



EPSILON COMPOSITE CABLE

The alternative

**INNOVATIVE SUSTAINABLE SOLUTIONS
TO MODERNIZE POWER LINES WORLDWIDE**



OUR MISSION:

Create And Implement Sustainable Innovative Solutions To Modernize Power Lines Worldwide

Since 1987, Epsilon has been a pioneer and world leader in high-performance composite materials thanks to the pultrusion process. This highly efficient technology, combined with the extraordinary properties of carbon fibers makes the perfect solution to manufacture strong durable cores for High-Temperature Low Sag (HTLS) conductors.

In addition to its R&D center and pultrusion facilities in France, Epsilon Composite Cable relies on technical support teams in America, Asia, and Europe, as well as stranding partners all around the world.



*Epsilon Composite Cable proprietary
Pultrusion line technology*



HVCRC® Technology

HVCRC®, or High Voltage Composite Reinforced Conductors, stands for a complete range of HTLS conductors made up of a carbon-glass epoxy composite core and trapezoidal 1350-O annealed aluminum strands.

Compared with a traditional ACSR conductor, HVCRC® conductors allow to double the ampacity of a line, or to decrease line losses by up to 30% while reducing sag. Several thousands of kilometers of HVCRC® conductors have been installed and energized successfully around the world since 2012, which makes it one of the leading new generation overhead high voltage conductors.

Epsilon manufactures composite cores by pultrusion, using aerospace grade carbon fibers and specific resins to ensure the highest performance and durability. HVCRC cores are qualified according to ASTM B987. They include a micro core and an electrically insulating glass fiber layer, to increase the core performance and flexibility, and protect the aluminum strands from galvanic corrosion. Epsilon Composite Cable works with the most demanding cable manufacturers to help them achieve their ambitious performance and cost targets.

**ASTM
B987**



HVCRC® is a registered trade mark of Epsilon Composite Cable

HVCRC® accessories and installation

HVCRC® conductors are installed using conventional compression accessories. This reduces installation costs and complexity as compared with other HTLS solutions. The training of installation crews is simplified, and there are less risks of line failure due to improper installation. Our experts support installation companies providing up to date practices and guidelines to installation crews before and during installation.

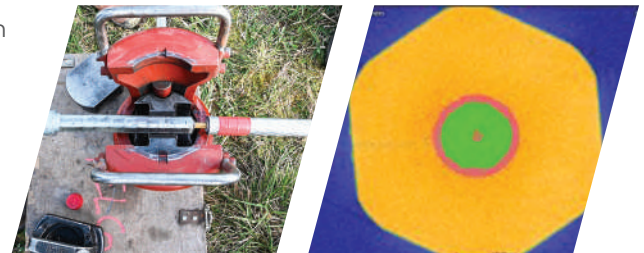


Compression rate sizing

Based on 20 years of experience on innovative technologies of composite cables and accessories, we seek to guarantee perfect safety in the use of sleeves. The compression ratios have been defined to guarantee electrical continuity and ensure the mechanical resistance of the rod, while optimizing the compression lengths, in order to obtain a compact, reliable and robust fitting, which are easy to install on site.

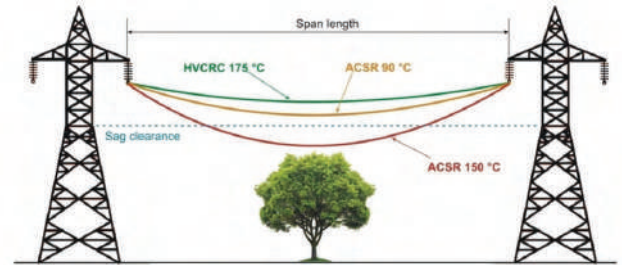
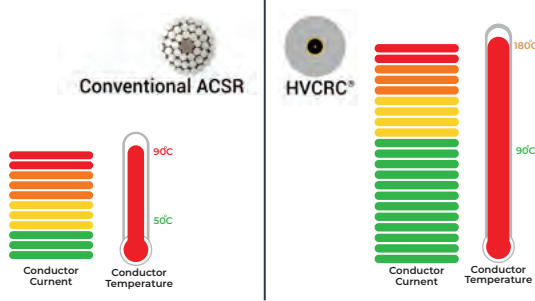
HVCRC® Compression fittings

