm	Red
22	40kV	10A	9.0mm	Red
23	40kV	10A	9.0mm	Yellow
24	40kV	10A	9.0mm	Red
25	50kV	10A	9.5mm	White
26	50kV	20A	11.0mm	Black and white
27	50kV	20A	12.0mm	Black and White
28	50kV	20A	10.5mm	Black and White

# Cables

Sl No	Voltage	Current	Diameter	Colour
29	60kV	10A	10.8mm	Black and White
30	60kV	3A	10.0mm	Red
31	60kV	70A	18.5mm	White
32	60kV	20A	11.0mm	Black and White
33	60kV	15A	11.0mm	Black and White
34	70kV	10A	11.0mm	White and Black
35	70kV	20A	12.5mm	Black and white
36	70kV	20A	11.0mm	Black and white
37	80kV	25A	17.0mm	White and Black
38	80kV	40A	18.0mm	White
39	80kV	30A	16.0mm	White
40	80kV	30A	16.0mm	White and Black
41	80kV	20A	16.5mm	White
42	80kV	30A	18.0mm	White
43	90kV	2A	14.0mm	White
44	90kV	25A	17.0mm	Black and White
45	90kV	5A	19.5mm	Red
46	100kV	1A	16.0mm	White
47	100kV	30A	16.0mm	Black and white
48	100kV	25A	22.5mm	Red and white
49	100kV	22A	16.0mm	Black and White
50	100kV	1A	16.0mm	White
51	120kV	50A	19.5mm	Red
52	133kV	0.27A	17.5mm	White
53	200kV	65A	34.5mm	White and Black
54	200kV	25A	24.0mm	White
55	200kV	50A	24.5mm	Red

Please Mention Your Actual Requirement and We can design the cable for the same



# Capacitors

## 1. High Voltage General Purpose Capacitors

Operating Voltage : 2kV to 200kV AC or 1kV to 400kV DC

Capacitance : 100pF to 100μF

Application : Filter, THD, Traction, RF, By pass

Please enquire for your actual requirement



## 2. HV HF 100pF – 500nF Low Loss Capacitors



Item : High Voltage Capacitors

Capacitance : 100pF ± 10% to 500nF ± 10%

Dielectric : Teflon, Polyamides, PP, Mica

Voltage Range : 1kV to 25kVDC

Type No. : S/18/7

## 3. HV RF 300pF - 10000pF Capacitors

Capacitance : 300pF to 10000pF

rms current : Continuous current typically 100A to 900A

Typical Frequency : 100 MHz

Typical Inductance : 100nH

Temperature : -20°C to +120°C

Application : For high power sources, Magnetron, Thyatron, Gyatron and similar applications where large current radio frequency capacitors are essential.

Type No. : S/15/95 (897)



## 4. Various PFN Capacitors



Working Voltage : 40kV DC

Capacitance Value : Customisation available

Max peak current : 100 Amperes

Temperature : -30°C to +120°C

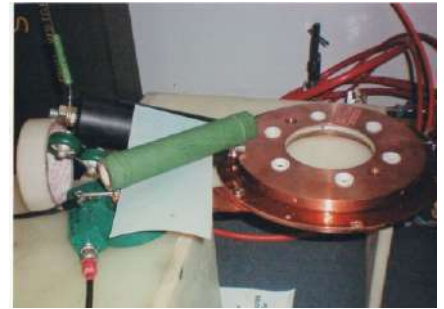
Application : varied PFN based systems

Type No. : S/14/54, S/16/118, S/17/140, S/17/151

# Capacitors

## 5. Flat RF 100pF – 600pF Capacitor

Max Working voltage : 5kV DC  
Typical Capacitance : 100pF to 600pF  
Typical rms Current : 50A to 130A at 100 MHz  
Type No. : Z/RF/100-600/AMJI



## 6. Rolling Stock Railway Capacitors 0.6μF - 8000μF



Working voltage : 600V to 22kV AC and DC  
Capacitance : 0.6μF to 8000μF  
Temperature : -20°C to +85°C  
Varieties : We provide over 800 custom built capacitors  
rms Current : 5A to maximum of 1300A  
Type No. : S/15/22

## 7. HV High Energy Rolling Stock Capacitor 500μF-5000μF

Operating Voltage : 600V/800V/1300V/2200V DC  
Capacitance : 500μF/800μF/1200μF/2200μF/5000μF  
rms Current : Typically 250A to 1800A typical repetitive  
Peak Current : 5kA to 20kA  
Applications : Rolling Stock Railways  
Type No. : S/13/40



## 8. UHV Multiplier Capacitors 100nF - 500nF



Voltages : 150kV DC/200kV DC/250kV DC/200kV AC  
Capacitance : 100nF /200nF /300nF /400nF /500nF  
Tolerance : ±10%  
Dielectric : Metal film foil, Metallized foil, Paper oil  
Dimension of : Dia = 450-600mm; H = 1000-1500mm  
Type No. : S/16/64 (968)

# Capacitors

## 9. HV DC Filter Capacitors 10kV - 50kV DC

Working voltage : 10/18/25/30/50kV DC  
Capacitance : different values available  
Type : Metal film foil oil-filled type  
Container : Metal/Fiberglass/SS/Polypropylene  
Type No. : S/16/70



## 10. HV Energy Storage Capacitors 10-40kV DC



Working voltage : 10kV /20kV /30kV /40kV DC  
Test Voltage : 11kV /22kV /33kV /44kV DC  
Capacitance : 5 $\mu$ F/10 $\mu$ F/14.5 $\mu$ F  
Tolerance :  $\pm 10\%$   
Peak current : 100kA  
Type No : S/14/66

## 11. HV Capacitor Module 0.5 $\mu$ F - 10 $\mu$ F for Missiles, Radars and Submarines

Capacitance : 0.5 $\mu$ F to 10 $\mu$ F  
Working voltage : 50kV DC  
Test voltage : 70kV DC (1 minute)  
Application : Radar TWT, missiles, submarines and  
Energization for Power Modulators  
Type No. : S/15/104, S/15/105



## 12. Low Inductance Coaxial HV Capacitor 40nF-250nF



Working voltage : various working voltage options available  
Capacitance value : 40nF/100nF/250nF  
Peak current : 10kA  
Type : Coaxial capacitor  
Enclosure : Mild steel / Stainless Steel  
Insulation : Ceramic Polymer material  
Type No. : S/16/50 (931)



# Capacitors

## 13. HV Cylindrical Capacitor 600pF – 2000pF for Fast Charging and Discharging

Working voltage : 30 kV DC  
Capacitance : 600pF – 2000pF  $\pm$  10%  
Test Voltage : 36 kV DC  
Application : For fast charging and discharging  
Type No. : S/16/6 (924)



## 14. HV Low Inductance Feed through 50nF–50μF



Current : 100A, 200A, 300A, 500A, 800A, 1000A  
Capacitance : 50nF, 100nF, 250nF, 500nF, 2μF  
Voltage : 1kV/2kV/3kV/4kV DC/5kV/10kV  
Type No : S/19/99, S/19/64

## 15. HV Low Pressure Feed through Vacuum Capacitor

Working Voltage : 50kV to 70kV  
Max Current : 10A rms and 60kA Peak  
Max Pressure Vacuum : Typically 10-3 Vacuum 1Millibar or 250 psi  
Material : Stainless Steel + Ceramic  
Temperature : -30°C to 100°C  
Type : Polymer Stainless steel  
Type No. : ZHS/001/068



## 16. Capacitor Bridge Wire Module



Input voltage : 3kV DC  
Input command : 300 Voltage Trigger Pulse  
Application : Detonation of bridge wire, squibs, detonation setc.  
Layout : The module consists of a slapper capacitor, slapper flat ordnance, spark gap trigger mechanism  
Energy : 50nF/100nF/250nF at 5kV/10kV  
Type No. : ZHS/001/101

# Capacitors

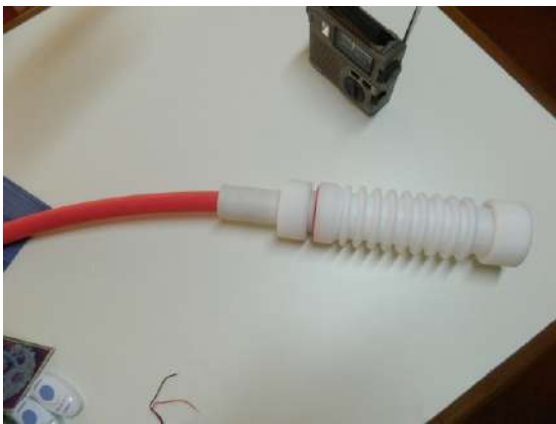
## 17. High Rep Rate 10nF-500nF Energy Storage Capacitor

Capacitance : 10nF to 500nF  
Working Voltage : 50kV, 60kV, 80kV, 100kV  
Test Voltage : 60kV, 70kV, 90kV, 110kV  
PRR : Max 100pps at 0.8kA, Max 5pps at 5.0kA  
Type No : S/19/62 (Compact)



## Connectors

### 1. HV 180kV DC Connector and Cable



Working voltage : 150kV / 180kV / 220kV / 350kV / 500kV DC  
Peak current : 10kA  
Max current : 50 Amps continuous  
Pulse Power : 9GW  
Connection : Single pin  
Cable : Silicone cable  
Type : Metal mountable (Panel type)  
Type No. : ZHS/01/50

### 2. High Voltage Gas Mountable Connector

Max Voltage : 60kV DC  
Working Voltage : 50kV DC  
Current : 10A continuous  
No. of ports : 1/2/3  
Pressure : 25psi, 50psi, 100psi  
Gas : N<sub>2</sub>, SF<sub>6</sub>, Argon, Air  
Type No. : Z/34/167



### 3. High Voltage DC + Pulse Connector



Max Voltage : 40kV DC + Pulse voltage 30kV pulse  
Max DC Isolation : 60kV DC  
Pressure : 25psi, 50psi, 100psi  
Gas : N<sub>2</sub>, SF<sub>6</sub>, Argon, Air  
Type No. : Z/34/166

# Connectors

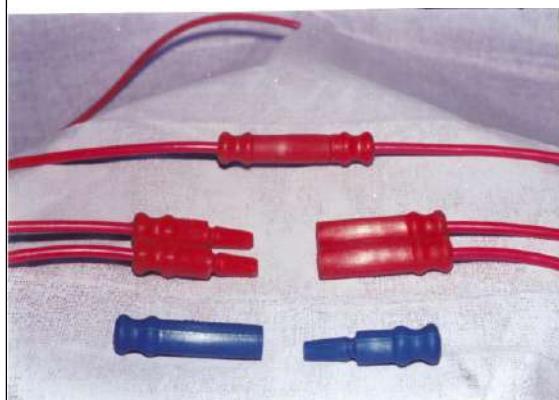
## 4. High Voltage Connectors

The connector comes with a high voltage cable on the male part of 2m length and a 1m cable on the female part, the female connector is fixed on a Non-metallic panel surface and the male plug has a Solid HV cable vacuum moulded in the connector.

