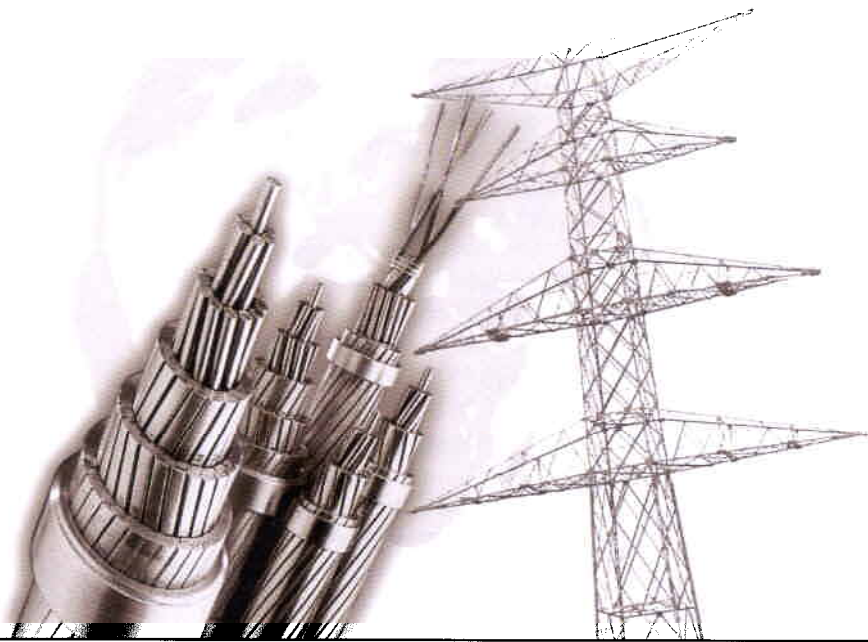


Nexans



AERO-Z® . The solution for future-oriented overhead power lines

Aero-Z®: The solution for future-oriented overhead power lines.

A highly sophisticated conductor for high-voltage overhead lines has been launched on the power transmission market by Nexans since several years.

These are fully-locked conductor cables, known as AERO-Z®, integrating one or more concentric layers of profiled wires in the form of a "Z." The outer layer, which is virtually smooth, has small helical grooves created between the upper edges of the Z-shaped wires with carefully chosen lay, depth and pitch. The characteristics of these AERO-Z® conductors are more interesting than those of traditional stranded cables with round wires.

Reduced drag coefficient

Compared with traditional stranded conductors, AERO-Z® has a drag coefficient which is greatly reduced at certain wind speeds. Working closely with Professor Olivari of the Von Karman Institute, Nexans has obtained extremely positive results from experiments and field tests, which have been confirmed by extensive experience on installed conductors.

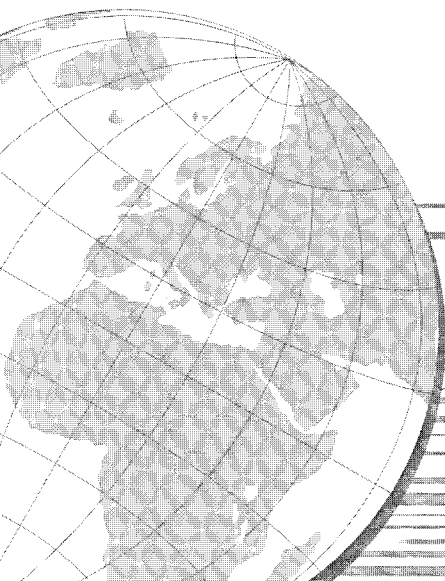
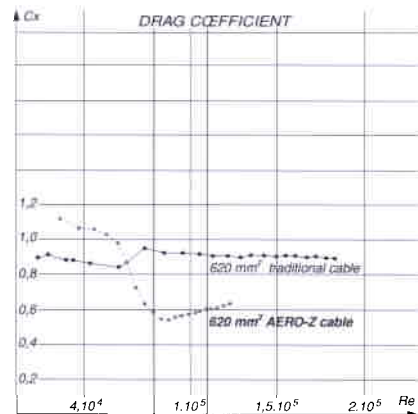
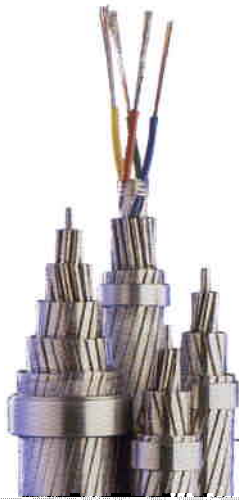
Therefore, with the same diameter, the strain at high wind speeds is less on the AERO-Z® conductor than on traditional conductors: as much as 40% less.

Replacing traditional stranded conductors by AERO-Z® conductors therefore greatly enhances safety coefficient.

Greater useful cross-section

With a diameter equal to traditional conductors, AERO-Z®, which can be installed without changing the type of the fixation accessories, provides a greater useful section than traditional conductors. This thus provides an advantageous solution to present overload problems and to the increasing demand of electrical networks.