HVCRC® compression fittings were co-developed and designed in collaboration with Sicame Group. They use a specific protective sleeve to protect the carbon core and bring high controlled crimping rate. This design allows a simple on-site installation, workers can use the same installation process and tools as a conventional ACSR conductor. Connecting pads, aluminum sections, crimping length, and grease inhibitor are specifically designed to support the unique high transit capacity provided by HVCRC® conductors



Double the ampacity of existing lines

Compared with traditional conductors, HVCRC[®] allows to easily and cost-effectively double the ampacity of an overhead Transmission or Distribution line, without having to replace existing structures. This is made possible by its strong and lightweight composite core, combined with trapezoidal strands of highly conductive annealed aluminum.



Electrical Resistance increases with temperature. HVCRC[®] has 30% more aluminum and a 3% more conductive aluminum, which means a lower resistivity as ampacity increases, as compared with traditional conductors

Savings

On a high voltage conductor, a significant part of the electricity is lost in the form of heat before reaching the final user. This is due to the Joule effect, and the best way around this phenomenon is to decrease the conductor resistance. This is what we did with HVCRC conductors: their electric resistance is 30% lower than conventional ACSR conductors. This means 30% less line losses !

As energy generation is the most important contributor to Green House Gas emissions worldwide, reducing line losses means massive savings on CO2 emissions.



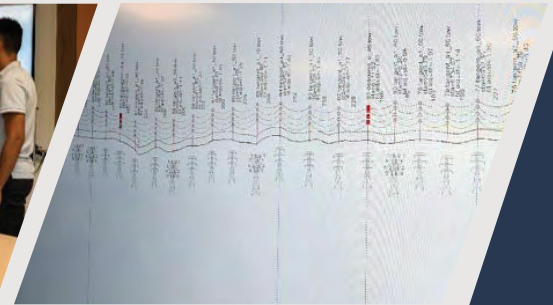
Installation Support

Our experts can train installation teams worldwide, and provide on site assistance and supervision during installation. Even though HVCRC® conductors use standard compression accessories and methods, they require some basic care and training to avoid any issue, such as damaging the structural composite core. In our experience, proper installation methods are a key factor in the success of a project and ensure the optimal durability of conductors !



Overhead line calculation

Using the industry standard line design software (PLS CADD), Epsilon engineers can ensure our conductors will meet your performance requirements and ensure the best performance on your project: sag, maximum ampacity, conductor temperature, catenary parameter etc...



TRACK RECORD

> 3000 km of conductors installed worldwide



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ENERGINET

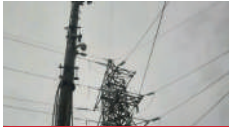


CRNOGORSKI
ELEKTROPRENOSNI
SISTEM



АЛАТАУ ЖАРЫҚ
КОМПАНИЯСЫ

Examples of projects where Epsilon Composite Cable solutions were used:



110KV LINE IN BA CHÉ
(VIETNAM)



220KV LINE IN HAI DUONG
(VIETNAM)



220KV IN CHÂU ĐỐC
(VIETNAM)



500KV LINE IN JAKARTA
(INDONESIA)



150KV IN KALIMANTAN
BARAT (INDONESIA)



150KV LINE IN SUMATERA
UTARA (INDONESIA)



150KV LINE IN PEKANBARU
(INDONESIA)



138KV LINE IN ODISHA
(INDIA)



110KV LINE IN SHYMKENT
(KAZAKHSTAN)



88KV LINE IN JOHANNESBURG
(SOUTH AFRICA)



154 KV LINE IN SEOGOCHANG
(KOREA)



90KV LINE IN HAUTE-VIENNE
(FRANCE)



11KV LINE IN VICTORIA
(AUSTRALIA)



CASCADE & CHINOOK
PROJECT (USA)

More information & case studies:

www.epsilon-cable.com

The image features a series of high-voltage electrical transmission towers, also known as pylons, silhouetted against a dramatic sky at sunset or sunrise. The sky is filled with soft, orange and yellow clouds, with the sun's glow visible near the horizon. The towers are constructed from a complex lattice of metal beams and are connected by thick power lines that stretch across the frame. The overall composition is symmetrical, with the central tower being the most prominent.

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