Type : HVC – 100/150/200  
Working voltage : 80kV DC  
Current : 20 Amps or as per requirement  
Test voltage : 100kV DC / 50kV AC  
Diameter : 50mm  
Length : 250mm  
Type No. : ZHS/001/071



## 5. High Voltage Inline Connectors



The connector comes Soldered and moulded with silicone wires in 25kV DC wire with 2 meters length.  
Working voltage : 20kV DC, 25kV DC  
Operating current : Typically 10A continuous, 1kA Pulsed current.  
Material : Silicone sizes 001, 002, 003, 004  
Type : Connector inline to join two HV wires in air  
Types Available : Single pin, double pin, Four in one  
Type No. : ZHS/001/072

## 6. High Voltage 150kV Distribution Connector

Max Current : 25A (rms)  
Peak Current : 10kA  
Connectors used : HVC – 100, HVC – 150  
Max cable diameter : 19mm  
Temperature : 20°C to +85°C  
Type No. : Z/29/37



## 7. High Voltage Miniature Connector Air Borne



Working Voltage : 3kV/5kV/10kV DC  
Test Voltage : 5kV/10kV/20kV DC  
Current : 1A/3A/5A  
No of ways : 5, 8, 10, 12  
Type No. : Z/41/82



# Connectors

## 8. High Voltage Multi-pin Connectors

Voltage : 40kV/60kV/100kV/150kV DC  
Current : 20A/40A/60A  
Peak Current : 2kA/5kA/10kA  
Pins : Brass gold plated  
Type No. : Z/29/154



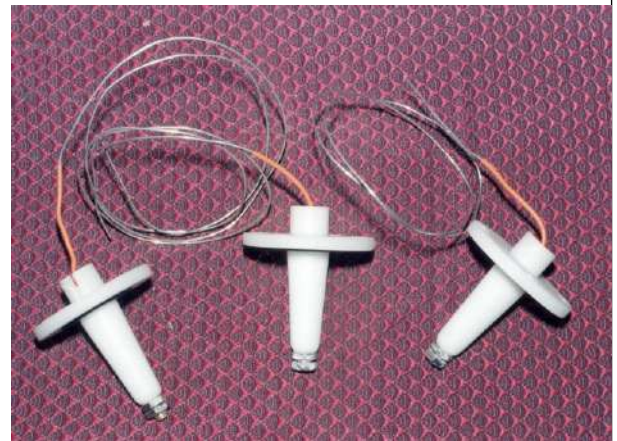
## 9. Inline HV Distribution Blocks



Working Voltage : 20kV/ 30kV /40kV/ 60kV / 80kV / 100kV DC  
Current : 2A/5A/20A  
No of Ways : 6, 8, 12, 22  
Type No. : Z/36/31

## 10. HV Feedthrough Terminal Connector

Working Voltage : 5kV to 150kV DC  
Max Current : 30A  
Temperature : -20°C to +100°C  
Type : Polymer Material Type  
Termination : All metric threads Available  
Application : To Extract High Voltage from Metal Surface  
Max pressure : 100psi in oil or SF<sub>6</sub>  
Type No. : ZHS/001/069



## Diode

### 1. General Purpose High Voltage Diodes



PIV : 10kV – 100kV  
Forward current : 250μA to 100A  
Type No. : depends on the PIV and I<sub>f</sub>  
Please mention the PIV and forward current requirement.

# Diode

## 2. HV Oil Immersed Diode Assemblies

Forward current : 1000A / 2000A continuous  
Peak Current : 50kA/100kA for 20ms maximum  
PIV : 6kV / 10kV/ 30kV/ 50kV DC  
Type No. : Z/33/220



## 3. HV Oil Filled Compact Diode



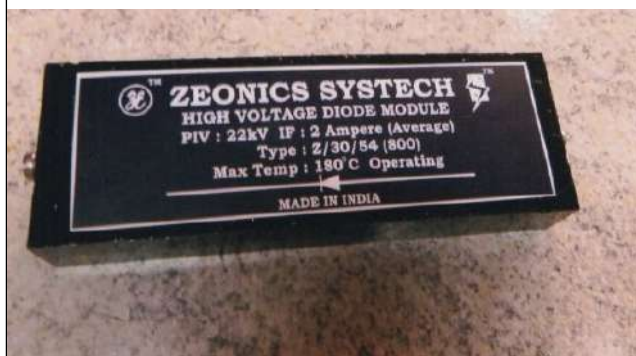
PIV : 100kV  
Forward Current : 10mA  
Frequency : Good for 50Hz / 60Hz and also HF Versions available  
Temperature : -20°C to +85°C  
Fast Reverse Recovery Options available

## 4. 50kV PIV Diode

PIV : 50kV  
Forward Current : 500mA / 750mA / 1000mA  
Non Repetitive  $I_f$  : 3.5A / 7.0A / 15.0A  
Dimension : 150mm x 25mm x 25mm  
Temperature : -30°C to 100°C  
Type No. : Z/19/119



## 5. 22kV Oil Immersed Diode



PIV : 22kV  
Forward Current : 2A  
Non Repetitive  $I_f$  : 50A  
Temperature : -30°C to +180°C  
Type : Z/30/54

# Diode

## 6. HV Diode Sticks

PIV : Typically 150kV to 400kV  
Forward Current : Typically 10mA to 100mA  
Non repetitive  $I_F$  : 1A to 5A  
Application : Industrial X-Ray Systems, Impulse Generators,  
Nuclear Particle Accelerator  
Type No. : Z/28/71 (778)



## 7. 24kV PIV Diode



PIV : 24kV  
Typical  $I_F$  : 1.8Amps  
Non Repetitive  $I_F$  : 20Amps  
Temperature : -20°C to +100°C  
Type No. : Z/Diode/24/1.8

## 8. 140kV PIV Diode

PIV : 140kV  
Forward Current : 10mA  
Medium : Oil, Gas or Compressed Air.  
Type No. : Z/Diode/140/10



## 9. Very High Voltage 400kV Ring Diode



PIV : 400kV  
Forward Current : 50mA/100mA/250mA/500mA  
Type No. : Z/27/151 (768)



# Diode

## 10. HV Oil Immersed Modular Diode

PIV : 15kV / 30kV / 35kV / 80kV  
Forward Current : 100mA / 200mA / 500mA / 800mA / 2A  
Type No. : Z/40/50, Z/39/22



## 11. High Voltage High Current Shunts



Resistance : 0.05m $\Omega$  / 1m $\Omega$  / 5m $\Omega$  / 10m $\Omega$   
Current : 1kA / 10kA / 100kA  
Rise Time : 1 $\mu$ s minimum  
Type : Coaxial  
Type No. : Z/25/115 (672)

# Divider

## 1. High Voltage 60kV Pulse Compensated Divider

Voltage : 60kV Pulse  
Capacitance : 12pF approx.  
Ratio : 1000:1 or 10,000:1  
Type No. : Z/43/136



## 2. High Voltage 125kV Resistive Divider



Working Voltage : 125kV DC  
Continuous Power : 7.8 W  
Resistance : 2000 M $\Omega$   $\pm$  5%  
Ratio : 1000:1 and 10000:1  
Type : Z/34/98

# Divider

## 3. High Voltage 150kV Capacitive Divider

Max Voltage : 150kV  
Loading Capacitance : 20pF  
Rise time : up to 100 ns  
Ratio : 10000:1 or 1000:1  
Cable : 50 Ohms matching impedance cable with BNC output  
Type No. : Z/32/8



## 4. High Voltage AC/DC Divider



Working Voltage : 400kV AC  
Capacitance : 1000pF  $\pm 5\%$   
Test Voltage : 600kV  
Type No. : Z/41/138

## 5. High Voltage Divider Column

Capacitive Value : 500pF/1000pF/2000pF  
Working Voltage : 250kV/500kV/1000kV  
Type No. : S/16/110



## 6. Highly Compact Air Borne Probe



Working Voltage : 50kV DC  $\pm 1\%$   
Test Voltage : 60kV DC  $\pm 1\%$   
Type : Measurement and Interlock  
Output : 50V at 50kV DC  
Ratio : 1000:1  
Type No : Z/22/91

# Divider

## 7. High Voltage Fluke Probe Conversion Kit

Input : 40kV DC or 28kV AC  
Display : Meter (Multimeter)  
Accuracy :  $\pm 2\%$   
Test Voltage : 40kV DC T- B  
Type No. : Z/42/118



