



Helical products

Transmission & Distribution

sicame
GROUP

About us

sicame
GROUP

Sicame Group is one of the key players in the electrical equipment business worldwide. It has been able to adapt and develop to support the continuous evolution of electricity infrastructure in France and around the world, and become the largest independent entity in its sector.

A true player in the energy transition, it offers its customers new products and services to improve energy efficiency, deal with environmental risks and support the development of electric vehicle and solar power plant markets.

70

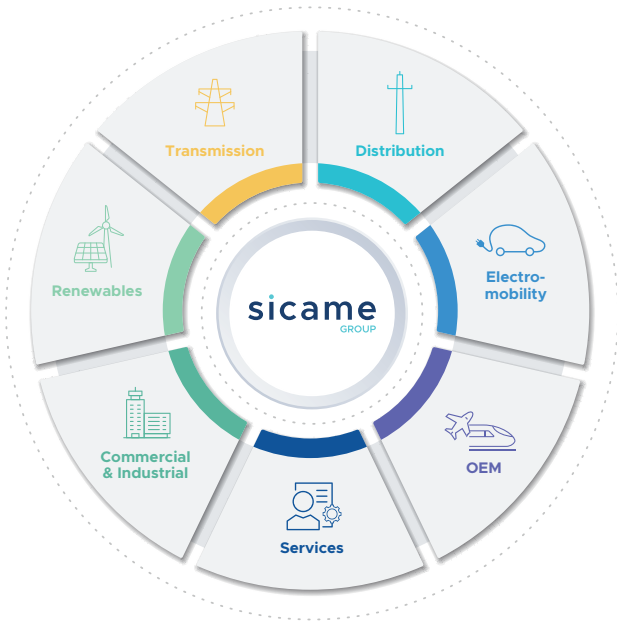
years of worldwide success

567 M€

2023 turnover

3,600

employees



Our fields of activity

Sicame Group is specialised in **products and services** related to transmission and distribution of **electrical energy**, renewables, electro-mobility, safety equipment and industrial applications.

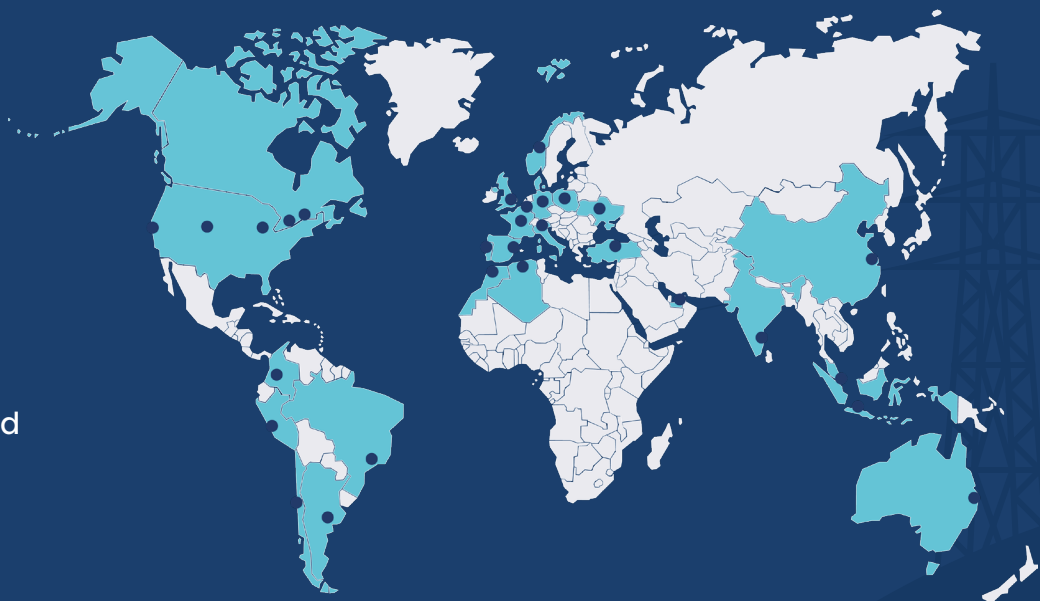
With decades of history and recognized expertise, our Transmission and Distribution division is specialized in designing, manufacturing and producing comprehensive ranges of products and plays a pivotal role in the supply of power across the world. Our T&D team engineers, planners and environmental specialists is actively working on the cornerstones of a 21st-century energy grid economy. By reducing the electricity sector's carbon emissions, we contribute to realising the promise of a sustainable future.

5 continents

26 countries

50 companies
around the world

Products distributed
in 157 countries

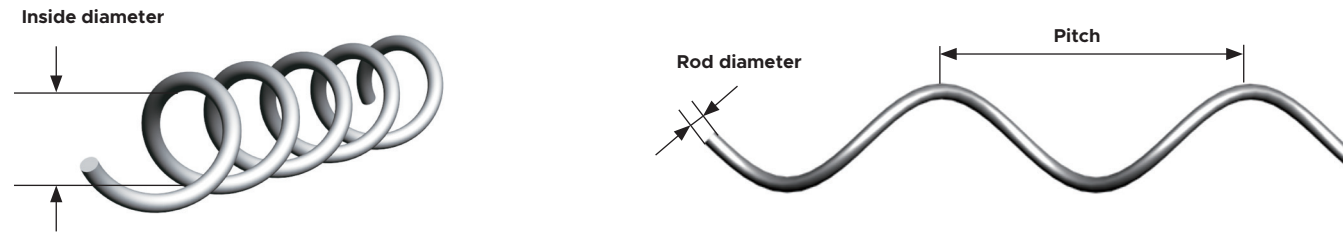


Design concept

Helical wire design

Designs of helical wires are an optimum combination of conductor diameter, material used, inside diameter, pitch, lay direction, number of rods and length applied.

The inside diameter of the helical fitting is less than the outer diameter of the conductor so that each rod exerts a uniform low radial pressure inherent with spring tempered material.



Number of rods per set

After application of the correct number of rods, a slight gap between the rods should be present. Study the 3 following examples,

Example 1:

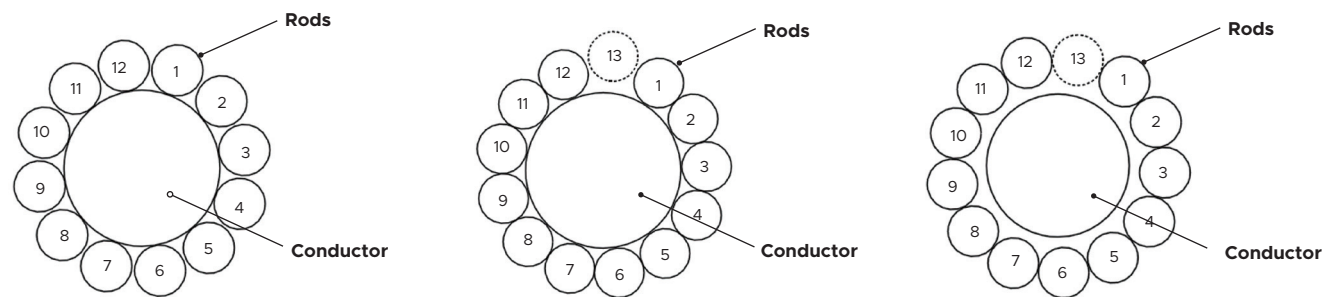
Excellent application.

Example 2:

Satisfactory, but may lead to applying an extra, unneeded rod. Extra rod produces bridging condition and eventual rod abrasion.

