



Overhead Transmission Solution

FiberHome Telecommunication Technologies Co., Ltd.

ADD: No.6, Gaoxin 4th Road, East Lake High-tech Development Zone, Wuhan City, Hubei 430205, China
TEL: +86-27-87693756 (workday) HTTP: www.fiberhome.com E-mail: support@fiberhome.com

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FiberHome Technologies

FiberHome Technologies Group is a leading equipment vendor and a global solution provider in the field of information technology and telecommunications. This high-tech enterprise is directly affiliated to the State-owned Assets Supervision and Administration Commission of the State Council. It is also the largest enterprise located in the Optics Valley, Wuhan, China. FiberHome Technologies Group was established in 1974. After continuous and intensive development for over 40 years, its business has been extended to R&D, manufacturing, marketing & sales, and engineering service in 4 major areas: fiber-optic communications, data networking communications, wireless communication, and intelligent applications. In particular, it has been providing end-to-end solutions integrated with opto-electronic devices, optical preforms, fiber & cables, and optical communication systems to many countries around the world.



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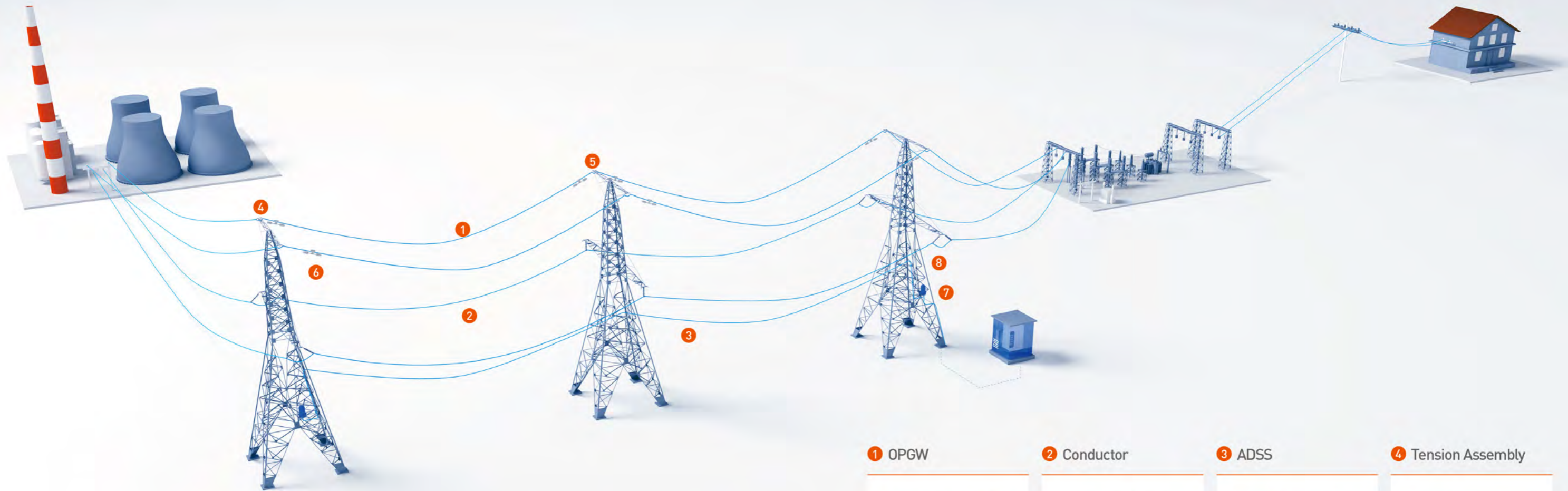
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2 Conductor



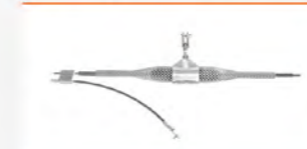
3 ADSS



4 Tension Assembly



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Application Scenario of OPGW / Conductor / Fittings

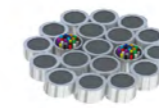
FiberHome provides complete solutions for the integration of telecommunication networks on high voltage overhead transmission lines, including OPGW, conductor, ADSS cable, fittings and relevant accessories.