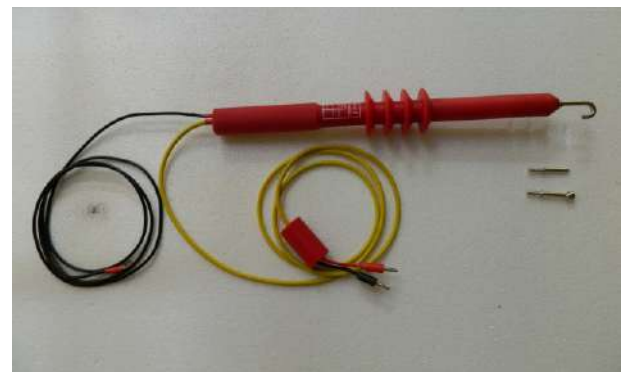
## 8. High Voltage AC/DC Probe



Input : 50kV AC / 50kV DC  
Output : 50V AC / 50V DC  
Duty : 100% on duty  
Life : 50,000 hours continuous duty  
Type No. : Z/29/160

## 9. High Voltage Metering Probe

DC Measurement : 40kV DC  
AC Measurement : 28kV AC max  
Ratio : 1000:1  
Suitable Meter : 10 M $\Omega$  input impedance Meter to be used  
Type : ROSHDIN/40/28



## 10. General AC/DC Probe



Working Voltage : 50kV /60kV /100kV DC  
Test Voltage : 60kV /80kV /120kV DC  
Ratio : 1000:1  
Altitude : 50km  
Type No. : Z/29/50, Z/W/B/6-90 (WLR/FLR/TLR)



# Divider

## 11. Lightning High Voltage 800kV Impulse Divider

Max Voltage : 800kV impulse  
Typical rise time : 1.2 $\mu$ s/50 $\mu$ s or 8.0 $\mu$ s/20 $\mu$ s  
Duty : Continuous  
Type No. : S/19/76



## 12. High Voltage 150kV Compensated Divider



Working Voltage : 150kV DC/225kV Pulse  
Ratio : 10,000:1  
Composition : R and C Type P  
max frequency : 10MHz  
Height : 750mm  
Diameter : 290mm  
Capacitance : 27pF  
Base Diameter : 30cms approximate  
Standard Divider Ratio : 10000:1  
Type No : Z/34/01

## 13. High Voltage 200kV Compensated Divider

Working Voltage : 200kV DC  
Ratio : 1000:1 or 10,000:1  
HT Resistance : 2000M $\Omega$   $\pm$  2%  
Capacitance : 6pF  $\pm$  2%  
Type No : Z/43/140



## EMP / NEMP / HEMP Products

### 1. Pulse Current Injection System for NEMP Testing



Voltage : 60kV  
Peak Current : 1.2kA  
Zo : 60 Ohms  
Rise Time : 20ns  $\pm$  10%  
Pulse Width : 550ns  $\pm$  10%  
Standards : MIL-STD-188-125-1  
Type No : Z/43/111

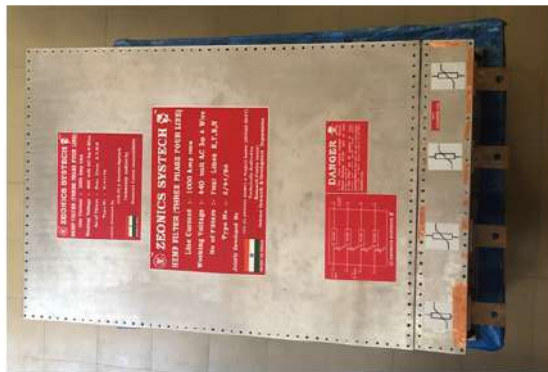
# EMP / NEMP / HEMP Products

## 2. NEMP Filter for HEMP Application Single Line

Input : 1 $\phi$  and 3 $\phi$  System  
Current : 5A to 800A  
Duty : Continuous  
Type No. : Z/43/28



## 3. NEMP Filters for HEMP Applications 4 Line



Rms Current : 400A/600A/800A/1000A/1500A/2000A  
Phases : Options for Single phase or 3 phase  
Complying with : MIL-STD-188-125-1

## 4. EMP 180kV Pulse Gun Source

Input : 230V, 50 Hz, 1 Phase  
Output : 180kV output pulse  
Rise Time :  $\leq 3.0$ ns  
Construction : 180kV, Marx Generator  
Type No. : Z/37/10



## 5. High Rep Rate EMP Pulser



Input Voltage : 230 V, 50Hz (Mobile version 24V DC)  
Output Voltage : 100kV Pulses  
Rise Time :  $\approx 2.2$  to  $2.8$ ns  
PRR : 50pps  
Configuration : Mobile  
Antenna : Flat Transmission Line 100 $\Omega$   
Type No. : ZHS/01/53

# EMP / NEMP / HEMP Products

## 6. High Voltage Pulse Gun EMP- 400

Working Voltage : 40kV DC  
Peak Current : 30kA  
Energy : 400 Joules  
Rise time :  $\leq 50\text{ns}$   
Pulse Energy : 1.2 GW  
Configuration : Mobile  
Switch : Gas filled Trigatron  
Type No. : Z/34/94



## 7. High Voltage EMP Hand Held System

Input Voltage : ON Board 36V Batteries  
Output Voltage : Pulse of 40kV  
Pulse Current :  $\approx 30\text{kA}$   
Rise time : Typically  $10\mu\text{s}$   
Application : Generation of 40kV pulses on the system  
Pulse component : Yes, available with a peaking gap  
Type No. : Z/34/94



## 8. EMP Blaster Gun MK – II



Input Voltage : 230 V, 50Hz (Mobile version 24V DC)  
Output Voltage : 100kV Pulses  
Rise Time :  $\approx 2.2$  to  $2.8\text{ns}$   
PRR : 50pps  
Configuration : Mobile  
Antenna : Customer based  
Type No. : ZHS/01/53

## 9. EMP Simulator

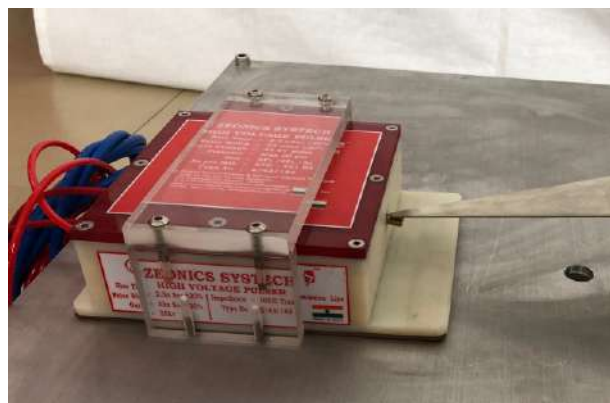
Voltage : 25kV Pulser  
Rise Time :  $2.3\text{ns} \pm 20\%$   
Power :  $23\text{ns} \pm 5\text{ns}$   
Complying with : MIL-STD-461-B-RS-107  
Repetition rate : Max 5pps  
Field strength :  $\geq 50\text{kV/meter}$   
Dimension of object : 70mm x 70mm x 70mm (or) 70mm x 220mm x 35mm  
Type No : Z/31/126, Z/39/142





# EMP / NEMP / HEMP Products

## 10. EMP Launcher Module



Voltage	: 25kV/50kV/Output
Rise Time	: 2.3ns $\pm$ 20%
Pulse Width	: 23ns $\pm$ 20%
Complying with	: MIL-STD-461-B-RS-107
Dimension	: 250 x 250 x 750mm
Type No.	: Z/43/142

## Load Bank

### 1. High Power Crowbar Resistor Bank

Resistance Value	: 1k $\Omega$ 8 Nos. in parallel
max Energy	: 50kJ, 5 Minutes cooling 5pps
Application	: As a crowbar Resistor for a 1 MW Klystron facility
Weight	: Assembled 190kgs
Type	: Non Inductive
Type No.	: ZHS/01/50



### 2. High Voltage Resistive Load Bank



Resistors	: Non Inductive / Wire Wound
Section	: Cathode and Collector
Auxiliary Power	: 230 V, 50Hz, 1 Phase
Voltage	: 15kV DC Operation
Minimum Power	: 1kW
Maximum Power	: 100 kW
Temperature	: -20°C to +100°C
Application	: Testing of Radar HV Power Supply without RF Load
Type No.	: Z/27/60

### 3. High Voltage Forced Air Cooled Load Bank

Working Voltage	: 50kV DC to 120kV DC
Isolation Voltage	: 75kV DC to 190kV DC
Power	: 10kW to 30kW
Application	: Testing of DC Power Supply with variable taps.
Type No.	: Z/25/111 (632)



# Load Bank

## 4. High Voltage DC Load Bank



Working Voltage : 45kV DC to 65kV DC  
Power : 18kW  
Resistor Distribution : Odd + Even  
Duty : Continuous military duty  
Weight : 190kgs  
Type No. : Z/32/86

## 5. High Voltage Compact Load Bank - 1

Working Voltage : 15kV to 25kV DC  
Power : 1.0kW to 24.0kW  
Resistors : Non Inductive, Glass passivated  
Application : Testing of TWT Power Supply  
Type No. : Z/36/50



## 6. High Voltage Compact Load Bank - 2



Voltage : 10kV/25kV DC  
Current : 0.2A/0.5A/1.0A  
Power : 1kVA to 15kVA  
Type : Non-Inductive Resistor  
Type No. : Z/35/60

## 7. Portable Compact Load Bank

Working Voltage : 5kV DC to 60kV DC  
Resistance Range : 0 to MΩ ranges possible  
Power : Max 5000W  
Type No. : Z/35/62



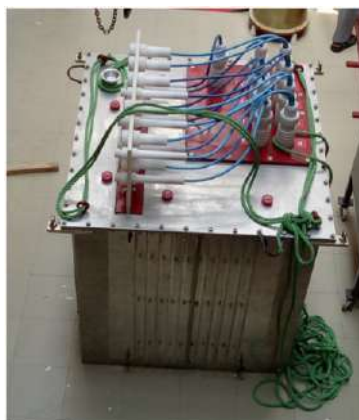
# Load Bank

## 8. High Voltage Tandem Load

Working voltage : 100kV DC / 300kV DC  
Current : 1-10mA  
Test voltage : 110kV DC / 330kV DC  
Power : 100 – 1000 W  
Application : Series / Parallel Connection  
Type No. : Z/40/64