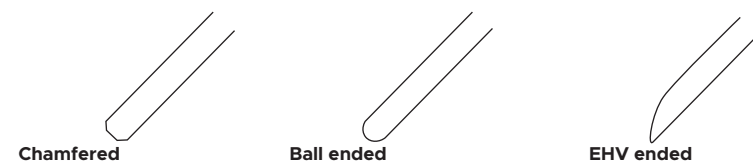
Example 3:

Extra rod, expanded tube condition, affords little protection, allows severe abrasion and other conductor damage. If undecided about adding an extra rod; leave it out.



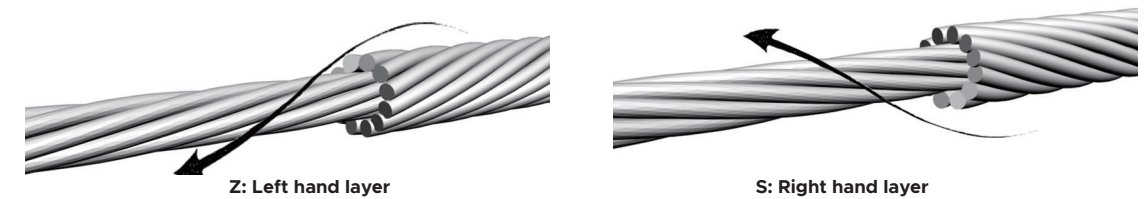
End finish

Depending on the voltage, ends of the individual rods may either chamfered, ball ended or EHV (Extra High Voltage) ended. EHV end finish is generally only required if transmission lines voltage is more than 330 kV.



Layer direction

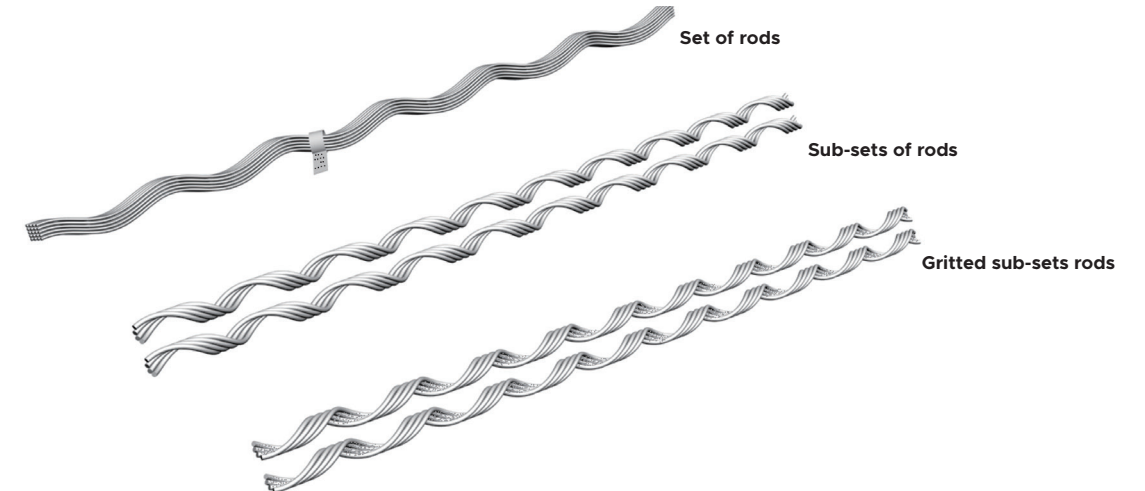
In order to obtain maximum efficiency it is essential that products are manufactured with an identical layer direction to the outer layer of conductor or strand on which they are applied.



Aspect of the products

Our products are presented under the following forms:

- Set of rods: armor rods, line guard
- Sub sets made of glued rods: tie rods
- Sub sets made of glued and gritted rods: repair splices, distribution grip, deadends and service grip



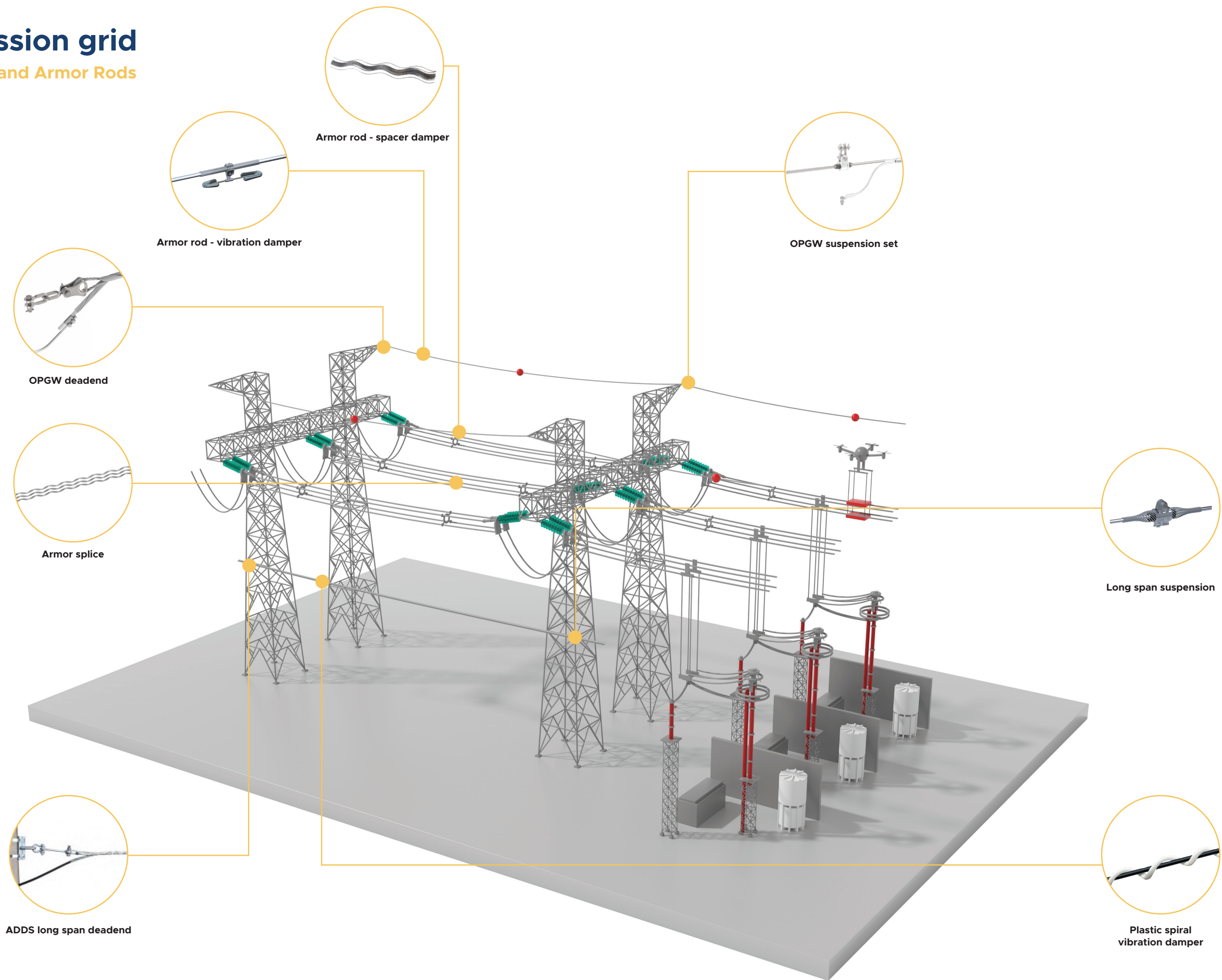
Loop configuration

Open looped and twisted looped deadends can be provided.



