

## Surge arrester for GIS ELK-3, 550 kV

Innovative and compact overvoltage protection



Surge arresters are used to protect the insulation of gas-insulated switchgear (GIS), connected cables, transformers etc. against all kind of transient atmospheric and switching overvoltages.

### Surge arrester design

The surge arrester is constructed from a stack of serially connected, extremely non-linear metal-oxide (MO) resistors in a single-phase metallic enclosure under pressurized SF<sub>6</sub>-gas.

The MO resistors of ABB surge arresters are manufactured by ABB using a high-field ceramic resistor material, composed primarily of zinc oxide (ZnO) mixed with several other metal oxides.

The surge arrester is designed and type tested according to IEC 62271-203 and IEC 60099-4.

### Main features

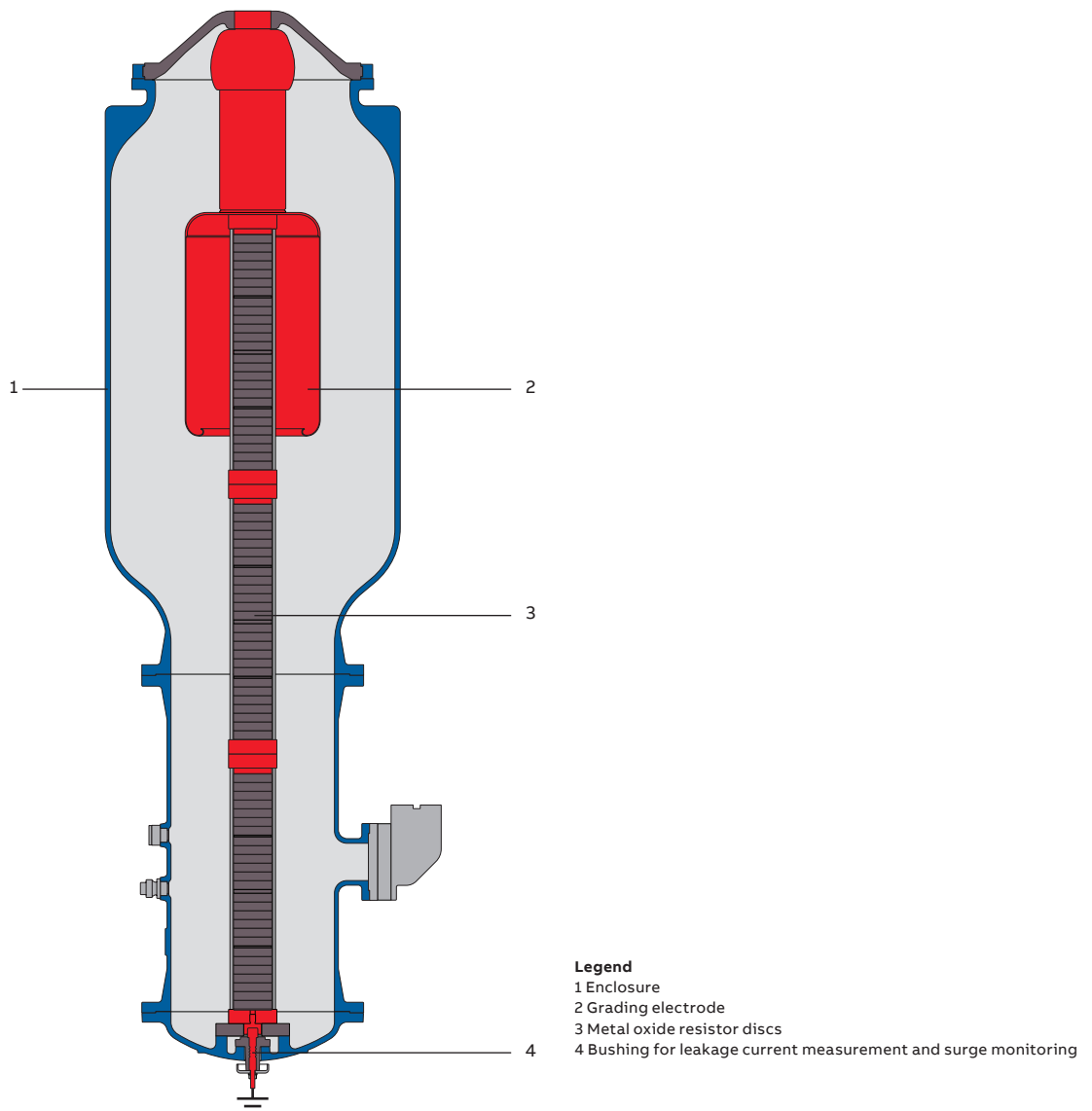
- High reliability
- Compact design
- Very low amount of SF<sub>6</sub>-gas
- Low residual voltages
- MO-resistors from own ABB facilities
- Long-term stable characteristics of the MO-resistor
- High energy absorption capacity

Surge arrester AZ32H  
for ELK-3, 550 kV

Technical data		AZ32H
Rated voltage ELK-3	kV	up to 550
Max. system voltage	kV	550
Rated frequency	Hz	50 / 60
Max. dimensions of enclosure	mm	Ø 830
Height	mm	2890
Weight without gas	kg	462
Minimum functional pressure of SF <sub>6</sub> -gas (20 °C)	kPa	390
<b>Insulation withstand voltage</b>		
Rated power-frequency withstand voltage	kV	740
Rated lightning impulse withstand voltage, 1.2/50 µs	kV	1550
Rated switching impulse withstand voltage, 250/2500 µs	kV	1250
Arrester class		SH, Station High <sup>1)</sup>
Nominal discharge current	kA	20
Rated thermal energy W <sub>th</sub>		14.4 kJ/kV (U <sub>1</sub> ) = 18 kJ/kV (U <sub>2</sub> )
Repetitive charge transfer rating Q <sub>rs</sub>	As (C)	4.8
High current impulse I <sub>hc</sub> (4/10 µs)	kA	100
Energy absorption capability (U <sub>2</sub> )	kJ/kV	19.8

<sup>1)</sup> corresponds to line discharge class (LD) 5 acc. IEC 60099-4, Ed. 2.2

### Sectional view



**Residual voltages**

U <sub>c</sub> Continuous operating voltage	U <sub>r</sub> Rated voltage	Residual voltages U <sub>res</sub> at specified impulse current									
		Sleep current impulse wave 1/.. μs		Lightning current impulse wave 8/20 μs				Switching current impulse wave 30/60 μs			
kV <sub>rms</sub>	kV <sub>rms</sub>	10kA kV <sub>peak</sub>	20kA kV <sub>peak</sub>	2kA kV <sub>peak</sub>	5kA kV <sub>peak</sub>	10kA kV <sub>peak</sub>	20kA kV <sub>peak</sub>	40kA kV <sub>peak</sub>	500A kV <sub>peak</sub>	1000A kV <sub>peak</sub>	2000A kV <sub>peak</sub>
288	360	896	944	733	770	800	864	944	676	695	716
302	378	941	992	770	809	840	908	992	709	730	752
317	396	986	1039	807	847	880	951	1039	743	764	788
336	420	1047	1103	856	899	934	1009	1103	789	811	836
355	444	1106	1165	905	950	987	1066	1165	834	857	884
374	468	1165	1228	953	1001	1040	1124	1228	878	903	931

Other ratings possible upon request