## 9. High Voltage Industrial Load Bank



Power : 150kW, 200kW, 300kW  
Voltage : 150kV DC / 200kV DC  
Duty : Continuous System  
Cooling : Duty Continuous  
Container : Metal force cooled  
Type No. : Z/37/88

## Marx Generator

### 1. High Voltage Cold Plasma Source

Input Voltage : 230V 50Hz 1 Ø  
Output Voltage : 40kV/20kV HF System  
Plasma Torch : Ø of 15mm, Length of 250mm  
Power : 1600W  
Type No. : Z/42/28



### 2. Impulse Generator (Marx) With Wave Shaping System



Output : 200kV pulse  
Open circuit : 200kV output, 20 Joules  
PRR : max 5ppm  
Rise time :  $1.2\mu\text{s} \pm 20\%$   
Pulse Width :  $50\mu\text{s} \pm 20\%$   
Operating Pressure : 20psi air max  
Weight :  $\approx 45\text{kgs}$   
Type No. : Z/34/139



# Marx Generator

## 3. High Voltage 700kV Output Marx Insert

Input : 50kV DC  $\pm$  5%  
Output : 700kV Pulse  
Peak Current : max 14kA  
PRR : max 1ppm  
No. of Stages : 14  
Type : Retrofit  
Dimensions : Diameter-580mm; Length-1800mm  
Type No. : Z/33/44



## 4. High Voltage Marx Generator 500kV (2kJ)



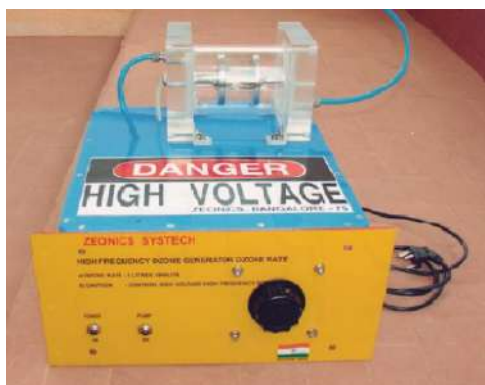
Input : 230 V, 50 Hz, 1 Phase  
Output : 500kV Pulse  
Energy : 1 kJ / 2 kJ  
PRR : max 5 ppm  
Rise time :  $\approx$  140ns  
Type No. : Z/28/19

## 5. High Voltage, Low Inductance Marx Generator

Output Voltage : 1000kV  
Erected capacitance : 200pF  
max rise time : 130ns  
Typical diameter : 580mm  
Typical length : 2.1 m  
Max Pulse Rep Rate : per second  
Minimum load : 50 Ohms be connected  
Pressure : N<sub>2</sub> around 30-50psi  
Type No. : Z/20/123 ; S/14/77



## 6. High Frequency Ozone Generator



Input voltage : 230V, 50Hz, single phase  
Output voltage : 15 to 20kV at 20 kHz  
Output Ozone : 6 Litres/Minute (At full power)  
Type No. : ZHS/01/22; ZHS/001/099

# Miscellaneous Generator

## 7. High Voltage High Energy Nano Particle Generator

Working voltage : 25kV DC to 40kV DC  
Energy : 2.5kJ  
Max wire : diameter - 0.36mm; length - 300mm  
Application : Generation of metal nano particles in a Confined space  
Type No. : ZHS/001/098



## 8. HV HF Inverter for Plasma Generator



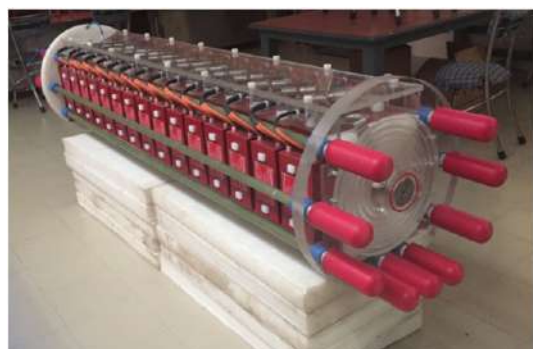
Input : 230V 50Hz 1Ø  
Output : 20kV AC rms at 20kHz  
Power : 1000W  
Type No. : Z/42/28

## 9. High Voltage HF Plasma Generator

Input Voltage : 230V 50Hz 1Ø  
Output : 40kV AC 20kHz Plasma System  
Plasma Torches : 5 Plasma Torches can be attached  
Type No. : Z/42/28, Z/42/64



## 10. High Energy High Voltage Marx Inserts



Output Voltage : 500kV/800kV/1000kV/1500kV  
Current : 10kA to 40kA  
Impedance :  $\approx 10\Omega$  to  $30\Omega$  Range  
Type No. : Z/35/82 (Y-1208)

# Power Supply

## 1. Low Cost Trigger Generator

Input Voltage : 230V 50Hz 1Ø  
Output Voltage : 500V pulse  
Command : Manual + 10V Pulse  
Type : Z/33/146



## 2. High Voltage 500kV Portable Power Supply



Input : 440V, 50Hz 3Ø  
Output : 0 to 500kV DC at 1mA, 5mA, 10mA  
Duty : Continuous Duty  
Power : 500W, 1000W, 2500W, 5000W  
Type No. : Z/40/52, Z/40/65

## 3. High Voltage 100kV Power Supply

Output : 0 to 100kV DC at 1mA  
Power : 100W  
Duty : Continuous  
Applications : Poling, Electrospinning, Lasers,  
Weapon Systems, Marx Generators  
Type No. : Z/33/200



## 4. High Voltage 150kV DC Power Supply



Input : 230 V, 50Hz, 1 Phase  
Output : 0 to 150 kV DC at 700µA  
Polarity : Optional + ve or -ve Output  
Duty : Continuous Operation  
Applications : Electrophoresis, Poling, Electrospinning,  
Ion acceleration, Nuclear Science, X - Ray  
Type No. : Z/33/200, Z/33/204



# Power Supply

## 5. High Voltage Electrosinning Power Supply

Input Voltage : 230V 50Hz AC/ 110V 50Hz AC  
Output Voltage : 0 to 40kV DC at 50 $\mu$ A  
Controls : Speed and Voltage control  
Indication : Analog meter/ Digital meter for voltage  
Temperature : -20°C to +85°C  
Type No. : ZHS/001/080



## 6. High Voltage 0 to 60kV DC/30mA Power Supply



Input Voltage : 230 V 50Hz 1 $\phi$   
Output Voltage : 0 to 60kV DC  
Current : 30mA or 60mA  
Ripple : 2% maximum  
Regulation :  $\pm$  5%  
Duty : Continuous  
Type No. : Z/34/32

## 7. Variable High Voltage DC Power Supply

Input Voltage : 230 V, 50Hz, Single Phase  
Output Voltage : 25kV to 60kV DC  
Power : 500VA to 5000VA  
Type : 50Hz Transformer + Resistor + Capacitor  
Type No. : ZHS/01/33



## 8. High Voltage Insulated Rack for 150kV DC Power Supply



The entire rack is isolated to take a floating HV power supply of 150kV DC  
Type No. : ZHS/001/078

# Power Supply

## 9. High Voltage 50kV DC 2mA Power Supply

Input Voltage : 230 V, 50Hz, 1 Phase  
Output Voltage : 0 to 50kV DC  
Output Current : 2mA max  
Type : Pneumatic switch variant HV ON/OFF in ON Condition  
Type No. : Z/34/194



## 10. High Voltage 10-30kW Power Supply



Input Voltage : 230 V, 50Hz or 400V single phase  
Output Voltage : 10kV DC / 20kV DC / 30kV DC  
Output Current : 1.0 Ampere  
Power : 10kW, 20kW, 30kW  
Protection : Over voltage, Over load, Over current, Zero start Protection  
Ripple :  $\pm 7\%$  on full load  
Type No. : ZHS/01/27

## 11. High Voltage 250kV DC Power Supply

Input : 230 V, 50Hz, 1 Phase  
Output : 0 to 250kV DC at 1mA maximum  
Configuration : HV / HF + Multiplier  
Duty : Continuous at 70% of output voltage  
Type No. : Z/32/174 (881); S/17/76



## 12. High Voltage 60-100kV DC Power Supply



Input : 230 V, 50Hz, Single phase  
Output : 0 – 60kV DC, maximum 3mA / 1mA  
          0 – 100kV DC, maximum 3mA / 10mA  
Display : Digital Voltage display or Current Analog display  
Protection : a. Short circuit b. Over voltage c. Over current trip  
Type No. : Z/25/6

# Power Supply

## 13. High Voltage Slim Power Supply

Input : ON Board Batteries  
Output : 30kV DC at 5mA  
Power : 150 W  
Type No. : Z/35/44



## 14. High Voltage Vac Ion Power Supply



Input : 230V, 50Hz, Single Phase  
Output : 3.0kV DC/5.0kV DC  
Current : Max 2mA output  
Power : 3 W / 5 W  
Type No. : ZHS/01/21

## 15. High Voltage 20/40kV DC Power Supply

Input : 230V, 50Hz, Single phase  
Output : 0 to 20kV DC or 0 to 40kV DC  
Current : 10mA and 250mA; 0.5mA to 5A Version  
Type No. : Z/29/04 (822)



## 16. Multi Output High Voltage and Low Voltage Power Supply



Input : 230V 50Hz 1Ø  
Output : Multiple output 2/3/6 output for special applications  
Output typically : 5V, 15V, 20V, 25V, 100V, 200V DC  
Type No. : ZHS/01/24