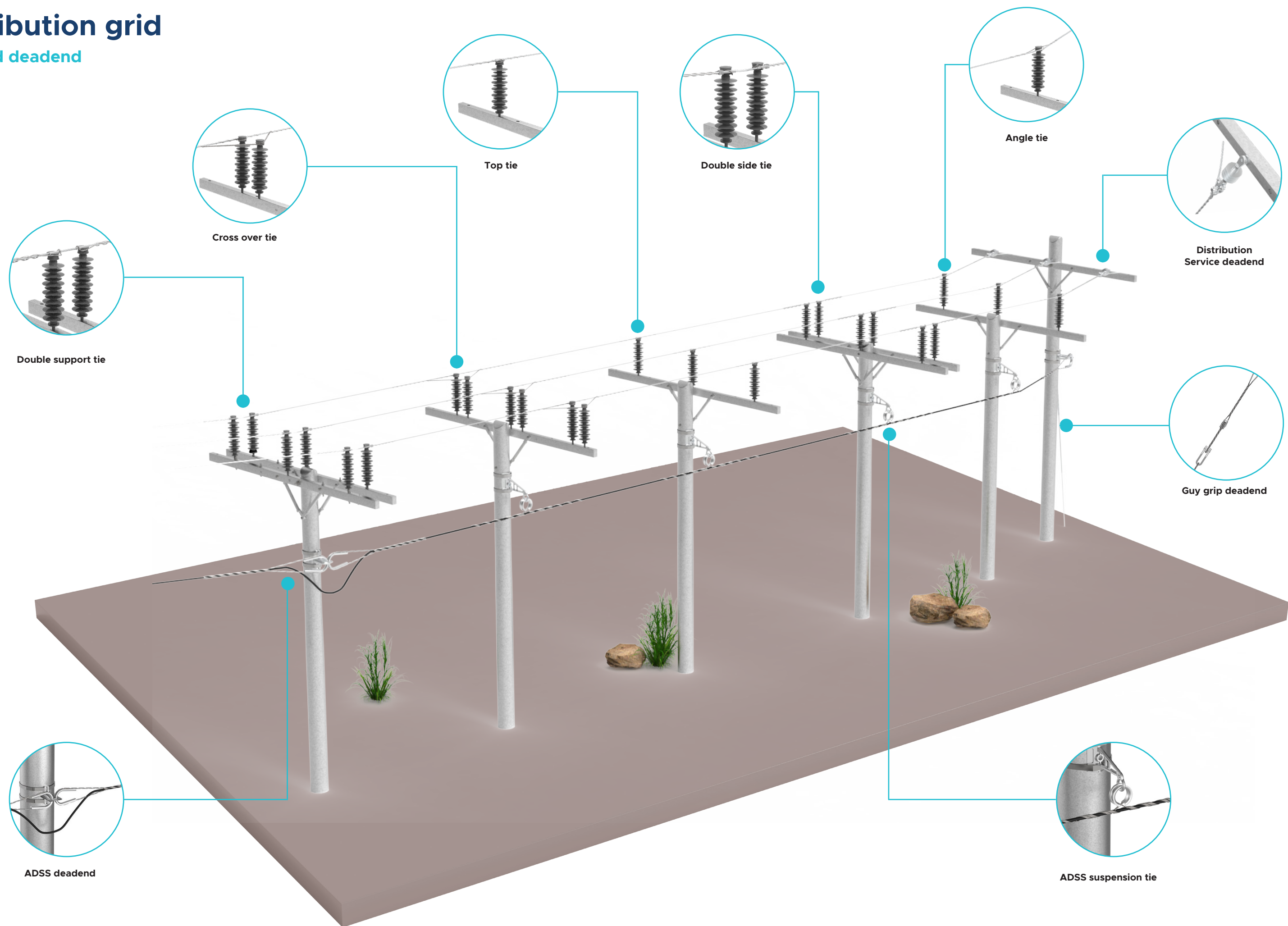
Transmission grid

OPGW, ADSS and Armor Rods



Distribution grid

Tie's and deadend



Transmission

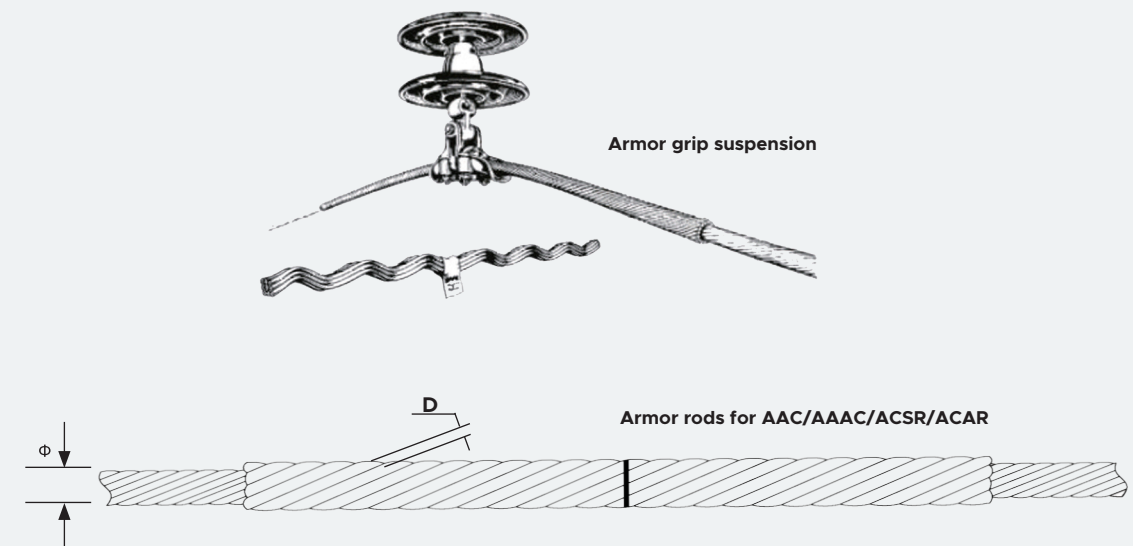
Armor rods

Armor rods length should be modified for specific installation

Armor rods are used in protecting conductors at suspension points, stockbridge vibration dampers, and angles up to 30°. Armor rods help decrease strains and extend conductor life, especially in severe conditions.

Advantages

- Recommended for protection at suspension points and angles up to 30°
- Prevents conductor bending
- Decreases mechanical strains caused by wind, tension, and vibration
- Extends the life of conductors, particularly in severe conditions

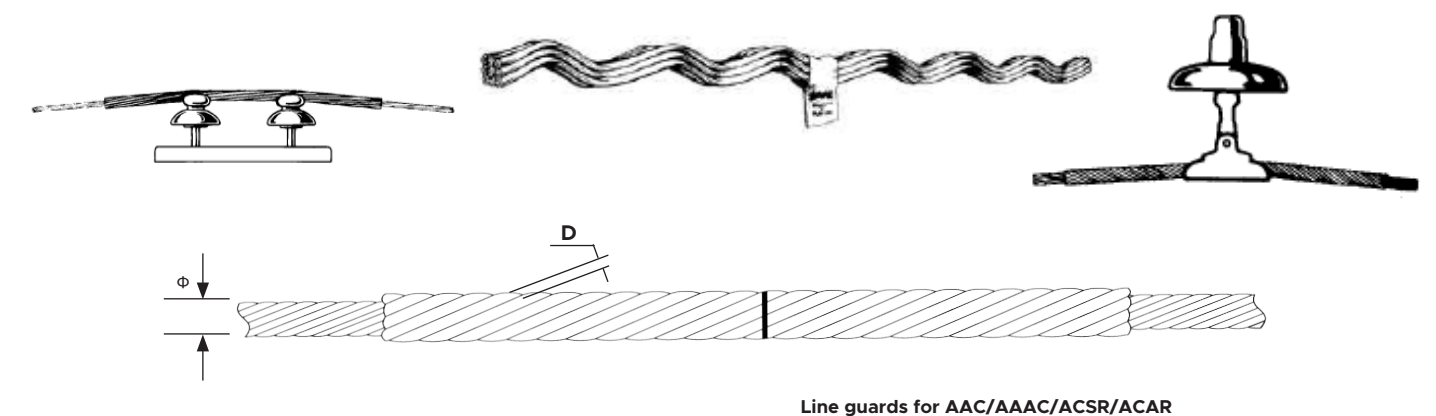


Line guards

Line guards offer safe and economical protection for rigid and overhead line conductors.

