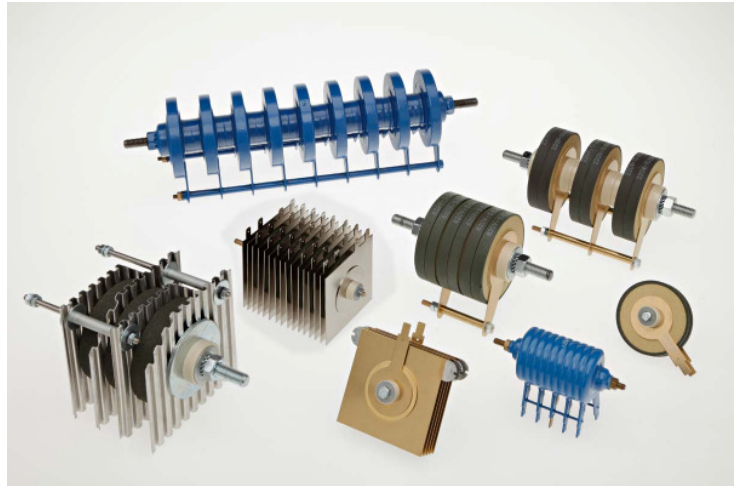


# Non-Linear Disc Resistors / Varistors

- High Surge Energy Rating
- 100% Active Material
- Repeatable Non-Linear Characteristic
- High Voltage Withstand
- Essentially Non-Inductive
- Air / Oil / SF6 Environments
- Single Disc or Modular Assemblies
- Advanced Ampacity
- Custom Solutions Readily Available
- Free Design Service



HVR Silicon carbide varistors are composed of approx. 90% silicon carbide of various grain and approx. 10% ceramic binder and additives.

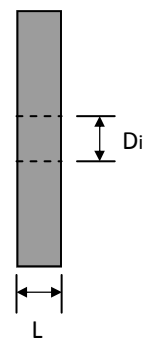
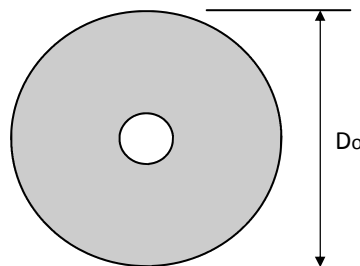
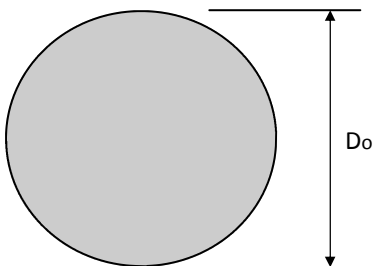
After shaping, the varistors are sintered at high temperatures in specific ambient conditions. The electrical contact is manufactured by spraying on a layer of brass. The electrical connection for large discs is by means of clamps, while small discs have soft soldered tinned copper wires.

The HVR SiC varistors have good voltage dependences and high energy absorption. They are manufactured mainly as discs with varying sizes, as the required electric values are most easily obtained with these geometric dimensions.

The SiC varistors may be connected in series or parallel for various fields of application so that there is sufficient overvoltage protection for high power.

Typical applications are:

- overvoltage in the mains, caused by lightning, inductive or capacitive coupling
- consumption in switch contacts with inductive load
- too high switch-off voltages in transformers, motor and generator windings and magnet coils



# Technical Specifications

Style SB	Outside Dia. Do <sup>(1)</sup>	Inside Dia. Di <sup>(1)</sup>	Max.Length mm	Volume (cm <sup>3</sup> )	Maxi. Watts @ 25°C	Max. Joules @ 25°C <sup>(2)</sup>	Working Voltage
410	40	10	7	8,25	3	1650	8,8 - 550
415	45	15	7	9,90	4	1980	9,2 - 550
600	60	10	7	19,25	5	3850	11 - 600
800	80	-	10	50,25	20	10100	18 - 700
820	80	20	10	47,15	19	10000	18 - 700
850	85	-	10	56,75	22	10750	18 - 700
950	95	30	25	159,50	25	31900	30 - 700
1050	105	20	25	206,90	31	41400	30 - 700
1500	150	20	25	433,90	55	86780	50 - 700

1 - Do and Di in mm      2 - Δt = 100 °C

## PHYSICAL / MECHANICAL PARAMETERS

### Dimension Range Style SB:

Outside Diameter (Do) 40 to 150 mm    Inside Diameter (Di)  
10 to 30 mm    Length (L) 2 to 25 mm

### Density:

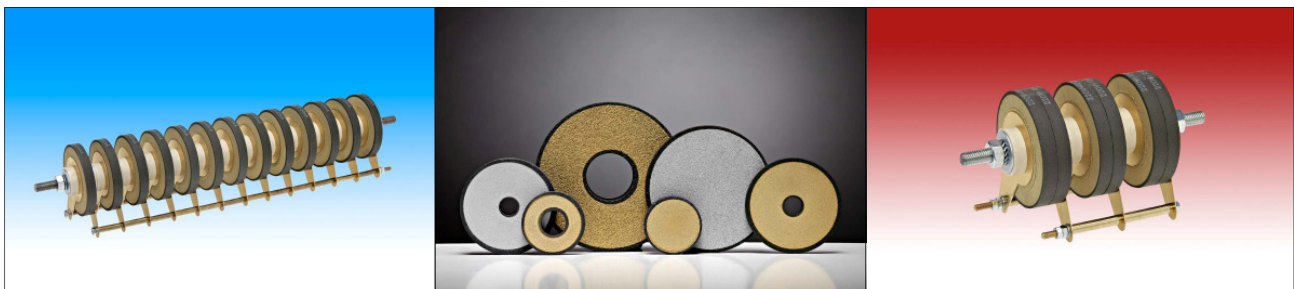
2,1 g / cm<sup>3</sup>

### Assembly Mounting Force:

HVR SiC Varistors type SB are mainly assembled into stacks by mounting on an appropriate tie rod. We recommend a mounting force of 0,4-0,6 N/mm<sup>2</sup>

### Disc Terminations):

Metallised contacts are flame sprayed onto the opposing flat surfaces of the Varistor Discs. Standard metallised contacts include Aluminium, Copper, Brass, Nickel and Silver.



## ELECTRICAL PARAMETERS

### Operating Temperature Range:

- 40 ... 150 °C

### Typ. Temp. Coefficient of Voltage TCV:

- 0,12 ... - 0,18 %/°C

### of Current TCI:

0,5 ... 0,8 %/°C

### Specific Heat Capacity Approx.:

2 J/cm<sup>3</sup>/°C

### Thermal Conductivity:

0,07 W/cm<sup>2</sup> . °C/cm

### Inductance:

This is negligible (nH) and the varistors may be described as non-inductive

## REQUIRED ELECTRICAL DATAS

HVR offers a free design service. For a standard application we would ask for the below listed details:

Impulse Current  $I_{max} = I_{imp}$  (A)

Maximum Nominal Voltage  $U_{nom}$  (V)

Inductivity or L ( $H = Vs/A$ )

Capacity C ( $F = As/V$ )

Limiting Voltage  $U_{limit} = U_{max}$  (kV)

Frequency of Impulses  $f = 1 / t_{tot}$  (1/s)

For further electrical or physical / mechanical details such as U/I characteristic curve or other additional information please contact us.