Application

OPGW



Central Stainless Steel
Tube OPGW



Stranded Stainless Steel
Tube OPGW



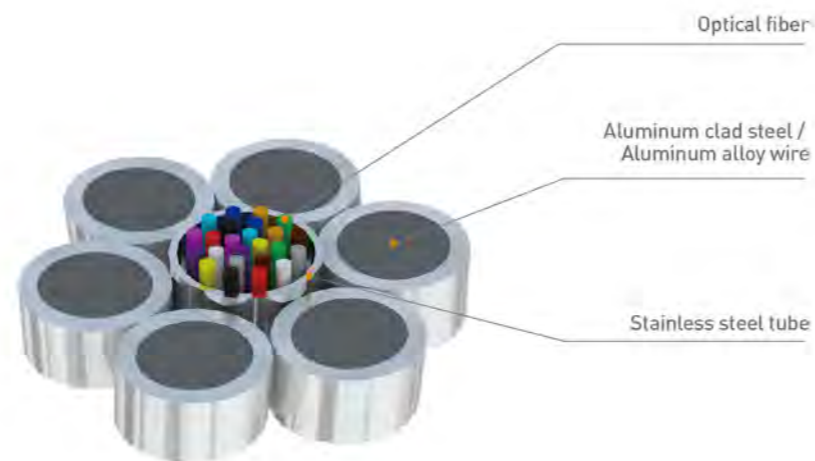
Aluminum-covered Stainless
Steel Tube OPGW



Central Aluminum
Tube OPGW

Central Stainless Steel Tube OPGW

FiberHome central stainless steel tube OPGW is an overhead ground wire that takes stainless steel optical unit as the center, and concentric stranded ACS/AA wires at outer layer based on certain lay ratio. It is widely used in modern information electric power system.



Central Stainless Steel Tube

- Max. fiber count 48, max. diameter 4.2mm
- Fiber gel can deter water penetration and corrosion
- An appropriate primary fiber excess length takes shape in the central tube

Stranded Metallic Wires

- Aluminum clad steel wire (ACS)
- Aluminum alloy wire (AA)
- One or two stranding layers

Compact Design

- Min. cable diameter 9mm
- Light weight
- Convenient for handling and installation

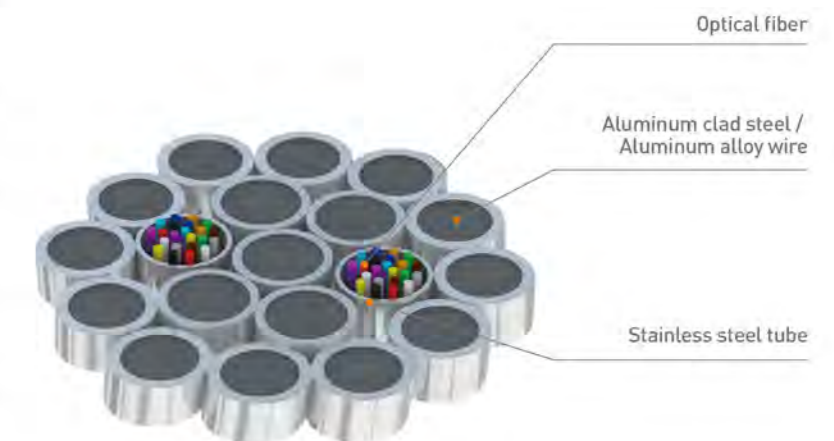
Installation Performance

- Bend radius: installation $20 \times D$, operation $15 \times D$
- Temperature range: installation $-10^{\circ}\text{C} \sim +50^{\circ}\text{C}$, operation $-40^{\circ}\text{C} \sim +80^{\circ}\text{C}$

• Products can be customized, included but not limited to the above

Stranded Stainless Steel Tube OPGW

FiberHome stranded stainless steel tube OPGW adopts comprehensive stranding methods that bind metallic wires and stainless steel tube, replacing one or some of metallic wires in conventional ground wire cable. Compared with central stainless steel tube OPGW, it contains more fibers and has larger diameter.



