

**HIGH PERFORMANCE
OVERHEAD LINE CONDUCTORS
TO UPGRADE YOUR SYSTEM**

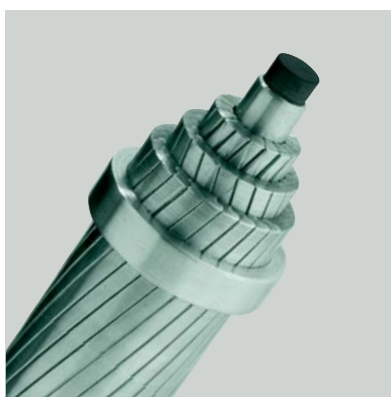




ACPR LO-SAG® CONDUCTOR

UPGRADE YOUR INTERNAL BACKBONE AND CROSS-BORDER CAPACITY

The innovative ACPR LO-SAG® conductor is much lighter & stronger, dispatching more energy and reducing the losses without modifying existing towers. Improvement on clearances and reduction on loads transferred to existing towers allow Transmission and Distribution System Operators adjusting their investments to upgrade existing lines as ROI is shorten dramatically in comparison to new lines, new routes and full related civil works.



- Longer spans, less towers
- Lighter & lower wind resistance conductor
- High temperature (up to 180°C) enabling to double the ampacity
- Fully qualified system of conductor and fittings
- Quicker return of investment, improved total cost of ownership

Benefits for Customers

The combination of composite core + outer aluminium alloy wires provides a high tensile strength. The presence of Aero-Z shaped wires is translated into a final compact conductor able to substantially improve the electrical capacity of the OHL, limiting losses and respecting efforts on existing towers.

The benefit of this design with adequate Al alloy wires balances the mechanical efforts among core and outer layers, becoming a more friendly installation.

References



- National Grid: 1,2 km as a pilot project OHL in Eakring ACPR LO-SAG® PLUS 654-87 in 2015
- ELIA in Belgium, 300 km for the STEVIN project on 400 kV line ACPR LO-SAG® 850-87 from 2016 to 2018.

Actual reference list available upon request.

AERO-Z®

ENHANCE YOUR POWER TRANSMISSION

Focusing on improving the existing transmission and distribution lines, most of them over 40 years old, Nexans offers a full range of High Capacity conductors to facilitate the replacement of these aged conductors by new proven technologies

- Increased power transmission, using actual infrastructure.
- Availability of complete system (Conductor + fittings) 100% compatible.
- Different customizable combinations.
- Regular and Hi-Conductivity alloys and/or steel cores available.

Customer benefits

- High capacity conductors to improve the efficiency of OHL by applying compact Aero-Z conductors with Z shaped wires enhancing ROI.
- Compact & light conductor, low drag coefficient, bigger aluminium cross section for given diameter.
- Up to 30% increased capacity compared to standard conductor.
- Up to 20% less losses provided by Z shape wires vs standard conductors.

References

- Eon Hungary (Hungary), 23 km Aero-Z 120 mm² in 2016.



Actual reference list available upon request.



ACSS HIGH TEMPERATURE CONDUCTOR

INCREASED SECURITY AND FLEXIBILITY AND SOLVING EMERGENCIES

- Can double existing capacity using existing infrastructure.
- Equivalent area with lower diameter or equivalent diameter with higher aluminium cross section, when applying compact construction.
- These conductors work up to 250°C continuously without any risk for the grid and deliver the required energy to end users, by the use of Annealed Aluminum wires.
- Mechanical strength relies on the steel core. Nexans proposes different core types according to UTS, environment,...
- Aluminum wires can be round or trapezoidal.

Customer benefits

- 100% compatible complete system availability (conductor + fittings).
- Improved reliability of transmission/distribution grid at reasonable cost.
- Equipping existing lines with the right ACSS conductor improves transmission/distributions grids against contingency ratings N-1 or N-2 as well as dispatching during peaks of demand.
- Tailor made designs available satisfying grid requirements. Also designs according to EN 50540 and ASTM B856 & B857.