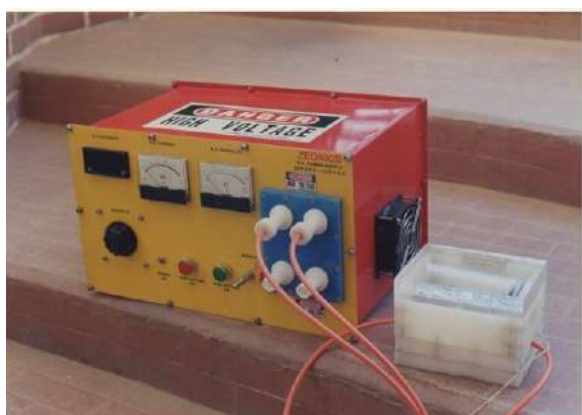
# Power Supply

## 17. High Voltage Magnetron Filament Power Supply

Input Voltage : 230V 50Hz Single phase  
Output Voltage : 0 to 30V  
Output Current : 10 to 20A  
Isolation : Typically 30kV DC  
Application : Supply for Magnetron filament  
Type No. : ZHS/01/38



## 18. High Voltage AC + DC Combined Power Supply 20kV AC



Input Voltage : 230V 50Hz 1Ø  
Output Voltage : 0 to 20kV AC at 20mA  
0 to 30kV DC at 20mA  
Type : Linear HV Power Supply suitable for regular AC + DC work  
Type No. : ZHS/01/39

## 19. High Voltage AC + DC Power Supply 50kV AC

Input Voltage : 230V 50Hz / 110V 50Hz  
Output Voltage : 0 to 50kV AC, 0 to 70kV DC  
Output Current : Typically 100mA  
Type : Oil-immersed  
Application : Harsh environment applications  
Type No. : ZHS/01/40



## 20. High Voltage Modular Power Supply 15-25kV DC



Input Voltage : 230V 50Hz 1Ø / 415V 50Hz 3Ø  
Output Voltage : 15kV DC / 20kV DC / 25kV DC  
Output Current : 1A  
Power : 15kW, 20kW, 25kW  
Type : Auto transformer, HV Transformer and capacitor  
Application : Charging of capacitor banks, Industrial Application  
Type No. : Z/27/116

# Power Supply

## 21. High Voltage 26kV DC Power Supply

Input Voltage : 200V 3 $\phi$  400Hz Delta Connected  
Output : 26kV DC at 230mA  
Power : 6000 W  
Duty : Continuous  
Application : Radar DC Power Supply  
Weight : 106kg  
Type No. : Z/42/138



## 22. High Voltage DC Isolated Power Supply



Primary : 230V 50Hz 1 $\phi$   
Secondary : 3000V DC 100mA DC supply  
Power : 300W  
Isolation : 150kV DC  
Range : 1000W to 2000W  
Type No. : Z/38/98

## 23. High Voltage High Frequency 33kV Transformer

Input : 450V Input AC 20kHz  
Output Current : 606mA  
Output Voltage : 33kV DC  
Power : 20 kW  
Duty : Continuous  
Type No : Z/43/24/60 (Y-1261)



## 24. High Voltage High Frequency 47kV Transformer

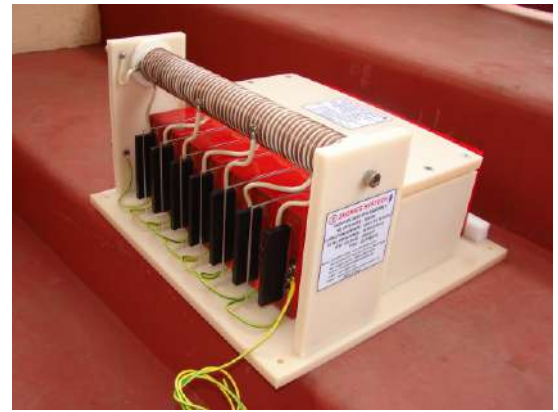


Input : 450V Input AC 20kHz  
Output Current : 139mA  
Output Voltage : 47kV DC  
Power : 6.4 kW  
Duty : Continuous  
Type No : Z/43/24/48 (Y-1259)

# Pulser

## 1. High Voltage PFN Modulators (PFN Based Pulser)

Voltage : 10kV to 100kV values  
Capacitance : 1nF to 100 $\mu$ F  
Time duration : 10ns to 100 $\mu$ s (Adjustable)  
Type : 10 Stage / 20 Stage systems  
Type No. : Z/27/26 (112)



## 2. High Voltage 25kV Pulser



Pulse : 1.2/50 $\mu$ s at 25kV output  
Application : Continuous Lightning Pulse Generation System  
Load : Resistive and Capacitive  
Type No. : Z/41/56

## 3. High Repetition Rate Pulser 1000kV DC

Erected Capacitance : 250pF  $\pm$  10%  
Output Voltage : max 1MV in Open circuit  
Voltage/Stage : 100kV DC  
PRR : 50pps  
Rise Time :  $\leq$  50ns  
Pulse Width : 110 to 200ns  
No. of Stages : 10  
Type : Marx Insert  
Type No. : S/14/48, Z/21/5



## 4. Ultra-Low Inductance 100-140kV Pulser



Input voltage : 100 - 140kV  
Output pulse : max 140kV  
Coaxial capacitor : 125pF  $\pm$  10%  
Rise time : 2.3 ns

These assemblies are essentially used for electromagnetic research where one needs to generate high voltage fast rise time pulses. The system comes tightly coupled with a coaxial capacitor and its peaking gap. Additional features like power supply, connectors and resistors can be supplied on special request.

It can also be used as a source for 100 ohms EMP simulators.

Type No. : ZHS/01/59



# Resistor

## 1. High Voltage Serpentine Low Inductance Resistor



Working voltage : 200kV AC; maximum 300kV AC  
Resistor range : 200k $\Omega$   
Current : 1.2mA to 2.0Amps  
Type : oil immersed type/ gas cooled type  
Power : 50 W to 3000 W assorted  
Type No. : Z/20/69

## 2. High Voltage Inline Coaxially Fed Resistors (Pressure sealed)

Resistance Range : 10 Meg ohms to maximum of 1 Giga ohms  
Max energy/resistor : Typically 100 W  
Max voltage in assembly : Typically maximum 200kV  
These are used as bleeder resistors for the coaxial generator as and when required with a special high voltage connector and press fit system.  
Type No. : ZHS/01/60



## 3. Rail Gap Biasing Resistors (1/2 or 2/3)



Working Voltage : 70kV DC  
Test Voltage : 100kV DC  
Resistance : 500M $\Omega$  + 500M $\Omega$   
Type No. : Z/34/68

## 4. High Voltage Non-Inductive Resistive Assembly

Max Voltage : 60 kV DC Isolation  
Resistance Value : 1k $\Omega$  to 25k $\Omega$   
Power : 250 W  
Cable : Pig tail connection of HV Cable  
Type : Ceramic substrate, Ruthenium Deposited Resistor  
Type No. : Z/18/4/15





# Resistor

## 5. Low Inductance Coaxial Load Resistor

Resistor value : As per order suitable to the customer  
Typical value :  $1\Omega$  to  $500\Omega$   
Type : Solid bulk resistor; wire wound resistors  
Container : Coaxial metal container with resistive ground  
Type No. : ZHS/001/082



## 6. High Voltage Pulse Resistor



Resistance Range :  $50\Omega$  to  $1000\Omega$   
Max peak current :  $50\text{kA}$   
Max energy :  $10\text{kJ}$   
Application : As a load for high power pulses like Blumlein, Marx, Capacitor bank  
Type : Non Inductive  
Type No. : Z/21/117

## 7. High Voltage Modular Crowbar Resistor

Typical Voltage :  $15\text{kV}/25\text{kV}/50\text{kV}/100\text{kV}/150\text{kV}$   
Typical Values :  $1\Omega$  to  $10\Omega$  /  $20\Omega$  to  $100\Omega$   
Resistor : Bulk Ceramic Resistor or Wire wound  
Temperature :  $-20^\circ\text{C}$  to  $+85^\circ\text{C}$   
Type No. : ZHS/001/084



## 8. High Voltage Low Inductance Resistors

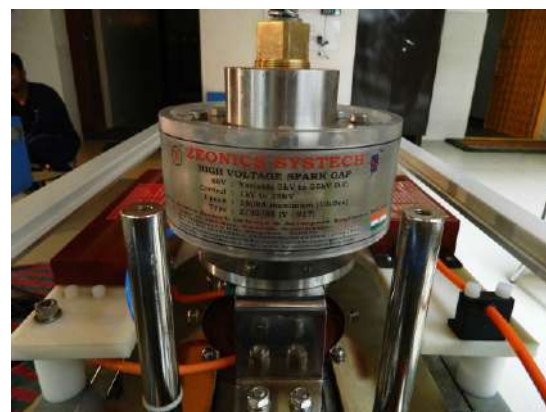


Working Voltage :  $50\text{kV}$  /  $100\text{kV}$  /  $400\text{kV}$   
Peak Current : max  $100\text{kA}$   
Resistance Value :  $10\text{ Ohms}$  /  $25\text{ Ohms}$  /  $50\text{ Ohms}$   
Connector : Coaxial Metal  
Type No. : Z/34/112

# Spark Gap and Rail Gap

## 1. High Voltage Spark Gap SBV 3-35kV

Control : 1kV to 25kV  
Self-Breakdown Voltage : Variable from 3kV to 35kV DC  
Peak Current : 150kA maximum (16 $\mu$ s P.W.)  
Energy : max 20kJ  
PRR : 5ppm  
Pressure : Nitrogen / SF<sub>6</sub> Gas  
Type No. : Z/32/85



## 2. High Voltage Spark Gap SBV 60kV-120kV



SBV : 60kV at 50psi, > 90kV at 100 psi,  $\approx$ 120kV  
Peak Current : 10kA maximum, single shot / 1kA max at 10pps  
Gas : Nitrogen / SF<sub>6</sub>  
Type No. : Z/30/58 (852)

## 3. Coaxial 50 $\Omega$ Spark Gap for Metal Tube Insertion

SBV : 90kV DC, Control 25kV to 72kV DC  
Peak Current : 10kA  
Typical Rise Time : <30ns  
Pressure : 35psi, 43kV SBV  
Gap : 4mm  
Type No. : Z/33/138