Stranded Stainless Steel Tube

- Max. tube count 3
- Max. fiber count 144
- Fiber gel can deter water penetration and corrosion
- An appropriate secondary fiber excess length takes shape in the stranded tube

Superior Electrical and Mechanical Performance

- Large cross section area, max. 280mm^2
- Excellent tensile strength, max. 350kN
- Outstanding short circuit current capacity

• Products can be customized, included but not limited to the above

Stranded Metallic Wires

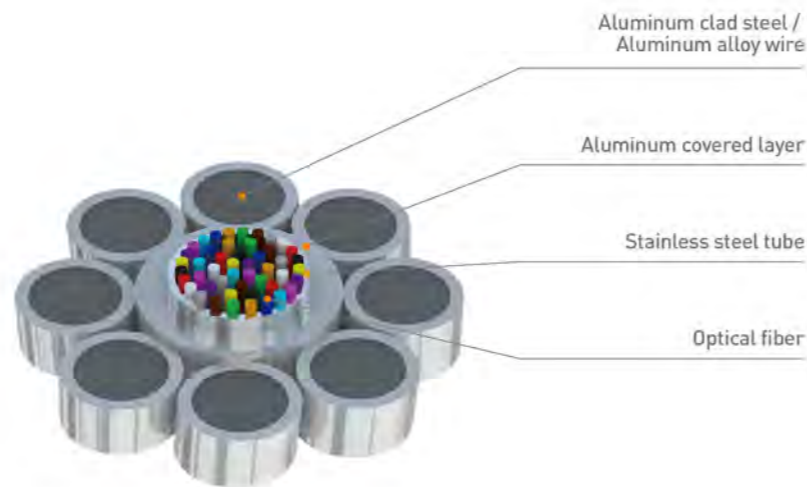
- Aluminum clad steel wire (ACS)
- Aluminum alloy wire (AA)
- Two or three stranding layers

Installation Performance

- Bend radius: installation $20 \times D$, operation $15 \times D$
- Temperature range: installation $-10^{\circ}\text{C} \sim +50^{\circ}\text{C}$, operation $-40^{\circ}\text{C} \sim +80^{\circ}\text{C}$

Aluminum-covered Stainless Steel Tube OPGW

FiberHome aluminum-covered stainless steel tube OPGW is a new type that inherits all advantages of central stainless steel tube OPGW. It can greatly reduce the electrochemical corrosion among different metals and has promising application prospects.



Aluminum-covered Stainless Steel Tube

- Max. fiber count 48
- Fiber gel can deter water penetration and corrosion
- Aluminum covered tube provides double protection for the optical fibers

Superior Anti-corrosion Performance

- Aluminum covered stainless steel tube has outstanding anti-corrosion performance
- Reduce resistance and boost short circuit current capacity

Stranded Metallic Wires

- Aluminum clad steel wire (ACS)
- Aluminum alloy wire (AA)
- One or two stranding layers

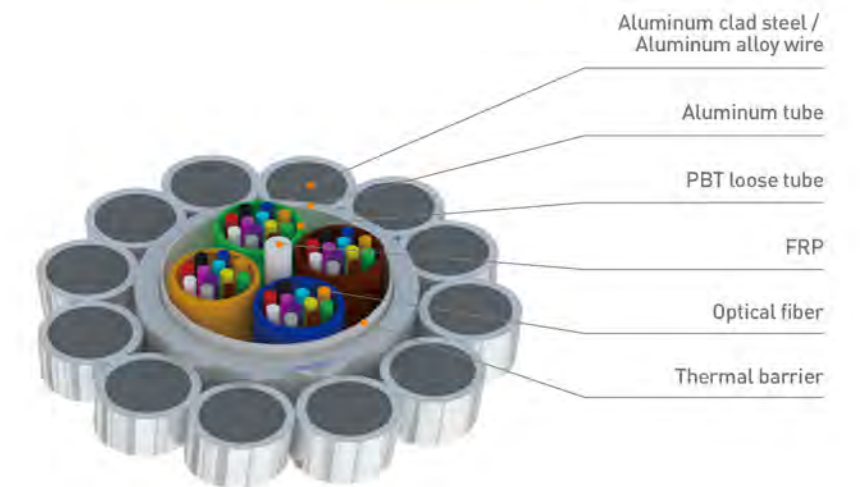
Installation Performance

- Bend radius: installation $20 \times D$, operation $15 \times D$
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Central Aluminum Tube OPGW

FiberHome central aluminum tube OPGW is manufactured by extruding an aluminum layer onto the cable core (multiple loose tubes), where the fibers are protected within PBT loose tubes and reinforced by FRP. The outer layer of cable core is made of thermal barrier material.



