

Superconducting high-temperature demagnetizing optical cable



Overview

The findings, published in the journal Superconducting Science and Technology, showed that this new HTS cable, called VIPER, is able to carry high levels of current, exceeding 50 kA, at very high magnetic fields, exceeding 10 T, or about six times stronger than a. The findings, published in the journal Superconducting Science and Technology, showed that this new HTS cable, called VIPER, is able to carry high levels of current, exceeding 50 kA, at very high magnetic fields, exceeding 10 T, or about six times stronger than a. The feature of the superconductivity phenomenon, the basis of this roadmap technology (3SC - Superconducting Cable), is an unusual property of certain substances, including metals, alloys, and ceramics, in which electrical resistance drops to zero when the temperature is reduced below a critical. The high-temperature superconducting (HTS) demagnetizing cable market is poised for significant growth, driven by increasing demand for efficient and effective demagnetization solutions in the maritime industry. The rising adoption of large ships and the need to minimize magnetic signatures for. Superconducting cable is expected as one of the solutions for the shortage of transmission capacity in metropolitan areas. Its merits are as follows; (1) large transmission capacity in compact dimension, (2) small transmission loss, (3) no leakage of electro-magnetic field to the outside of the. Cambridge, MA - October 7, 2020 - Commonwealth Fusion Systems (CFS), a startup commercializing fusion energy, joined researchers at the MIT Plasma Science and Fusion Center (PSFC) to announce they have designed, built, and demonstrated a new high-temperature superconductor (HTS) cable that can be. Global High-temperature Superconducting Demagnetizing Cable Market 2026 High-temperature Superconducting Demagnetizing Cable Market Size, Share & Industry Analysis, By Type (YBCO Superconducting Cables, BSCCO Superconducting Cables),...

Article Content

Jul 22, 2025

Using superconducting DC cables to improve the efficiency of ...

It has been a quarter of a century since the discovery of superconducting materials known as “high-temperature superconductors” (HTS) in 1986 by Bednorz and Mueller. HTS materials have opened

Aug 05, 2025

High Temperature Superconducting Transmission Cables

High temperature superconducting cables are defined as are the different types, warm dielectric and cryogenic dielectric. Their application to

May 18, 2026

HIGH TEMPERATURE SUPERCONDUCTING CABLES

I TRODUCTION There search and development of superconducting cables started in the late 1960s when the low temperature superconducting alloys became available . The motivation for this

Jun 30, 2025

High-Temperature Superconducting Cable Design Based on

Abstract The idea of insulating individual high-temperature superconducting (HTS) tapes was explored as a dielectric design to reduce the risk and complexity of HTS cable manufacturing. Applying

Jan 21, 2026

Superconducting Cable | MIT Technology Roadmaps

Compared with the traditional low temperature superconducting materials, which necessitate even lower temperatures, typically requiring liquid helium, high temperature superconducting cable can perform

Aug 11, 2025

Development and performance of high-temperature superconducting

In this paper, the performance of several CFD REBCO tapes assembled in the form of a CORC ® cable, called CFD CORC ® cable, is investigated. The performance of the CFD CORC ®

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High-temperature Superconducting Demagnetizing Cable 2025

The high-temperature superconducting (HTS) demagnetizing cable market is poised for significant growth, driven by increasing demand for efficient and effective demagnetization solutions in the

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Monitoring of a high temperature superconducting magnet by means

This work demonstrates the first application of Optical Frequency Domain Reflectometry (OFDR)-based distributed fiber optic sensing to a complete mockup prototype of high-temperature

Dec 23, 2025

Superconducting wire

The construction and operating temperature will typically be chosen to maximise: Critical temperature T_c , the temperature below which the wire becomes a superconductor Critical current density J_c , the

Dec 12, 2025

Optimization of high-efficiency and compact insulation structures for ...