Advantages

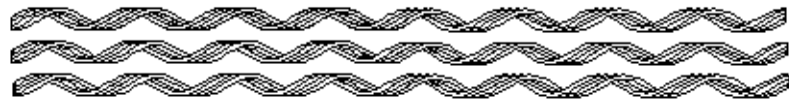
- Lightweight design
- Safe and economical protection for conductors
- Effective against friction and short-circuit damage at attachment or suspension points
- Reduces radio and television interference compared to other guard fittings



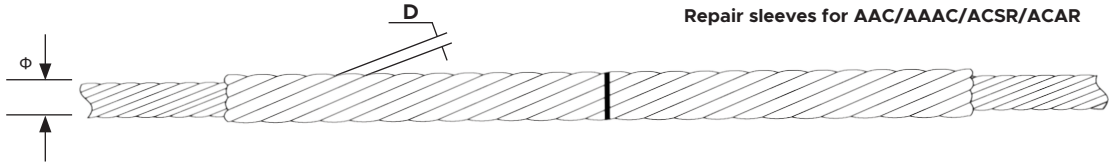
Repair sleeves

Application

The repair sleeve restores the full conductivity and mechanical strength to the conductor(homogeneous and ACSR) where the damage does not exceed 33% of the outer layer and when located outside the support area.



Repair sleeves for AAC/AAAC/ACSR/ACAR



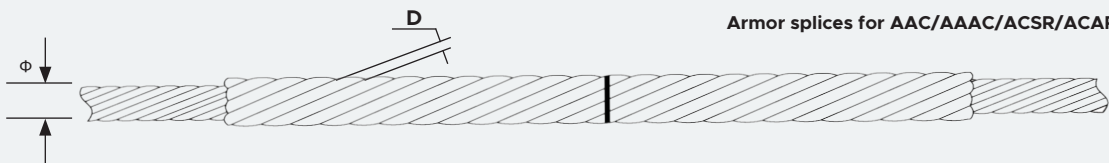
Armor splices

Armor splices are recommended for repairing severely damaged conductors at suspension points.

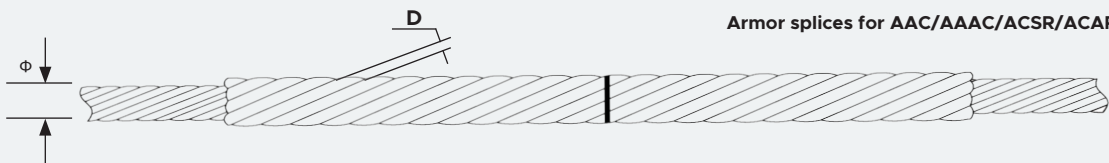
They are especially useful in the support zone and positioned not less than 150 mm from existing armor rods or lineguards to improve frictional contact.

Advantages

- Restores electrical characteristics of ACSR and homogeneous conductors
- Reconstitutes mechanical properties, especially for aluminum strands of ACSR
- Positioned to improve frictional contact
- Distributes radial compression over a large contact area, minimizing cable deformation



Armor splices for AAC/AAAC/ACSR/ACAR

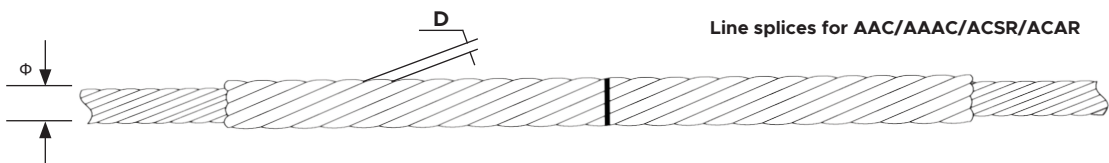


Line splices

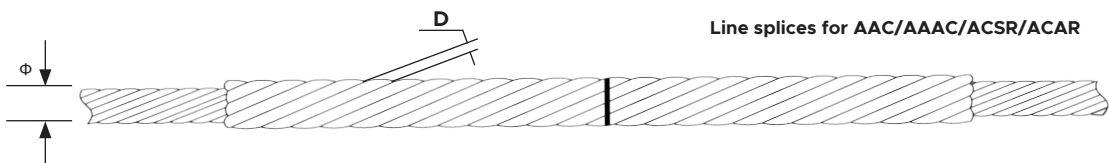
Restorative repair

Line splices restore original conductivity and full mechanical strength to homogeneous conductors.

For ACSR conductors, they will hold the original conductivity and full mechanical characteristics of the outer aluminum strands.



Line splices for AAC/AAAC/ACSR/ACAR

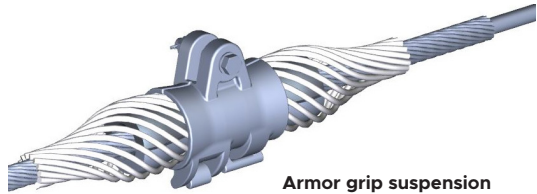


OPGW & ADSS

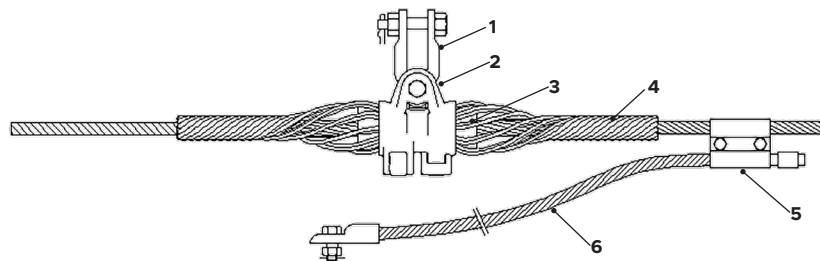
Armor grip suspension set for OPGW-Single armor grip suspension set

Application

The armor grip suspension is used for the movable suspension of conductors and optical fiber aerial cables on suspension towers.



Armor grip suspension



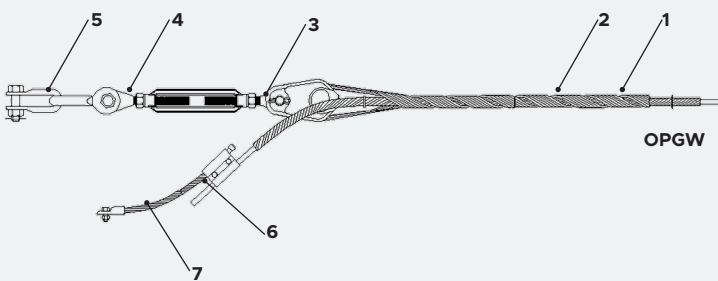
1. Shackle
2. Housing
3. Inserts
4. Armor rods
5. Parallel groove clamp
6. Ground cable

Helical deadend for OPGW - Single helical deadend set

Application

Helical deadends are ideally suited for the full tensioning of OPGW.

