

High temperature superconductor tape for commercial applications



Superconductors offer much greater efficiency in generating and transporting electricity. Highly compact new cable applications and fault current limiters as well as lightweight systems for generators become possible. Deutsche Nanoschicht GmbH, since 2013 a wholly-owned subsidiary of BASF New Business GmbH, has developed an innovative chemical coating process to produce yttrium barium copper oxide high temperature superconductors (HTS) in a cost-effective and environmentally friendly way to enable the introduction of superconductors throughout the energy sector.

New production capacity for HTS tape

In 2016, the expanded pilot line has started to manufacture HTS tape for producers of superconducting cables, bus connections, fault current limiters, motors and generators. The new pilot line enables us to provide superconducting tapes in a reliable high quality at competitive pricing.

Tentative specifications

Application			
Specifications	DC current, static magnetic field	Fault current limiter	AC current, alternating magnetic field
			Product will be available in 2017
Superconducting properties			
Critical current I_c @ 77K, sf	250 A/cm (width)	250 A/cm (width)	250 A/cm (width)
Critical current I_c @ 30K, 1T*	500 A/cm (width)	500 A/cm (width)	500 A/cm (width)
n-value	>30	>30	>30
homogeneity	minimum I_c	+/- 5% I_c	minimum I_c
Metallic substrate	Ni5W ferromagnetic	Ni5W ferromagnetic	Ni9W non-ferromagnetic
Dimensions			
width	4 and 10 mm 12 and 20 mm	4 and 10 mm 12 and 20 mm	4, 10, 12 and 20 mm
Thickness (HTS tape without stabilizer)	65 μ m	65 μ m	65 μ m
Mechanical properties** (HTS tape without stabilizer)			
Tensile strength	150 MPa	150 MPa	250 MPa
Bending radius (in/out)	5 mm/15 mm	5 mm/15 mm	5 mm/15 mm
Stabilizer			
Cu electroplating	Cu 5–20 μ m surround		Cu 5–20 μ m surround
Lamination		Double tape and high resistive laminate upon request	Low resistance, high strength laminate upon request

* I_c values under specific operating conditions upon request

** Final mechanical properties highly depended on selected stabilizer

Samples available, larger quantities to be provided in 2017

Samples available in 2nd half-year 2016, larger quantities to be provided in 2017

Do you want to learn more? Please contact us:

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