

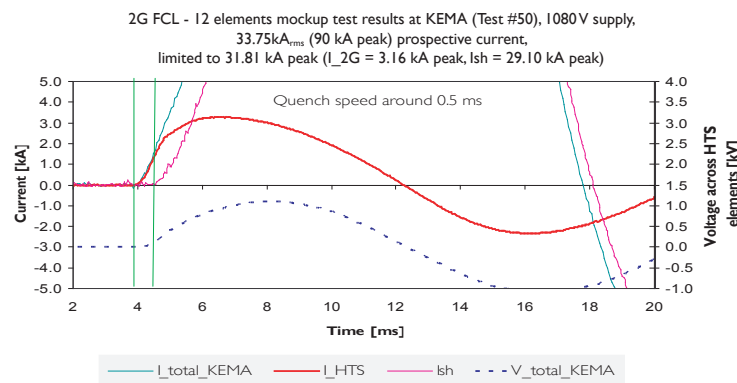


SFCL test module being removed from LN<sub>2</sub> bath after test at KEMA.

# Fault Current Limiter Application

## SuperPower® 2G HTS Wire ~ Spec Sheet

SuperPower is producing long lengths of high-performance 2G HTS wire designed specifically for HTS Fault Current Limiter (FCL) applications. SuperPower® 2G HTS Wire Type SF12050 or SF12100 in 12 mm width utilizing a 50 or 100 micron thickness highly resistive substrate suitable for fault current limiter (FCL) applications. Total copper stabilizing thickness can be varied from 1.0 to 40 microns. First peak limitation has been demonstrated with fast response time (< 1 ms), low quench current, and rapid recovery.



### Current limiting performance

- Quench response time around 0.5 ms
- 2G wires fully quenched at currents around 4 x I<sub>c</sub>
- Lower energy deposited in HTS material equals lower reliable performance

Specifications	SF12050 (12 mm wide)	SF12100 (12 mm wide)	Comments
Total thickness	0.055 mm	0.105 mm	
Piece lengths	Up to 600 m	Up to 300 m	SF12050 is the high volume product
Stabilizer thickness	0.001 – 0.04 mm	0.001 – 0.04 mm	Tailored to customer requirements
Substrate thickness	0.05 mm	0.1 mm	Hastelloy® C-276
Critical bend diameter in tension	11 mm	25 mm	At room temperature
Critical bend diameter in compression	11 mm	25 mm	At room temperature
Critical axial tensile strain	0.45%	0.45%	At 77K
Substrate resistance	125 micro-ohm cm	125 micro-ohm cm	Higher resistance leads to lower eddy current ac loss
Substrate magnetic properties	Non-magnetic	Non-magnetic	Leads to lower ferro-magnetic ac loss
Response time	< 1 ms	< 1 ms	
Voltage drop	1.6 V <sub>peak</sub> /cm	1.6 V <sub>peak</sub> /cm	
Minimum critical current	240A and higher	200A and higher	At 77K
I <sub>c</sub> uniformity	< 10%	< 10%	STDEV over length



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