This paper examines the optimization of insulation structures in high-temperature superconducting cables and experimentally assesses the impact of various low thermal conductivity

Apr 04, 2026

Superconducting cables: fast transmission and no

Projects using high-temperature superconducting cables can generate substantial savings compared with conventional solutions. Superconducting cables have a

Jun 19, 2026

VIPER: an industrially scalable high-current high

We have designed and experimentally qualified a vacuum pressure impregnated, insulated, partially transposed, extruded, and roll-formed (VIPER)

Oct 19, 2025

A review of commercial high temperature superconducting

Abstract High temperature superconducting (HTS) materials have the potential to generate a magnetic field beyond the level obtainable with low temperature superconducting (LTS) materials.

Oct 17, 2025

New High-Temperature Superconductor (HTS) Cable Demonstrates

The findings, published in the journal Superconducting Science and Technology, showed that this new HTS cable, called VIPER, is able to carry high levels of current, exceeding 50 kA, at

Jul 09, 2025

Fiber optic quench detection for large-scale HTS

Abstract Fiber-optic thermometry has the potential to provide rapid and reliable quench detection for emerging large-scale, high-field superconducting

May 17, 2026

Feasibility of high temperature superconducting cables for energy ...

The higher losses in HTS cables with operational temperatures of 50 K to 77 K are mainly due to the higher number of superconducting layers and reduction of the critical current.

Sep 15, 2025

AC Losses Properties of Optical Fiber Encapsulated High Temperature ...

AC loss is one of the most important factors affecting operating states of superconductors. Optical fiber encapsulated (OFE) high temperature superconducting (HTS)

Oct 26, 2025

A DC High-Temperature Superconducting Cable With Self-Sinking

High-temperature superconducting (HTS) cables are considered an ideal transmission solution for space solar power stations owing to their low-loss characteristics. However, the vacuum

Sep 09, 2025

High-temperature Superconducting Demagnetizing Cable Unlocking

Discover the booming high-temperature superconducting demagnetization cable market! Projected to reach \$1.8B by 2033 with a 15% CAGR, this report analyzes market size, trends, key players

Dec 08, 2025

A review of commercial high temperature

A review of commercial high temperature superconducting materials for large magnets: From wires and tapes to cables and conductors April 2019

Apr 16, 2026

Global High-temperature Superconducting Demagnetizing Cable

The High-temperature Superconducting Demagnetizing Cable Market was valued at USD 275.6 Million in 2025 and is expected to reach USD 689.6 Million by 2032, growing at a CAGR of

Apr 24, 2026

High-temperature Superconducting Cable Technology and

SEI is in charge of manufacture and installation of 350-m-long superconducting cables, development of terminals and joints, and implementation of the long-term test. The project is planned for 4 years

Nov 28, 2025

High Temperature Superconducting (HTS) Cable Application to Ship ...

High Temperature Superconducting cable is suitable for this application. We set a requirement of maximum current of the cable as 200 kA and the length as 1200 m set on seabed of 12 m depth. Our

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Superconducting Cable | MIT Technology Roadmaps

It means that the high temperature superconducting cable is advantageous regarding the cooling costs and the availability of coolants. The system concept of the high

Feb 11, 2026

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High Temperature Superconducting Cable Technology Realizing New Seabed-Coil System for Ship Magnetic Deperming, presented at the 9th Annual World Congress of Advanced Materials, May 10,

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High Temperature Superconducting Demagnetizing Cable Market

The High Temperature Superconducting Demagnetizing Cable Market is expected to grow from 1,129.5 USD Million in 2025 to 2,500 USD Million by 2035. The High Temperature

May 24, 2026

Global High-temperature Superconducting Demagnetizing Cable

The global market for High-temperature Superconducting (HTS) Demagnetizing Cables was propelled by the strategic transition toward all-electric ship architectures and the escalating

Dec 06, 2025

Global High-temperature Superconducting Demagnetizing Cable

Chapter 4, the High-temperature Superconducting Demagnetizing Cable breakdown data are shown at the regional level, to show the sales quantity, consumption value and growth by

Aug 21, 2025

Development of a high current density, high temperature

Development of a high current density, high temperature superconducting cable for pulsed magnets Charlie Sanabria*, Alexey

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