Aluminum Tube

- Optical fibers are housed in PBT loose tubes
- Aluminum tube are extruded out of multiple PBT tubes

Superior Anti-corrosion Performance

- Aluminum tube shows enhanced anti-corrosion performance
- Decrease resistance and increase short circuit current capacity

• Products can be customized, included but not limited to the above

Stranded Metallic Wires

- Aluminum clad steel wire (ACS)
- Aluminum alloy wire (AA)
- One or two stranding layers

Installation Performance

- Bend radius: installation $20 \times D$, operation $15 \times D$
- Temperature range: installation $-10^{\circ}\text{C} \sim +50^{\circ}\text{C}$, operation $-40^{\circ}\text{C} \sim +80^{\circ}\text{C}$

Conductor



Aluminum Conductor Steel Reinforced (ACSR)



Aluminum Conductor Aluminum Alloy Reinforced (ACAR)



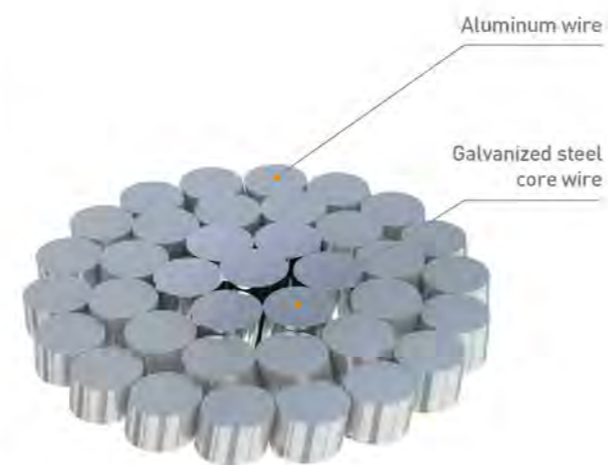
All Aluminum Conductor (AAC)



All Aluminum Alloy Conductor (AAAC)

Aluminum Conductor Steel Reinforced (ACSR)

FiberHome ACSR cable consists of aluminum stranded wires reinforced by galvanized steel wires. Characterized by its simple structure, ACSR is convenient for laying and maintenance. Its line cost is low while the transmission capacity is large, which makes it perfect for rivers and valleys, or other special geographical conditions. ACSR also shows impressive performance in electrical conductivity, mechanical strength, tensile strength, and tower distance. Therefore, ACSR is widely used in overhead transmission and distribution lines with different voltage levels.



Conductor Structure

- Max. RTS: 343 kN
- Max. cross section: 1352 mm²
- Min. DC Resistance 20°C: 0.0232 Ω/km
- Aluminum 1350-H19 wires are in accordance with specification ASTM B 230/B 230M
- Galvanized steel wires are in accordance with specification ASTM B 498/B 498M, B 606, B 802/B 802M, B 803, B 957, or B 958



Technical Characteristics

- Suitable for large span
- High strength as reinforced by galvanized steel wires
- Applicable to mountainous area and heavy ice area
- Applicable to different voltage levels



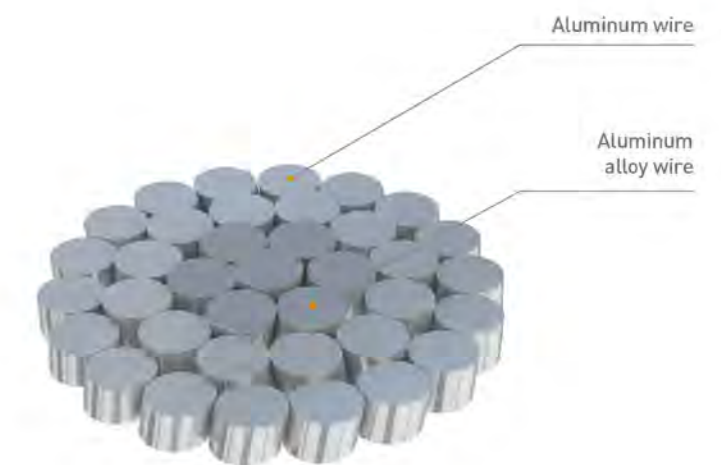
Installation Performance

- Installation bend radius: 20×D
- Temperature range: installation -10°C~+50°C, operation -40°C~+80°C