## 4. High Voltage High Current Spark Gaps $\sim$ 400kA



Working Voltage : 20kV, 30kV, 40kV  
Peak Current : 150kA to 400kA  
Pulse Width : 100 $\mu$ s to 420 $\mu$ s  
Energy : 10kJ, 20kJ, 50kJ  
Dimensions : Diameter = 250 to 350mm  
Height = 150 to 200mm  
Type No. : Z/32/85 (917)

# Spark Gap and Rail Gap

## 5. 10kV – 50kV DC Rail Gap

Working Voltage : 10kV DC to 50kV DC  
Peak Current : 500kA typical maximum  
PRR : 1 ppm maximum at 500kA  
1 ppm maximum at 750kA (Flushing)  
Charge : max 20C charge transfer  
Type No. : Z/34/60 (746)



## 6. High Voltage Triggered Spark Gap SBV 10kV



Current : 6 kA to 9 kA  
Peak Current : 16 kA (Non-Repeatable)  
SBV : 10 kV $\pm$  7%  
Transformer Input : 300V Pulse  
Transformer Output : 10kV Pulse  
PRR : 1ppm  
Max Pulse Width : 600 $\mu$ s per shot  
Coulombs : 0.02C/Discharge  
Type : Vacuum Gas filled Trigatron  
Dimensions : Diameter : 65 mm; Length: 100mm  
Atmosphere : Oil / Air / SF<sub>6</sub> / Nitrogen  
Type No. : Z/33/196 (10 kV)

## 7. Variable Electrode, Variable Pressure Spark Gap



Working Voltage : 300kV pulse maximum  
Peak Current : 5kA / 25kA / 50kA  
Pressure : 20 Bar, maximum 290 psi  
Pulse width : < 50 ns  
Gap : 0 to 10mm adjustable  
Type No. : Z/31/72 (870) electrode

## 8. Variable Voltage 2 Terminal Spark Gaps

Operating Voltage : 6kV DC to 11kV DC  
Peak current : Typically 5kA /10kA  
Gas : Nitrogen filled atmosphere  
Type No. : Z/29/65(823)





# Spark Gap and Rail Gap

## 9. High Voltage Gas Filled Spark Gap Trigatron

SBV : 60kV to 130kV (Pressure Controlled)  
Control : 50kV to 95kV  
Peak current : 10kA  
Max Pressure : Nitrogen at 50psi or SF<sub>6</sub> at 30psi  
Trigger Voltage : 20kV pulse maximum  
Type No. : Z/28/92 (731)



## 10. High Voltage Nuclear Hardened Spark Gap Switches



Working Voltage : SBV 40kV DC  
Test Voltage : 50% to 80% of SBV (20kV to 32kV)  
Peak Current : 20kA max  
Temperature : -20°C to +85°C  
RH at 40°C : 95%  
Neutron Capability : max 1x10<sup>9</sup> flux Neutrons  
Peak Current : 25kA  
Type No. : ZE/3T/40

## 11. High Voltage Isotope Treated Low Jitter Spark Gaps

Self-breakdown voltage : 5, 10, 15, 20, 25, 30, 40kV  
Control required : 40% of SBV to 80% of SBV  
Peak Current : 5kA / 10kA  
Trigger required : 10kV Trigger required  
Type No. : ZHS/001/093



## 12. Low Inductance High Voltage Spark Gap



SBV : 180kV at 100psi  
Typical Rise Time : < 5ns at 100psi  
Gas : Nitrogen  
Type No. : Z/30/58



# Spark Gap and Rail Gap

## 13. High Voltage 3 Terminal Spark Gap for Coaxial Fixing

Working Voltage : SBV 120kV DC  $\pm$  7%  
Control Voltage : 60kV to 96kV DC  
Peak Current : 30kA maximum  
Trigger Pulse : 30kV to 40kV at 1 Joule  
Medium (Insulating) : Oil / Air/ Compressed gas  
Type No. : Z/15/4



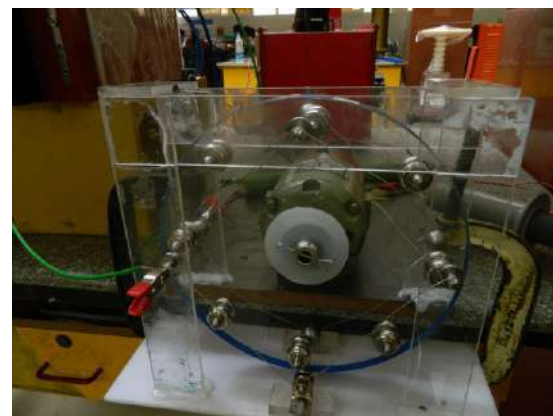
## 14. High Voltage Demonstration 100kV 3 -T Spark Gap Assembly



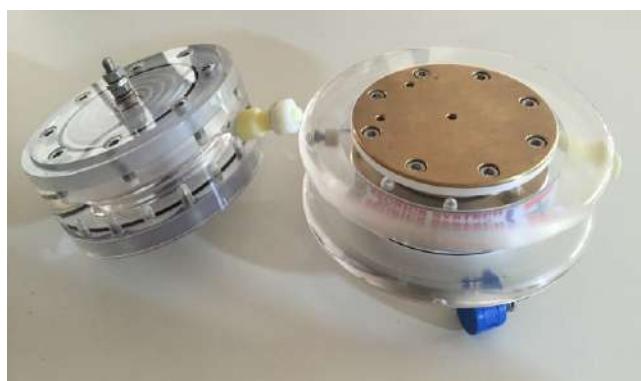
Working Voltage : 10kV to 100kV  
Trigger Generator : Input 230V, 50Hz, 1 Phase, Output 1kV  
Trigger Transformer : Input 1kV; output 40kV pulse  
Decoupling Capacitor : 500pF /100kV  
Type : Open execution spark gap  
Type No. : Z/14/147

## 15. Rotational Spark Gap

Voltage : max 100kV  
max Current : 20A / Pulse  
max PRR : 30 pps to 200 pps  
Electrodes : Tungsten, Alkonite  
Motor Speed : 1500 rpm (variable)  
Type No. : ZHS/01/61



## 16. Field Distortion Spark Gaps



SBV : 25kV to 100kV  
Control : 30% to 80% of SBV  
Peak Current : 30kA to 100kA  
PRR : 10kA  $\rightarrow$  50pps; 100kA  $\rightarrow$  1ppm  
Gas Flow : N<sub>2</sub> /SF<sub>6</sub> at 25Lps to 50Lps  
Electrodes : Copper Tungsten  
Gas purging : Every Few Shots when at 30kV  
Type No. : Z/37/58, Z/40/88

# Spark Gap and Rail Gap

## 17. Variable Voltage High Voltage Trigatron Switch

Variable SBV : 10kV to 25kV DC  
Control Voltage : 5kV to 20kV DC  
Gas : Nitrogen, SF<sub>6</sub>, Argon  
Type No. : Z/30/73 (832)



## 18. High Voltage Trigatron Switch



Working Voltage : 20kV DC to 100kV DC  
PRR : max 100pps  
Peak Current : max 1kA at 100pps, max 5kA at 5pps, max 10kA at 1ppm  
Gas : Hydrogen, Nitrogen, SF<sub>6</sub>  
Type No. : Z/27/4

## 19. Hydrogen Gas Based Trigatron Switches

SBV : 100kV DC  
Control : 40kV to 80kV pulse  
Peak Current : 35kA  
Max PRR : 100Hz at 1kA/Pulse  
Pressure : 100psi  
Gas : Hydrogen/Nitrogen/SF<sub>6</sub>  
Type No. : ZHS/001/092



## 20. High Voltage Floating Spark Gap



Input : ON Board Batteries 24V DC  
Output : Pulser Trigger source for Triggering Spark Gap  
Spark Gap : 200kV Spark Gap suitable for 200kA  
Application : Air Borne Application and Testing of 200kV/200kA Pulses on wind Mills  
Type No. : Z/36/18

# Spark Gap and Rail Gap

## 21. High Voltage 3 Triggered Spark Gap



SBV	: 100kV to 120kV DC
Control Voltage	: 60kV to 90kV DC
Peak Current	: 20kA
Trigger Voltage	: 15kV max
PRR	: 1pps max
Type No.	: Z/3T/100, Z/40/102

## 22. High Voltage Firing Set Spark Gap

SBV	: 8kV DC
Control	: 3.5kV to 6.4kV
Peak Current	: 10kA
Life	: 1000 Shots at 10kA; 10,000 Shots at 1.8kA
Application	: Detonation Sets
Type No.	: Z/42/114



## 23. Multi-Channel (6) Rail Gap Gas Management System



Pressure	: max 50 psi
Display	: Analog + Digital
Ports	: 6 Nos.
Type No.	: Z/34/79

## 24. Adjustable High Voltage Spark Gap

SBV in air	: Module 15kV to 45kV DC
Peak Current	: 20kA maximum
Pressure	: 50psi N <sub>2</sub> for 150kV SBV
Type No.	: Z/31/111



# Switches

## 1. Pulse Power Pneumatic Crowbar Module

Working Voltage : 50kV DC  
Test Voltage : 60kV DC  
Peak Current : max 40kA (No Resistor)  
Pressure : max 30 psi dry air  
Crowbar Resistor : 5k $\Omega$ /10k $\Omega$ /20k $\Omega$   
Type No. : Z/34/65



## 2. Pneumatic High Voltage Safety Switch 50kV DC



Working voltage : 50kV DC  
Test Voltage : 65kV DC  
Operational Pressure : max 30 psi Air  
Type : NO / NC or 2NO / 2 NC  
Type No. : Z/34/65

## 3. Pneumatic High Voltage Switch 50-150kV DC



Input Voltage : 230V 50Hz or 12 V Battery  
Output Voltage : 50kV, 100kV, 150kV  
Isolation : Level 60kV, 120kV, 200kV  
Air Pressure : 40psi  
Contacts : Alkonite/Tungsten  
Type No. : Z/33/28

Please note the switches can be custom built. In case you require different input, output or configuration, please feel free to contact us.



