

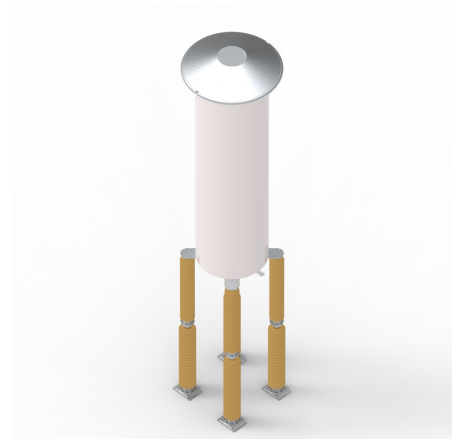
CSN® pre-charging resistors (PIR)

DESCRIPTION

CSN® pre-charging resistors are used to limit transient processes during switch-on processes of transformers and HVDC systems with intermediate voltage circuits (VSC technology).

CSN® pre-charging resistors are designed and manufactured individually according to customer specifications and application.

PIR = Pre-Insertion Resistor



PRODUCT ADVANTAGES

- Technically mature, proven design for outdoor or indoor operation
- Optimised design for any current and any load duration
- reliable control of all operating voltages, even under the most difficult ambient conditions
- High long-term stability
- High creepage distances possible

TECHNISCHE DATEN

Amount of energy absorbed (MJ)	Customised (already supplied up to 100 MJ)
<p>Insulation level</p>	<p>Customised (already supplied up to 1675 kV_{BIL})</p>
Active elements	<ul style="list-style-type: none"> - Resistance fabric (CSN® Schniewindt mesh) - Wire meander - belt elements
Active material	selectable according to requirement profile
Cooling	air-cooled
Protection classes	according to requirements (IP00 - IPX3)
PREN index (Pitting Resistance Equivalent Number)	0 to > 50 (sea water resistant)
Voltage type	Alternating current (AC) and direct current

Ambient conditions	<p>(DC)</p> <p>Reliable operation possible under difficult conditions in the following areas:</p> <ul style="list-style-type: none"> - Seismic - wind - pollution - Temperature influences - Ice and snow loads
<p>Corrosivity categories</p>	<p>C1 - C5 according to DIN EN ISO 12944</p>
Type of connection and connections	<ul style="list-style-type: none"> - Insulators (porcelain or composite) - Feedthrough - Connection pads - screws - stranded wire - etc.