• Products can be customized, included but not limited to the above

Aluminum Conductor Aluminum Alloy Reinforced (ACAR)

FiberHome ACAR consists of high-strength aluminum alloy wires instead of galvanized steel wires. With the same cross section, aluminum alloy wires show lower DC resistance, and more superior conductivity.



Conductor Structure

- Max. RTS: 273 kN
- Max. cross section: 1447 mm²
- Min. DC Resistance 20°C: 0.0207 Ω/km
- Aluminum 1350-H19 wires are in accordance with specification ASTM B 230/B 230M
- Aluminum alloy 6201-T81 wires are in accordance with specification ASTM B 398/B 398M



Technical Characteristics

- Superior current carrying capacity
- High ratio of draw weight
- Zero hysteresis loss
- Excellent anti-corrosion performance
- Applicable to different voltage levels



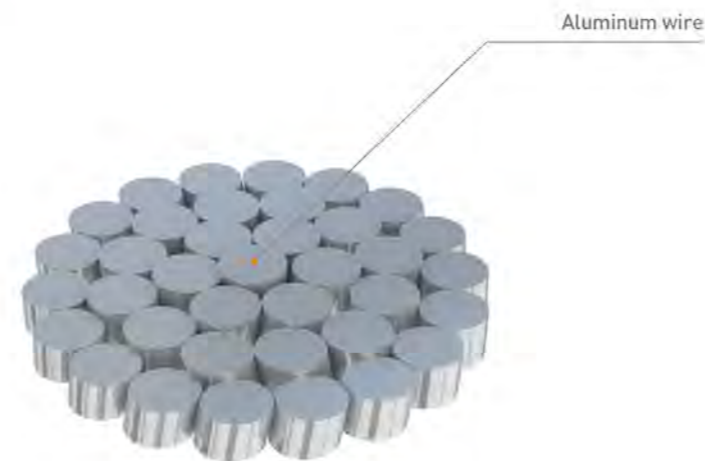
Installation Performance

- Installation bend radius: 20×D
- Temperature range: installation -10°C~+50°C, operation -40°C~+80°C

• Products can be customized, included but not limited to the above

All Aluminum Conductor (AAC)

FiberHome AAC consists of aluminum wires. Its structure is simple, which makes it convenient for installation and maintenance. AAC does not use magnetic reinforcement. It shows no hysteresis loss, and reduces conductor's AC resistance.



Conductor Structure

- Max. RTS: 240 kN
- Max. cross section: 1500 mm²
- Min. DC Resistance 20°C: 0.0193 Ω/km
- Aluminum 1350-H19 wires are in accordance with specification ASTM B 230/B 230M



Installation Performance

- Installation bend radius installation: 20×D
- Temperature range: installation -10°C~+50°C, operation -40°C~+80°C

• Products can be customized, included but not limited to the above

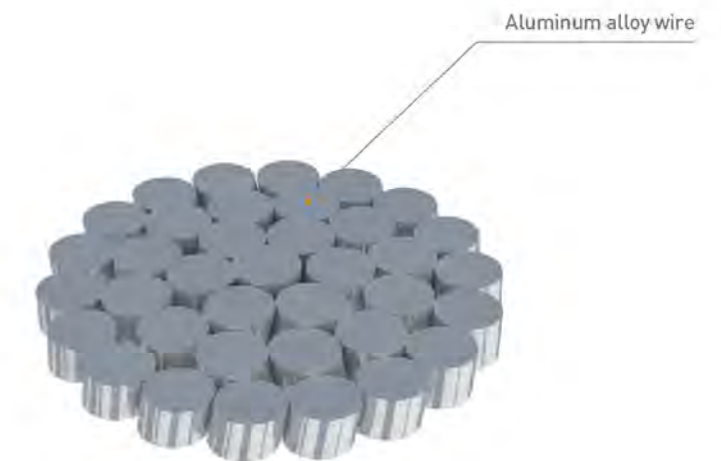


Technical Characteristics

- Low line loss
- Light weight
- Large current carrying capacity
- No hysteresis loss
- Excellent anti-corrosion performance
- Applicable to different voltage levels

All Aluminum Alloy Conductor (AAAC)

FiberHome AAAC consists of Al-Mg-Si alloy wires. Compared with AAC, AAAC shows lower density and higher tension strength. There is no magnetic reinforcement in AAAC, thus effectively reducing the conductor's AC resistance, and improving the anti-corrosion performance.