# Transformers (Pulse + Trigger)

## 1. Air Based Multi Primary Transformer for 60kV Pulse

Input Voltage : max 600V input  
Output Voltage : max 60kV pulse  
Isolation : 90kV DC  
PRR : max 1 pps  
Energy : max 100 Joules  
Temperature :  $-20^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$   
Type : Air core primary vacuum moulded epoxy case  
Type No. : ZE/TT/60/AC  
Please note the values are customisable. In case you require different input, output or configuration, please feel free to contact us.



## 2. Air Core Pulse Transformer 60kV



Input Voltage : variable 200V to 800V  
Output Voltage : 60kV Pulse  
Isolation : 90kV Primary to secondary  
Energy : max 50 Joules  
Temperature :  $-20^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$   
Type : Air core, Oil filled, Vacuum Moulded Epoxy casted  
Type No. : ZHS/001/063

## 3. High Voltage Pulse Transformer 15kV

Input Voltage : max 400V pulse  
Output Voltage : 15kV pulse  
Max Pulse width :  $2\mu\text{s}$   
PRR : 5pps  
Temperature :  $-20^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$   
Application : Laser / Spark Gap / Flash Lamp triggering  
Type : Ferrite Core vacuum moulded  
Type No. : ZPT - 400



## 4. High Voltage Pulse Transformer 40kV



Input Voltage : 800V to 900V; pulse  $1\mu\text{s}$  to  $5\mu\text{s}$   
Output Voltage : 40kV Pulse, typically 38kV  
Isolation : 50kV DC primary to Secondary  
PRR : 10 ppm  
Energy : max 10 Joules  
Temperature :  $-20^{\circ}\text{C}$  to  $+90^{\circ}\text{C}$   
Application : Laser / Flash Lamp / Spark Gap  
Type No. : Z/20/34

# Transformers

## 5. Nuclear Hardened High Voltage Pulse Transformer 100kV



Input Voltage	: Can be used for 200V to 800V
Output Voltage	: 100kV Pulse
Isolation	: 120kV DC
Energy	: 100 Joules
Temperature	: -20°C to +90°C
Max Neutron Flux	: $1 \times 10^{11}$ Neutrons
Type No.	: Z/30/112 (809)

## 6. High Voltage DC Isolation Transformer 100kV DC

Primary	: 0-230V, 240V, 50Hz, 1 Phase
Secondary	: 1390 V at 0.75A
Primary to Core	: 5kV DC
Isolation	: Primary to Secondary 100kV DC Core to Secondary 100kV DC
Leakage current	: $\leq 10\mu\text{A}$ at 100kV DC
Power	: 1050 VA to 11000VA
Type	: Z/34/102



## 7. High Voltage DC Isolation Transformer 30-80kV DC



Primary Input	: 230V – 50Hz 1 phase 10kVA maximum
Secondary Output	: 750V AC (Tap-1) 1160V (Tap-2)
Power	: 500VA to 10,000VA Range
Isolation	: 30kV /40kV /50kV /60kV /80kV DC
Type No.	: Z/27/144

Please note the values are customisable. In case you require different input, output or configuration, please feel free to contact us.

## 8. High Voltage Isolation Transformer 10kV-200kV DC

Input	: 230 V
Output	: 230 V
Power	: max 8kVA
Isolation	: 10kV to 200 kV DC
Regulation	: Typically 7%
Type No.	: Z/27/110 (731)



# Transformers

## 9. High Voltage Transformer-less HV Unit 35kV DC

Primary Voltage : 25kV AC  
Output Voltage : 35kV DC  
Output current : 0.5A  
Type : Oil immersed type  
Type No. : ZHS/001/095



## 10. High Voltage Isolation Transformer 60kV DC



Primary Voltage : (230V, 50Hz, 1 Phase) 0, 100V, 200V, 230V  
Secondary Voltage : 100V, 3A  
Isolation : 60kV DC (1 Minute) 72kV DC (Continuous)  
Power : 300VA  
Application : Floating Modulators, Radar, Ion Beam Platforms.  
Type No. : Z/11/124

## 11. High Voltage Isolation Transformer 200kV DC

Input Voltage : 230 V, 50Hz, Single Phase  
Output Voltage : 230 V, 50Hz, Single Phase  
Isolation : Primary to Secondary – 200kV DC  
Secondary to Core – 200kV DC  
Primary to Core – 5kV DC  
Power : 1kVA to 10kVA available  
Type No. : Z/36/96



## 12. Large HV Isolation Transformer 50kV DC



Input Voltage : 230 V, 50Hz, Single Phase  
Output Voltage : 30 V at 75A  
Power : 2250VA  
Isolation : Primary to Secondary- 50kV DC  
Primary to Core - 5kV DC  
Secondary to Core - 50kV DC  
Application : Magnetron, Klystron Filament Isolation Transformer  
Type No. : Z/30/148 (864)



# Transformers

## 13. Isolation Transformer Primary to Secondary Both Floating 70-250kV DC

Primary Voltage : Floating 230 V, 50Hz, Single Phase  
Secondary Voltage : Floating 230 V, 50Hz, Single Phase  
Power : 1kVA to 10kVA  
Isolation : 70kV DC / 100kV DC / 250 kV DC  
Type No. : ZHS/01/47



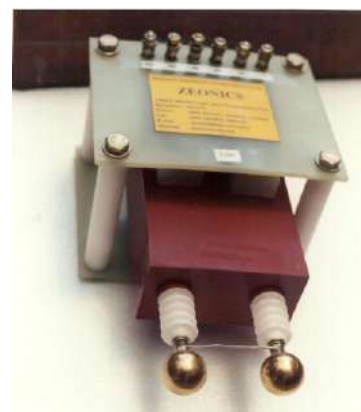
## 14. High Voltage Isolation Transformer for Magnetron Filaments 60kV DC



Input Voltage : 230V, 50Hz, 1 Phase  
Output Voltage : 6.3V / 25A; 6.0V / 75A  
Regulation :  $\approx 9\%$   
Isolation : Pri to Sec – 60kV DC  
                  Sec to Core – 60kV DC  
                  Pri to Core – 5.0kV DC  
Temperature :  $-20^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$   
Type No. : Z/18/127

## 15. HV HF Transformer 200V

Input Voltage : 200V at 20kHz  
Power : Typically 4.0kVA  
Winding : All litz wire work  
Core : All ferrite core  
Type No. : ZHS/01/16



## 16. High Voltage High Frequency Transformer 10kV



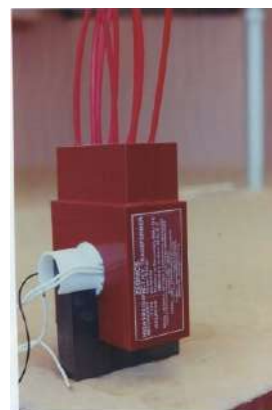
Input : 120V rms 20kHz with taps at 0, 120V, 140V  
Output : 10kV rms at 20kHz  
Power : 2250VA Continuous  
Isolation : Primary to Secondary 35kV DC  
Type : Oil filled sealed transformer for military use  
Temperature :  $-20^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$   
Type No. : Z/23/35-38 (628)



# Transformers

## 17. HV HF Transformer for Multi Turn Application 5kV

Primary : 100V rms 20 KHz  
Secondary : 5000V rms at 20 kHz (Mul Sec on)  
Power : 1kVA Continuous  
Isolation : Primary to Secondary 80kV DC  
Duty : Continuous Radar Duty  
Type No. : Z/18/100



## 18. HV 100kHz Transformer



Typical Input : 100V rms  
Typical Output : 20kV AC rms  
Frequency : 100kHz  
Ratio : 200:1  
Power : 600VA  
Core Type : U100  
Type No. : Z/27/95

## 19. High Voltage Air Core Transformer 500kV

Input : 1kV Pulse at 140kA  
Output : 500kV pulse  $1\mu\text{s}$  to  $10\mu\text{s}$   
Power : 10kJ  
Type No. : Z/27/143



## 20. 3 Phase HV Transformer 11kV AC



Input : 3 phase, 440 V Delta connected  
Output : 3 phase, 440 V Delta connected  
Power : 5kVA, 10kVA, 15kVA  
Output Voltage : 11kV AC rms  
Protection : Fuse protected secondary used with Glass cartridge fuses  
Type No. : ZHS/01/45

# Transformers

## 21. High Voltage High Frequency Transformer 26kV

Input : 247 V/20kHz  
Output : 26kV rms  
Frequency : 20kHz Square Wave  
Power : 5kVA Max  
Ratio : 105:1  
Type No. : Z/41/98



## 22. High Current High Reliable Current Transformer



Current : Max 300A  
Burden : 5VA  
Frequency : 50Hz/60Hz  
Accuracy :  $\pm 2\%$  to  $3\%$   
Type No. : Z/43/01

## 23. Multi Output Isolation Transformer 20kV DC

Primary : 230 V 50Hz 1 $\phi$   
Secondary : Multi output 100V, 200V, 600V  
Isolation : 20kV DC Isolation  
Leakage Current : 100 $\mu$ A at 20kV DC  
Frequency : 50Hz/200Hz  
Type No. : Z/39/72



## 24. 200kV DC Isolation Transformer



Isolation Voltage : Pri to Sec - 200kV DC  
Input : 0, 210V, 220V, 230V AC (Pri)  
Output : 230V 50Hz 1 $\phi$  (Sec)  
Power : 5000VA, 8000VA, 10,000VA  
Duty : Continuous Duty  
Type No. : Z/44/01, Z/44/16

# Transformers

## 25. Ferrite Core Based Pulse Transformer 8.5kV



Input : max 800 V pulse  
Output : 8.5kV Pulse  
Isolation : 15kV DC Primary to Secondary  
Temperature : -30°C to +85°C  
Type : Ferrite core, Oil Impregnated, Vacuum moulded, epoxy casted Transformer  
Type No. : Z/20/36

