



Our protection.
Your benefit.



Good Outlook

Save now on expensive maintenance work with our fuses

Introduction

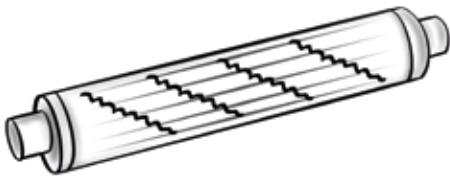
Renewable energy has been gaining ground for around two decades. It and its components (transformers, etc.) have to be protected just as effectively and efficiently as conventional energy generation systems. This is done using proven fuse solutions that are also used in renewable applications. However, experience has shown that some fuses will unexpectedly blow after around eight to ten years of service – a behaviour that conventional fuse theory cannot fully explain. To get to the bottom of this conundrum, SIBA joined forces with wind turbine operators and switchgear manufacturers for an in-depth analysis.

Methods

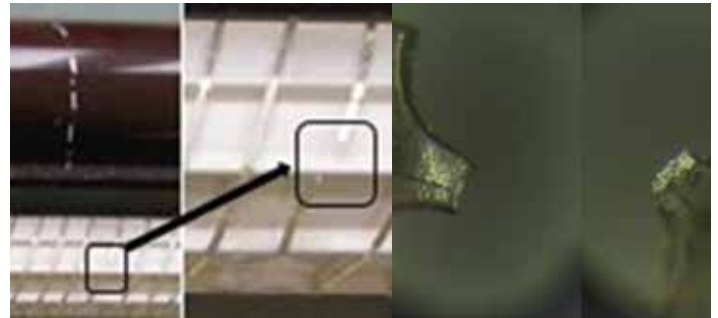
- Metallurgical analysis of opened elements
- Combining results of analysis with SIBA's experiences, like motor application
- Designing new melting element system with adapted cyclic stability
- Design validation by corresponding
 - Cyclic load test series
 - Power breaking tests

Results

Based on the test results SIBA is able to offer the new ICS series of HV fuses equipped with a new melting-element system providing a significant improvement regarding to the cyclic stability in contrast to HV Back-Up fuses available to date.*



Design principle for New ICS fuses :
special wave shaped melting element system



Pre-damaged melting element with mechanically opened notch

Factor *	Quantity of cycles to melting		Ratio ICS/flat
	Flat (Standard) melting element	ICS melting element	
f= 0.6	150	6500	43
f= 0.7	17	800	47
f= 0.8	7	320	46

Summary of test results – Cyclic Test Series

*Factor = Test current ; average melting current at corresponding melting time; duration of Test current equal melting time

SIBA decided to implement this new system into its standard portfolio of HV Back-Up fuses as an additional feature for rated voltages from 12 kV and rated currents 63 A upwards. HV fuses with this new ICS feature offer the enhanced stability as recommended by IEC/TR 62655.

Besides wind power generation, inside other renewable energy systems like photovoltaic systems, which are subjected to comparable cyclic load current conditions, the new system can also provide “state of the art” circuit protection.

Achieving an optimal performance of protection and economical benefit the new ICS feature can be combined with the already known SIBA “Low-loss” fuse generation.

This combination allows the smooth integration of “Green Energy” into existing grid topologies at no extra cost by offering the additional technical benefit of improved cyclic stability



You want to know
the secret?