Deadends are composed of five or more preassembled helical rods which are covered with small-grained sand on the inside to improve the frictional contact. The loop of the deadend is protected from abrasion by means of a thimble. The deformation of the cable is omitted as the radial compression is distributed over a large contact area.



1. Reinforcing rods
2. Helical deadend
3. Thimble
4. Turn buckle
5. Shackle
6. Parallel groove clamp
7. Ground cable



Armor grip suspension set for ADSS - For short span<150 m

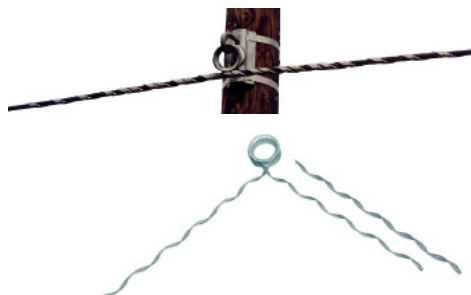
Application

The helical rods are designed for ADSS telecommunication system. They are used for span lengths up to 150 m approximately.

The suspension rods with the helical loop are the supporting accessory. The shorter and straight reinforcing rods are only used for stiffening the area around the suspension point. The loop of the fitting is stabilized and protected against abrasion with a ring type thimble.



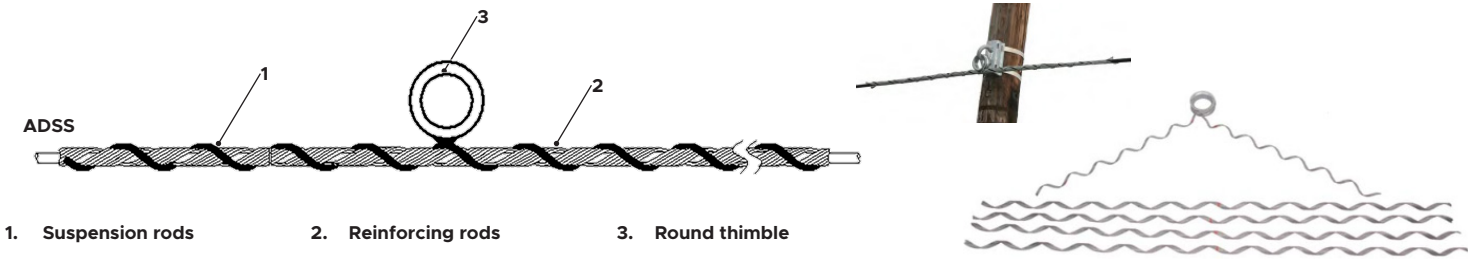
1. Suspension rods
2. Reinforcing rods
3. Round thimble



Armor grip suspension set for ADSS for short span<220 m

Application

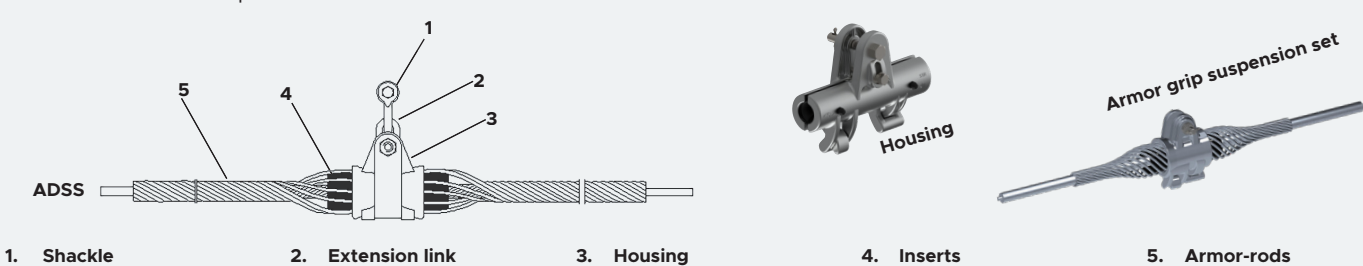
The helical rods are designed for ADSS telecommunication system. They are used for span lengths up to 220 m approximately. The suspension rods with the helical loop are the supporting accessory. The straight reinforcing rods are used for stiffening the area around the suspension point. The loop of the fitting is stabilized and protected against abrasion with a ring type thimble.



Armor grip suspension set for ADSS for long and medium span<600 m

Application

The armor grip suspension is used for the movable suspension of self supporting optical fibre aerial cable on suspension towers.



Helical deadends for ADSS for short span<150 m

Application

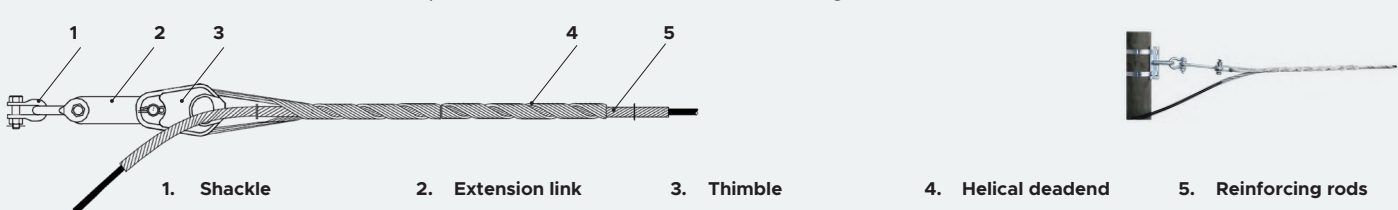
These deadends are designed for the full tensioning of ADSS cables in short span lengths up to 150 m or 10 KN of RTS. The loop of the deadend can be protected against abrasion by a thimble.



Helical deadends for ADSS for short span<220 m

Application

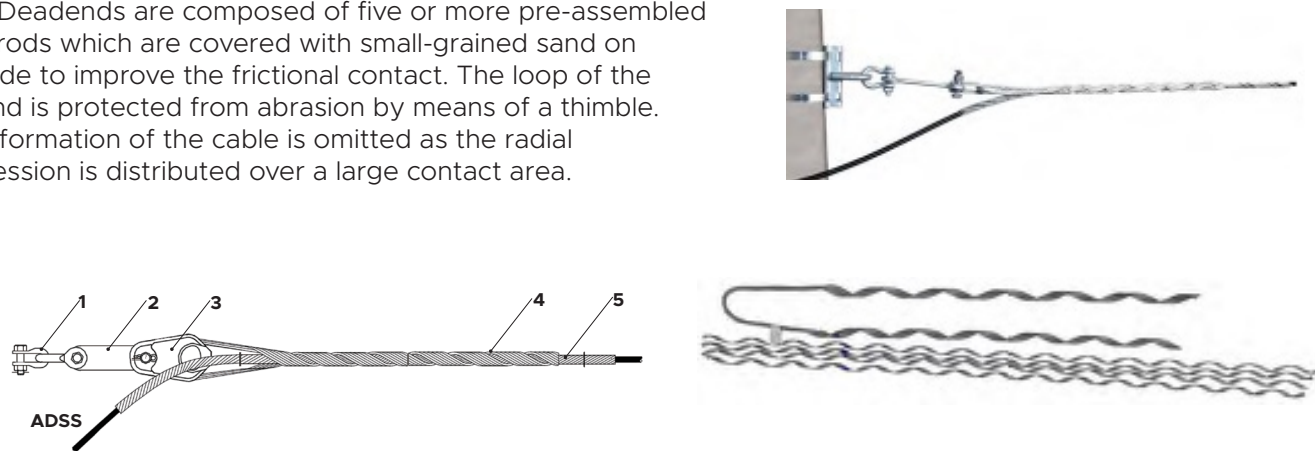
Helical deadends are ideally suited for the full tensioning of ADSS. Deadends are composed of five or more preassembled helical rods which are covered with small-grained sand on the inside to improve the frictional contact. The loop of the deadend is protected from abrasion by means of a thimble. The deformation of the cable is omitted as the radial compression is distributed over a large contact area.