Conductor Structure

- Max. RTS: 424 kN
- Max. cross section: 1439 mm²
- Min. DC Resistance at 20°C: 0.0231Ω/km
- Aluminum alloy 6201-T81 wires are in accordance with standard ASTM B 398/B 398M



Installation Performance

- Installation bend radius: 20×D
- Temperature range: installation -10°C~+50°C, operation -40°C~+80°C

• Products can be customized, included but not limited to the above



Technical Characteristics

- Medium strength
- High ratio of draw weight
- Superior abrasion resistance
- Excellent anti-corrosion performance
- Suitable for large-span scenario
- Applicable to different voltage levels

Fittings



Tension Assembly



Suspension Assembly



Vibration Damper



Joint Box



Cable Storage Shelf



Download Clamp

Tension Assembly

- Connect the OPGW with the tensile tower or pole
- Provide cushioning to the OPGW cable and protect it
- Anti-fatigue property
- The assembly components can be customized corresponding to requirements



Suspension Assembly

- Offer superior cable and fiber protection at the support point
- Minimize aeolian vibration, galloping and other cable motions
- Provide single or double suspension on the basis of line angle and cable span
- The assembly components can be customized corresponding to requirements



Vibration Damper

- Composed by a messenger, two damper weights, and other washers and bolts
- Reduce the stress of the cable and suppress the wind vibration
- Provide four resonant response frequencies with tuning fork structure for more effective protection



• Products can be customized, included but not limited to the above

Joint Box

- Designed for ADSS or OPGW joint protection
- Demonstrate superior sealing performance
- The maximum fiber splice capacity can reach 144 cores with up to five cable connection
- We can supply metallic or non-metallic box based on customer's demands



Cable Storage Shelf

- Used for coiling the surplus cable on poles or towers
- One joint box is matched with one cable storage



Downlead Clamp

- Lead cables down on splicing or terminal towers or poles
- Clamp can be customized in accordance with application or requirements



• Products can be customized, included but not limited to the above

Reference Standards

IEEE 1138	IEEE Standard for Testing and Performance for Optical Ground Wire (OPGW) for Use on Electric Utility Power Lines
IEC 60794-4-10	Family Specification—Optical Ground Wires (OPGW) along Electrical Power Lines
IEC 61089	Round Wire Concentric Lay Overhead Electrical Stranded Conductors
BS EN 50182	Conductors for Overhead Lines—Round Wire Concentric Lay Stranded Conductors
ASTM B231	Standard Specification for Concentric-lay-stranded Aluminum 1350 Conductors
ASTM B232	Standard Specification for Concentric-lay-stranded Aluminum Conductors, Coated-steel Reinforced (ACSR)
ASTM B399	Standard Specification for Concentric-lay-stranded Aluminum-alloy 6201-T81 Conductors
ASTM B524	Standard Specification for Concentric-lay-stranded Aluminum Conductors, Aluminum Alloy Reinforced (ACAR, 1350/6201)
ASTM B230	Specification for Aluminum 1350-H19 Wire for Electrical Purposes
ASTM B398	Specification for Aluminum-alloy 6201-T81 Wire for Electrical Purposes
ASTM B498	Standard Specification for Zinc-coated (Galvanized) Steel Core Wire for Use in Overhead Electrical Conductors
ASTM B502	Standard Specification for Aluminum-clad Steel Core Wire for Use in Overhead Electrical Aluminum Conductors
GB/T 1179	Round Wire Concentric Lay Overhead Electrical Stranded Conductors
DL/T 832	Optical Fiber Composite Overhead Ground Wires

Clients