References

- RTE in France, 400 kV line Le Havre/Rougemontier, 820 km ACSS-TW 573R and 687R 2011-16.
- RTE in France, 400 kV line Beaumont/Chaffard/Coulange, 2.850 km ACSS-TW 687R in 2011-16.
- ENEL green power in Romania, 110 kV Tulcea Vest-Babadag OHL 165 km ACSS-TW Brant in 2015-2016.

Actual reference list available upon request.



INNOVATION DRIVEN BY CUSTOMERS: PLUS TECHNOLOGY FOR ALL CONDUCTORS

On customer request, Nexans has developed **PLUS** technology, a surface treatment technology applicable on the external wires of conductors. This treatment has several benefits.

- **Power loss reduction** by improving the emissivity coefficient: with an increased emissivity coefficient, a conductor with the current structure transmits more energy for a same section. Transmitting the same power, the conductor remains colder by limiting the Joule losses and improves the power line efficiency.



	Standard conductor	Converted conductor
Emissivity ϵ	0,27	0,87
Absorption α	0,55	0,47

+14% ampacity and -8% Joule losses at same working conditions

Reference: 1,2 km Prototype for National Grid, UK.

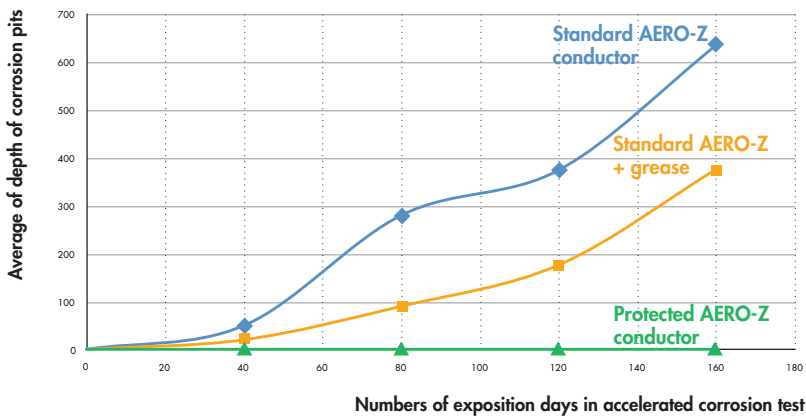
- **Lower visual impact by coloured conductors** for regions such as natural parks, residential areas or others where overhead conductors need to be camouflaged by coloring without losing any electrical or mechanical property.

Reference: 56 km installed at Hojrundfjorden, Statnett in Norway.

PLUS Technology :

- P**ower loss reduction
- L**ower visual impact
- U**nique limited corrosion conductors
- S**ound reduced conductors





Nexans **PLUS** technology provides a significant decrease on maintenance expenditures to TSO/DNOs enlarging the life expectancy of overhead conductors when corrosion gets into the scene and reducing the actions due to claims on noise issues from people living near overhead lines.



- **Unique limited corrosion conductors:** 95% longer life time in extreme corrosion conditions in lab tests.

Reference: 4 km in Chipiur, Perù. Prototype in Rio de Janeiro, Brazil.

- **Sound reduced conductors:** Nowadays noise on OHL is becoming quite a popular issue and Nexans provides a solution decreasing the corona effect and the noise induced.



standard

treated

Reference: 1,2 km Prototype for National Grid, UK





Nexans brings energy to life through an extensive range of cables and cabling solutions that deliver increased performance for our customers worldwide. Nexans' teams are committed to a partnership approach that supports customers in four main business areas: Power transmission and distribution (submarine and land), Energy resources (Oil & Gas, Mining and Renewables), Transportation (Road, Rail, Air, Sea) and Building (Commercial, Residential and Data Centers). Nexans' strategy is founded on continuous innovation in products, solutions and services, employee development, customer training and the introduction of safe, low-environmental-impact industrial processes. In 2013, Nexans became the first cable player to create a Foundation to introduce sustained initiatives for access to energy for disadvantaged communities worldwide. Nexans is an active member of Europacable, the European Association of Wire & Cable Manufacturers, and a signatory of the Europacable Industry Charter. The Charter expresses its members' commitment to the principles and objectives of developing ethical, sustainable and high-quality cables. We have an industrial presence in 40 countries and commercial activities worldwide, employing close to 26,000 people and generating sales in 2015 of 6.2 billion euros. Nexans is listed on NYSE Euronext Paris, compartement A.

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