Helical deadends for ADSS for medium span<300 m

Application

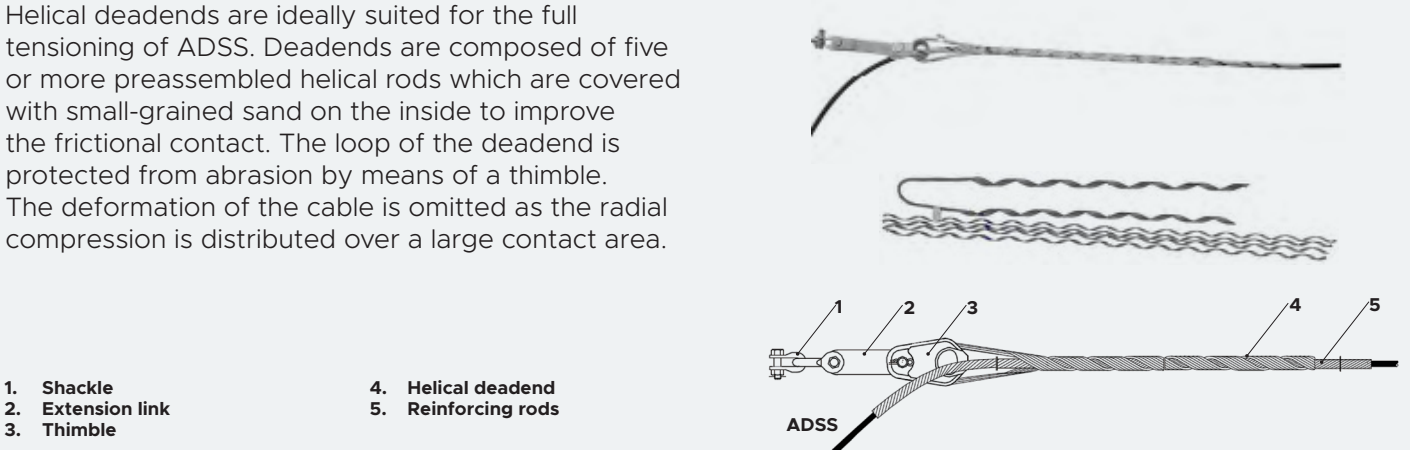
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Helical deadends for ADSS for long span<600 m

Application

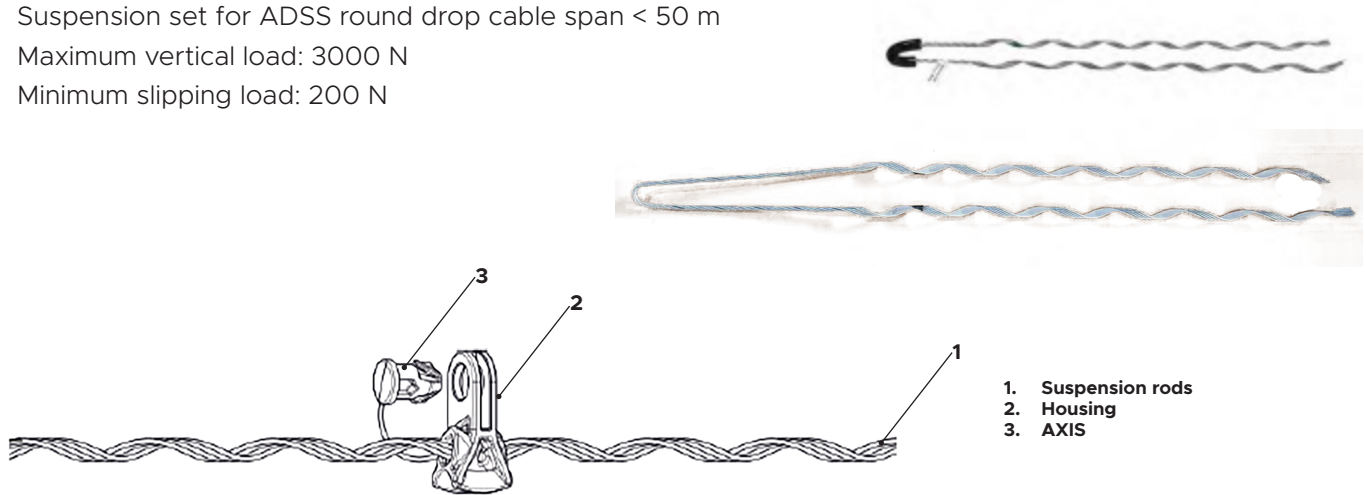
Helical deadends are ideally suited for the full tensioning of ADSS. Deadends are composed of five or more preassembled helical rods which are covered with small-grained sand on the inside to improve the frictional contact. The loop of the deadend is protected from abrasion by means of a thimble. The deformation of the cable is omitted as the radial compression is distributed over a large contact area.



Tension and suspension for ADSS round drop cable for short span<50 m

Application

- Suspension set for ADSS round drop cable span < 50 m
- Maximum vertical load: 3000 N
- Minimum slipping load: 200 N