Performance can even be improved with high conductivity aluminium alloy AERO-Z HC® which increases the transit ampacity of the existing line by more than 10% or by high temperature alloys (AlZr, annealed Al).





Reduced galloping propability

Wind tunnel tests and observations made on-site have shown that "galloping" of non-iced AERO-Z[®] conductors occurs only at extremely high wind speeds.

This means that the probability of this type of gallop on an "AERO-Z[®]" line is much less; and, if gallop does occur, its extent will be considerably less.

Recent numerical simulations have also proven this ability on a wide range of wind speeds

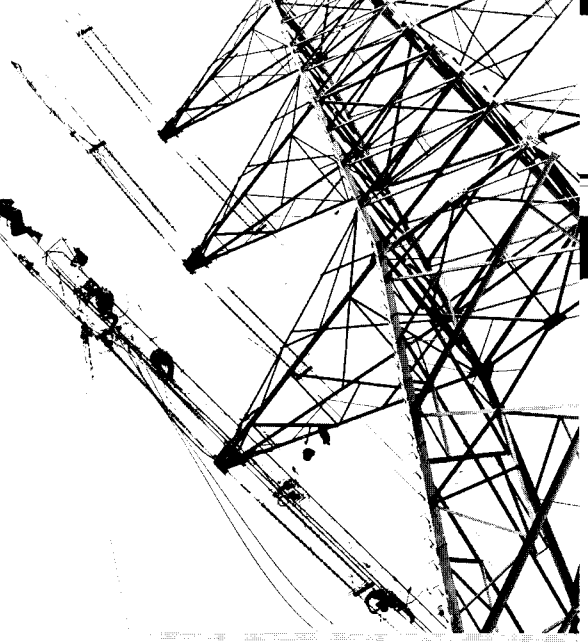
Improved shock absorption

The flexional and torsional shock absorption characteristics of AERO-Z[®] is produced more rapidly, especially at low frequencies. Any damage which gallop may cause to the support equipment is therefore minimized.

No internal corrosion

The "Z" profile wires which make up the outer belt fit firmly into each, forming a hermetic casing which prevents the oozing of grease applied in the gaps between the inner wires during assembly.

Improved protection is thus provided for many years against eventual internal corrosion, damaged wires, and the troublesome problem of leakage into the environment.

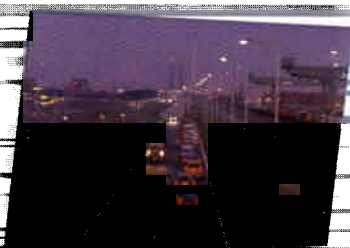


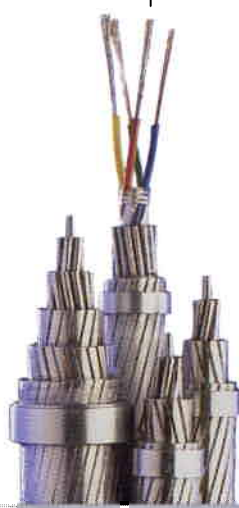
Inaudible in nature Reduced line losses

The noise produced by the Corona effect will be lower due to the absence of the deep grooves between strands, and dust and dirt are more easily eliminated by natural rainfall, reducing noise as well as electrical line losses.

Solution to snow and ice accretion

The smooth surface and higher torque eliminates problems caused by frost and ice accretion. This makes AERO-Z[®] of particular interest to all power producers and utilities who wish to install these lines in areas subject to extreme weather conditions.





Optical Ground Wire (OPGW-Z)

For cost-effective, parallel telecom networks, Nexans has also developed an OPGW design with an aluminium slotted core carrying optical fibers protected by an aluminium alloy/ aluminium clad steel armoring and an AERO-Z® aluminium alloy outer layer.

This construction is better suited to withstand lightning and short-circuit surges. Even when broken, one or more Z-wires of the outer layer of an AERO-Z® conductor remains in place under mechanical stress. Thanks to the close fit of the Z-shaped wires, this fully-locked construction protects optical fibers against water penetration and reduces the risk of corrosion from adjacent armoring wire. Many other advantages of AERO-Z® conductors are also applicable to Nexans OPGW-Z cables. Our ground cables have been developed and certified with their own accessories to ensure maximum reliability, and our laying recommendations reflect many years of experience and ensure maximum reliability of the installed lines.

Accessories

Nexans can provide accessories adapted to AERO-Z® conductors or OPGW-Z cables in synergy with certified suppliers. The complete systems have been qualified by many utilities worldwide.



S.A. Nexans Benelux N.V. • Sales departement High Voltage
Rue Vital Françoise 218, B-6001 Marcinelle-Charleroi • Tel.: +32 (0)71 44 04 31 - Fax: +32 (0)71 44 05 63
Internet: www.nexans.be • E-mail: sales.power-cables@nexans.com