## 26. Ferrite Based Pulse Transformer 80kV

Input : max 900 V Pulse  
Output : 80kV Pulsed output  
Isolation : Primary to Secondary 110kV DC  
Material : Polymer Body  
Application : Triggering Rail Gaps  
Reliability : Highly reliable Transformer  
Type No. : Z/25/54 (686)



## 27. High Voltage Plasma Torch



Working Voltage : 40kV AC at 20kHz  
Gas : Nitrogen/Argon /Air  
Type No. : Z/42/63

## 28. Weapon Based Pulse Generator Modules

Input : 24kV DC Batteries  
Output : Pulse 30kV  
Isolation : 40kV Primary to secondary  
Rise time : 1μs  
Dimensions : 110mm - 350mm length  
Battery : 300 Shots Suitability Single Charge  
Type No. : Z/28/128



# Other High Voltage Assemblies & Systems

## 1. X- RAY Shield



Protection : for 60 keV X-Rays  
Adaptation : Flexible type  
Suitable : For so X-Rays  
Material : Metal loaded silicone Rubber  
Type No. : Z/35/108

## 2. High Energy 40kJ/100kJ System

Output : 15kV to 25kV Range  
Energy : 15kJ to 120kJ System  
Current : 100kA to 600kA Range  
Type No. : Z/41/01



## 3. 11kV/33kV Surge Arrester



Rated Voltage : 11kV/33kV  
Surge Current : 5kA or 10kA  
8/20 $\mu$ s Lightning Impulse : 99kV

## 4. High Voltage Detonation Sets

Input : 24 V battery or 230 V, 50Hz, Single Phase  
Output : Pulse of 50J/100J/250J/500J at 10kV DC/20kV DC  
Energy : 1kJ at 30kV DC max  
Type No. : ZHS/01/20





# Other High Voltage and Assemblies

## 5. High Voltage Detonation Sets 50 Joules to 100 Joules

Input Voltage : 230V, Single phase, 50Hz or 12V/24V DC Operation

Output Voltage : High energy pulse of 10kV to 15kV at

Energy : 50 Joules to 100 Joules

Trigger : Manual or a +5 V command.

Suitable : Dynamite, RDX and other Pyrotechnic/ Explosives

Type No. : ZE/FS/10/25-SMPS



## 6. High Voltage Pulse Power Disinfection System



Operating Voltage : 20kV to 40kV stress at 50kV /cm

Cell measurement : Typically 1Litre/25Litres of volume

Application : Sterilization of medical equipment

Type No. : ZHS/01/28

## 7. High Voltage 10kJ/ 20kJ Magna Forming Equipment



Max Voltage : 18kV DC

Energy : 20kJ/30kJ available

Type : Magnetic Welder

Welding : Plastic to Metal

Type No. : ZHS/01/26

## 8. High Voltage High Energy Explosion Detonation Module

Working Voltage : 25kV DC

Test Voltage : 40kV DC

Energy : 1.5kJ

Fluids : Oil, Gas, Colloids (Explosives)

Application : For testing of Bridge wire explosives in a controlled atmosphere

Type No. : Z/21/7



# Other High Voltage and Assemblies

## 9. High Voltage Bridge Wire Exploding Chamber



Input : DC of 20kV to 50kV DC stored energy of 1kJ to 5kJ  
Output : Pulse of 20kV to 50kV at 2kJ to 5kJ  
Pressure : max 200psi of gas or vacuum of 730mBar  
Type No. : Z/27/1 (710)

## 10. High Value Asset Protector

Voltage : 440V/1100A or 11kV/132A  
Protection : 4 Way, 3 phase + Neutral  
Protection Level : 200kV Impulse /  $\leq 50\text{ns}$   
Application : Protection from conducted EMP pulse upto 200kV  
Type No. : Z/33/28



## 11. E-Field Detector (Quantitative) Detection



A pre-ionized gas-based E-field system which can detect electric fields which can occur in the atmosphere.  
This can work up to very strong fields also of  $>50\text{kV/Meter}$ .  
Type No. : Z/30/59

## 12. Hand Held Electrospinning System

Output Voltage : 20kV DC  
Material : PVA Based Dispensing Materials  
Rate of dispersion : Adjustable by changing voltage  
Coverage : Approx. 100mm x 100mm in 2 minutes  
Type No. : Z/28/18



# Other High Voltage and Assemblies

## 13.High Voltage Multiplier Cast Module



Capacitance : 2300pF / 20kV x 6 Nos.  
Operating Frequency : max 100 kHz  
Type No. : S/11/1

## 14. 500kV to 700kV HV Multiplier Assembly

Input Voltage : 25kV AC rms at 60kHz  
Output Voltage : 500kV DC / 700kV DC at 1mA  
Type No. : ZHS/001/099



## 15. Modulator based PFN for Pulsed Electric Field Systems



Voltage : 30kV to 150kV Output  
Energy : 100 Joules to 2000 Joules  
PRR : Max 200 Hz  
Impedance :  $5\Omega$  to  $2000\Omega$   
Pulse : Rectangular Shape  
Duration : 500ns to 500 $\mu$ s  
No of Stages : 10 or 20  
Application : Agriculture, Food Industry, Dairy, Modulator, Radar  
Type No. : ZHS/001/058

## 16. PFN 5 $\mu$ s Pulse width, 40kV Output Into $50\Omega$

Working Voltage : Max 40kV/ 80kV DC  
Capacitance : 10nF / 40kV x 10 limbs  
Inductance : 8.25 $\mu$ H x 10 limbs  
PRR : Max 1pps to 100pps  
Type No. : Z/34/130





# Other High Voltage and Assemblies

## 17. 100ms Pulse width, 20kV Output PFN (1Ω Impedance)



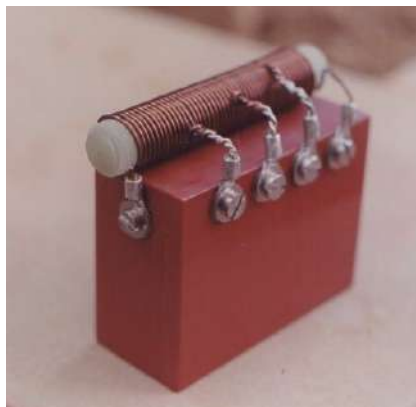
Working Voltage : 20kV DC  
Test Voltage : 30kV DC  
Pulse width : 100μs  
Energy/Shot : 5kJ  
Type No. : Z/34/42

## 18. 50Ω Impedance Pulse Forming Network

Input Voltage : 50kV DC  
Output Voltage : 25kV across 50 Ohms  
Pulse Width : 5μs to 100μs  
Energy : 50 Joules to 200 Joules  
Duty : Continuous duty  
Type No. : S/17/140



## 19. High Voltage Compact PFN Oil and Moulded Version



Voltage : 5kV to 100kV DC  
Current : 2 to 30A rms; 1 to 10kA Peak current  
Pulse Width : 10ns to 100μs  
No. of stages : 10 to 20 Stages  
Impedance : 2Ω to 100Ω  
The entire PFN are designed in open or moulded version as per current required.  
Type No. : Z/01/35

## 20. Pulse Power Plasma Washer Gun

Input : 230V, 50Hz, 1 Phase  
Output : PFN based pulses of 100μs duration and 15kV output  
Peak Current : 2kA to 10kA maximum  
Switch control : Spark gap based  
Type No. : Z/27/28





# Other High Voltage and Assemblies

## 21. High Voltage High Power Rotary Switches

kV / Stage : 25kV  
Energy : max 3kJ  
No of Stage : 10  
Type : Sequential Switching System  
PRR : max 200 rpm  
Type No. : ZHS/001/067



## 22. High Voltage Test Setup for HV Laboratory



Input voltage : 230 V, Single phase  
Output voltage : 0 to 200kV DC at 10mA  
0 to 100kV AC at 10mA  
Metering : Analog kV meter/Digital kV meter HV Grid  
and safety lights  
Type No. : ZHS/01/41

## 23. Compact HV Firing Module

Input : 28V DC Battery Minimum 10Ah  
Output : Pulse of 5kV DC at 5 to 6kA  
Command : + 5V DC and Manual  
Application : Detonation  
Type No. : Z/43/36 dimension



## 24. High Voltage Gas Management System for Marx, Rail Gaps and Spark Gaps



Type of gas : N<sub>2</sub>, SF<sub>6</sub>, AIR, Argon  
Max Pressure : 100 psi/200psi  
Control : 1psi to Full Pressure  
Application : Marx Generators/Rail Gaps/Spark Gaps  
Type No. : Z/30/78, Z/34/78

# Other High Voltage Protection Systems

## 25. High Voltage Crowbar Module



Working voltage	: 20kV DC
Peak Current	: 20kA Max
Command	: +5 V / Manual
Duty	: continuous duty 24 hours
Application	: For Magnetron/Klystron/TWT/ Gyratron systems
Type	: Z/18/146

## 26. E-field Probe or Sensor

Max Field : 100kV/Meter  
Rise Time :  $\approx 1$  n sec  
Frequency : 1GHz  
Ratio : 1kV : 22mV  
          : 20kV : 440mV  
Type No : Z/26/110 (E-field)  
We also make B-field sensors and other designs  
of E-field sensors (Z/36/154).



## 27. High Voltage Dielectric Breakdown Plasma Generator



Input	: 230V, 50Hz, 1 $\phi$
Output	: 30kV at 40mA; 50kV at 25mA; 50kV at 40mA
Power	: 1200 watts
Application	: Generation of continuous plasma between a glass plate to extract the same
Plasma surface	: 300mm x 300mm & 600mm x 600mm Plasma systems
Type No.	: ZHS/001/088

## 28. Dielectric Plasma Generator

Voltage	: 50kV, 70kV Models
Power	: 5kW or 7kW
Operation	: Continuous
Voltage Plasma	: 1m x 1m x 25mm (Gap)
Type No.	: ZHS/001/059