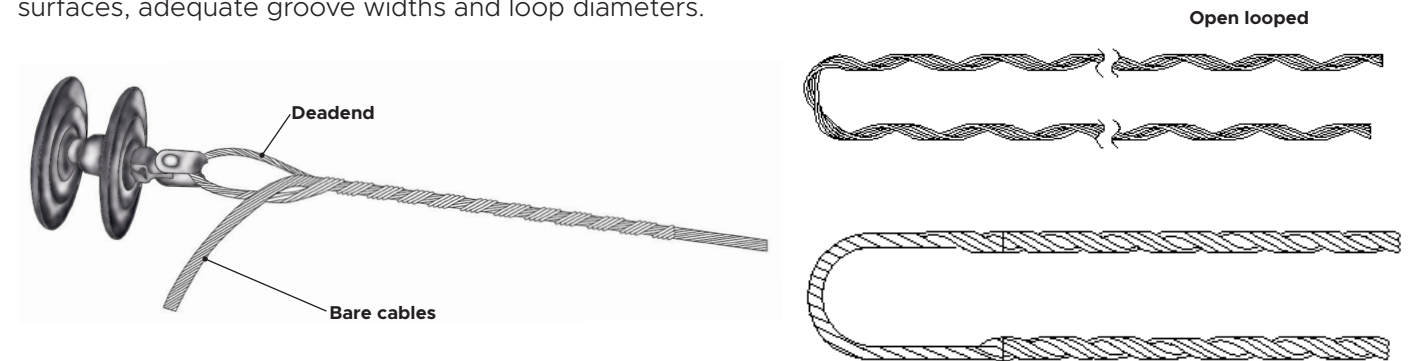


Distribution

Overhead distribution lines

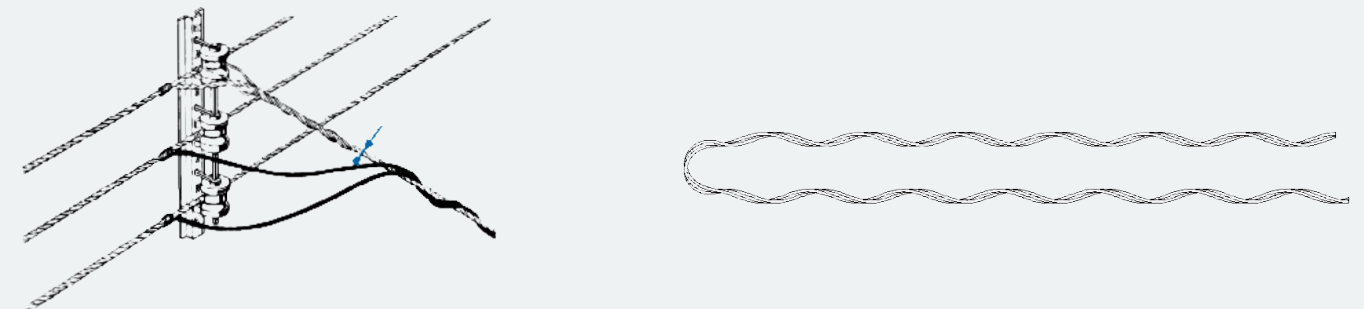
Distribution deadends for bare cables

Deadends are designed to hold bare homogeneous cables in distribution construction. Mechanical strength of these deadends is superior to the one of homogeneous cables. But, for steel-core cables the strength is approx 95% of the breaking load of the aluminum strands. These products are manufactured with aluminum covered steel for ACSR and homogeneous conductors, with copper covered steel for copper conductors. These distribution deadends must be used with a clevis thimble and insulators, with smooth contoured surfaces, adequate groove widths and loop diameters.



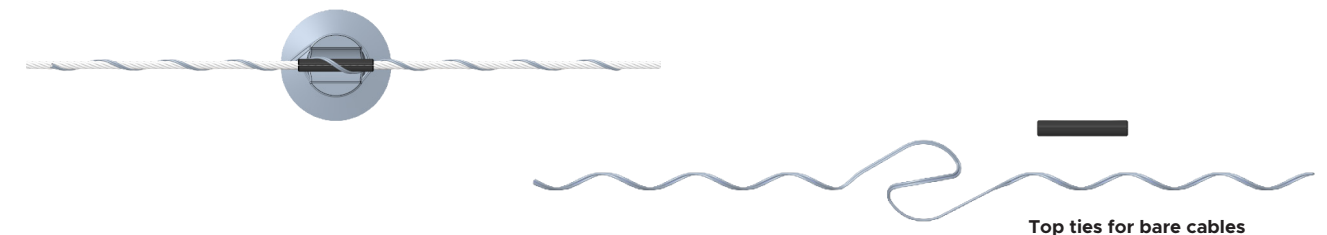
Service grip deadends for bare cables

Service grip deadend are designed to secure conductors for house service connections. Service grip deadend are recommended for house service by reason of minimal length, maximum economy and neat appearance. Service grip deadend is a limited tension deadend: for bare homogeneous messenger conductors (aluminum, aluminum alloy and copper) the holding strength of grip is about 80-90% of the rated conductor strength. With ACSR-AACSR conductors, the holding strength does not exceed 40-65% of the rated strength. Service grip deadends are manufactured with aluminum covered steel for AAC, AAAC and ACSR and copper covered steel for copper conductors.



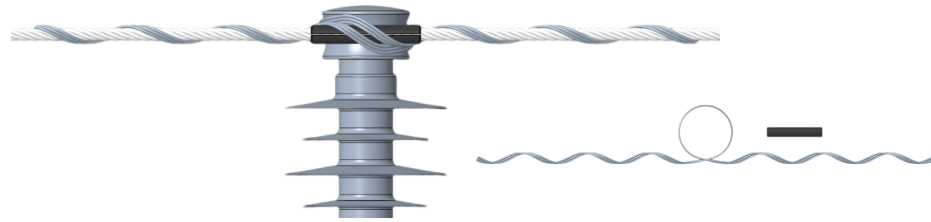
Top ties

Distribution ties are designed for securing conductors in the top groove of rigid insulators vertically mounted. This specific distribution tie provides perfect resistance to mechanical strain under all types of motion including aeolian vibration, galloping and sway. Distribution tie design takes into account a tie pad to protect the bare conductor from abrasion at the conductor insulator interface. Tie pads are not required with covered conductors. This product is manufactured with the same grade material as the conductor to which it is applied.



Side ties

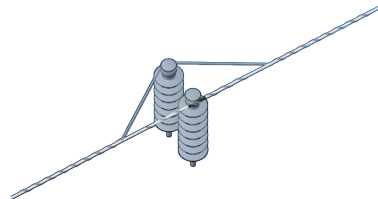
Side ties are designed for securing conductors in the side groove of insulators. Both vertically or horizontally mounted. They eliminate fatigue and wear problems on conductors. Its design takes into account a tie pad to protect the bare conductor from abrasion at the conductor-insulator interface. Tie pads are not required with insulated conductors. This product is manufactured with aluminum covered steel for ACSR and homogeneous conductors, with copper covered steel for copper conductors and galvanized steel for direct application on insulated conductors.



Guy-grip deadends



Cross over ties



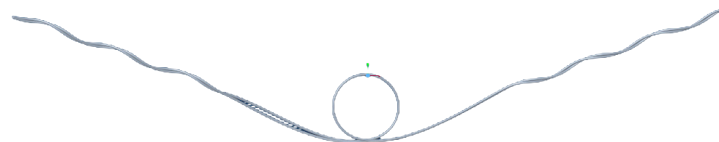
Double side ties

Double side ties are designed for securing conductors in the side groove of insulators on double cross arms where the line angle is between 0° ~ 80° . They eliminate fatigue and wear problems on conductors. Its design takes into account a tie pad to protect the bare conductor from abrasion at the conductor-insulator interface. This product is manufactured with aluminum covered steel for ACSR and homogeneous conductors, with copper covered steel for copper conductors.



Angle ties

Angle ties are designed for securing conductors in the side groove of single vertical mounted insulators where the line angle is between 20° ~ 60° . They eliminate fatigue and wear problems on conductors. Its design takes into account a tie pad to protect the bare conductor from abrasion at the conductor-insulator interface. This product is manufactured with aluminum covered steel for ACSR and homogeneous conductors, with copper covered steel for copper conductors.



MVCC

MV covered conductor network is mainly used in urban or outer-urban zones or forest areas.

Mainly used conductors: AAC/AAAC/ACSR/copper, single or double insulated/HDPE/XLPE.

There are various types of conductors on MVCC networks, each of them with its own technology and cross-section. Users are advised to check compatibility of the accessory with the cable used.

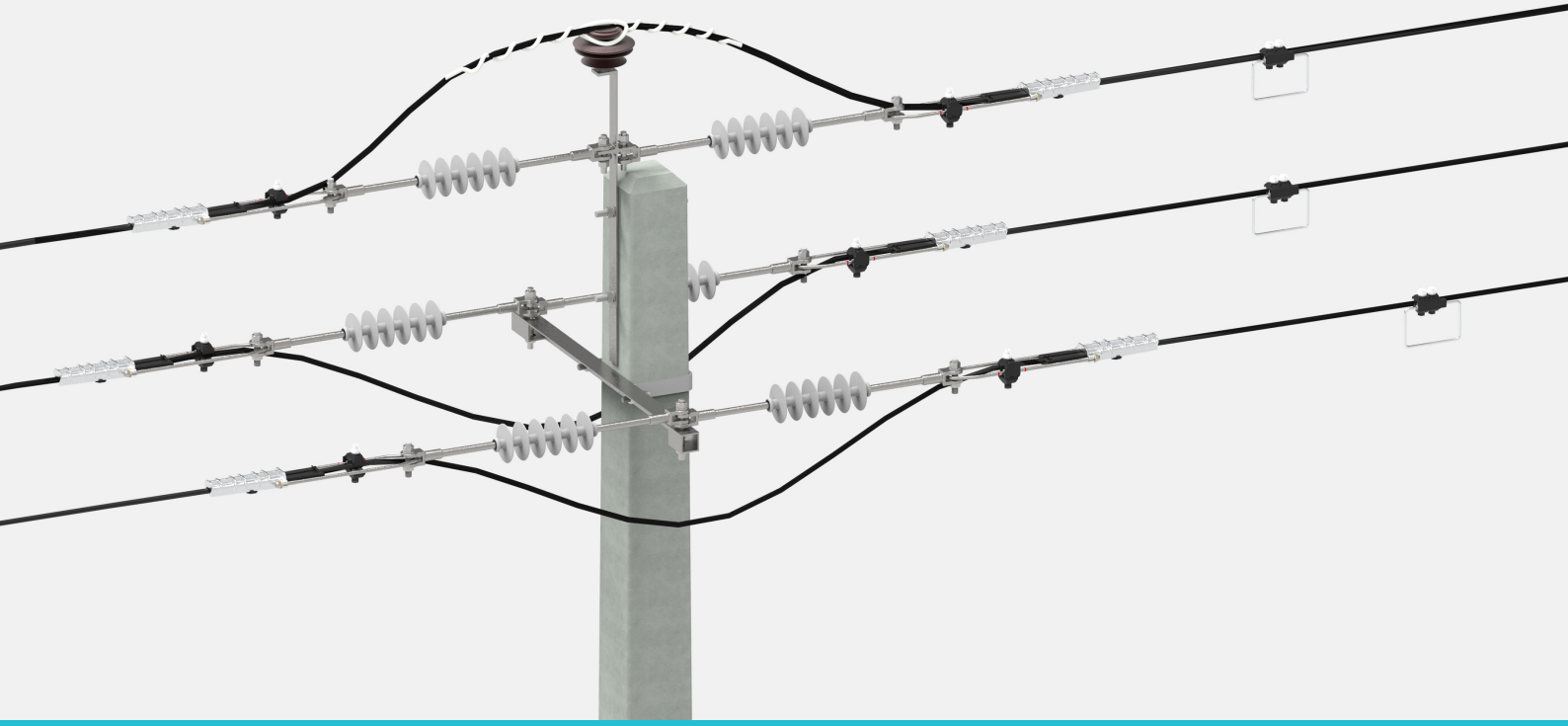
Our products range covers majority of conductor sections & types. Our accessories have been tested and approved by our customers for many years.

Twin ties

Twin ties are designed for securing covered conductors in the top groove of rigid insulators vertically mounted. This specific twin tie provides perfect resistance to mechanical strain under all types of motion including aeolian vibration, galloping and sway. Well anti-aging properties for the plastic coating.



Non metallic helical products



Rigid alignment tie

Plastic rigid alignment insulator ties help keep insulators securely in place, preventing them from becoming misaligned or dislodged, which could lead to electrical arcing or mechanical failure.

Advantages

- Insulator stability
- Improved line Performance
- Reduced maintenance
- Corrosion resistance
- Lightweight and easy to install

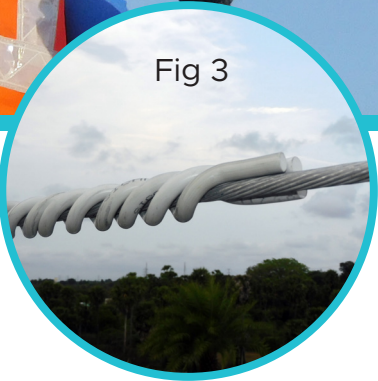
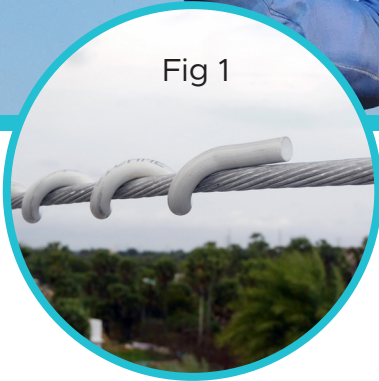
They can be easily applied during installation or retrofitted onto existing power line insulators.

- +

 - For attachment of covered conductors 35 to 240 mm² to pin type insulators
 - Easy to install on cable/conductor without any tools
 - UV resistant thermoplastic material



* Without optical consideration of the cable. Tensile test to be done with a sample of cable.



Plastic spiral vibration damper

Plastic spiral vibration dampers are used in overhead power lines to mitigate the effects of wind-induced vibrations. They are typically applied to overhead conductors to reduce the risk of fatigue failure and prolong the lifespan of the conductors.

Advantages

- Vibration reduction
- Increased lifespan
- Improved reliability
- Cost-effectiveness
- Easy installation

They can be easily applied during installation or retrofitted onto existing power lines.

Span length	Number of PSVD	Anchoring/Suspension
100 - 200	2	Fig 1
201 - 350	4 (2 subsets of 2)	Fig 2
351 - 550	6 (2 subsets of 3)	Fig 3

Construction and installation

- Made of weather and corrosion resistant thermoplastic material
- The helically formed rod has a smaller diameter area for gripping the cable/conductor and a larger diameter area for the damping section
- Ideal for use on:
 - Bare conductor
 - Covered conductor
 - Overhead shield wire
 - Optical ground wire (OPGW)
 - Optical fiber cable (OFC)

Laboratory testing and Industrial manufacturing processes

All Sicame accessories are tested and comply with international standards.

Laboratories capabilities worldwide

- Certified laboratories
- State of art equipment
- 3rd party services
- Expertise
- University partnership



Tests and R&D

Our transmission & distribution laboratory is assisting both design activities and product verification. In the design stage it is supporting the technical department in its activity of research and development while in the product verification stage all quality control mechanical verifications and tests are carried out including batch acceptance tests.

We can perform also independent tests under accreditation or not for third party (cable manufacturers, utilities ...). Test bench systems have the flexibility to meet specific requirements.

Components mechanical tests:

Are performed at our laboratories worldwide that are fully equipped for all kinds of destructive and non-destructive tests.

Full scale mechanical tests:

We are also capable of carrying out full scale mechanical tests in independent and accredited laboratories so as to verify the real mechanical behavior of the full strings.



Manufacturing

Manufacturing activities are carried out in our factories directly or through our sub-suppliers and partners within Sicame Group.

- Manufacturing processes excellence centers
- Interconnected supply chain among business unit network
- Complete manufacturing processes inside business unit



More than just a Group

Our social commitment, missions & values



Customer intimacy

We are recognized by our customers as a credible and valued global partner by providing solutions to each situation based on our customer's needs.



Innovation by everyone, everywhere

In our Group, innovation is everyone's business.



Engaging with passion

We create an environment which allows all our collaborators to act as entrepreneurs in the Group.



Social responsibility

We believe that the sustainable development of the company is built through the fair balance between economic performance and respect of the Group's human dimension.



Team spirit

Brought together by a common goal, we develop a close collaboration within and between the teams, based on transparency, trust and respect of our collective and individual identities.



Sicame Group

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