

OVERHEAD SMART CONDUCTORS

- HTLS (TACSR/STACIR/ACSS/ACSS-TW/GAP Type
- AAC/AAAC/ACSR/ACAR/AACSR/AL-59



GUPTA POWER[®]

PRESENTS

RHINO 

SMART CONDUCTORS | CABLES
WIRES | OFC | LED LIGHTING | EPC
WIRE RODS | SOLAR

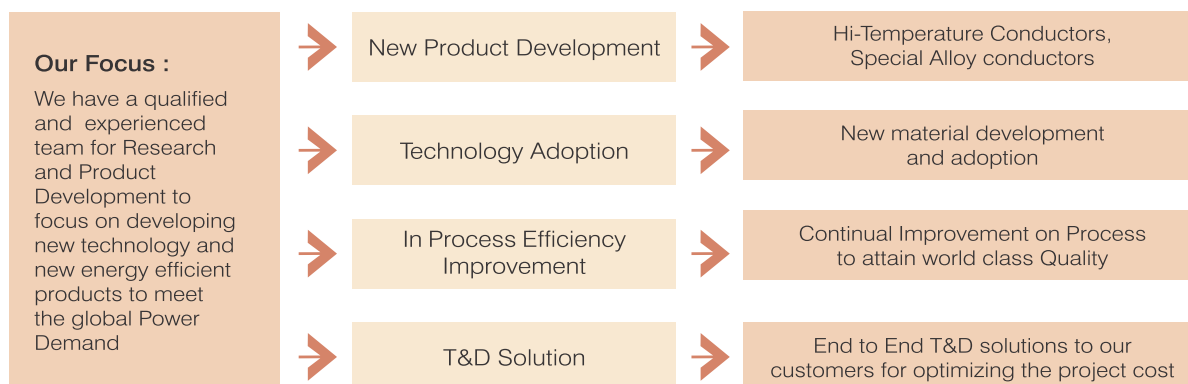
Gupta Power has state-of-the-art manufacturing facilities to make its new products. It also has highly qualified and experienced professionals that provides end to end solutions for T&D sector to minimize the CAPEX and OPEX.



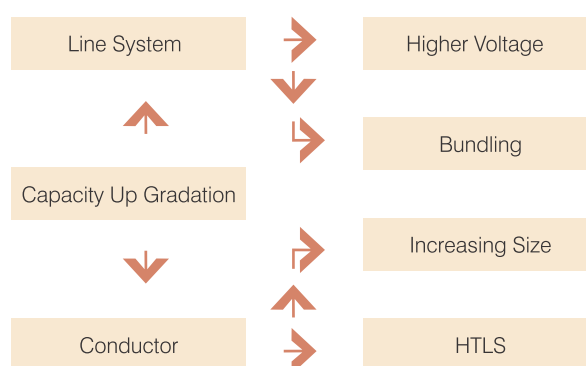
Gupta Power is a significant contributor to the global power sector through indigenous manufacturing of a complete range of Rhino overhead conductors at Distribution voltage level from 11Kv to 33 Kv, High Voltage level from 66 Kv to 220 Kv, and Extra/Ultra High Voltage level from 400 Kv to 1200 Kv.

Rhino GZTACSR (Gap type Super Thermal Aluminium Conductor Steel Reinforced)
Rhino TACSR (Thermal Aluminium Alloy Conductor Steel Reinforced)
Rhino STACIR (Super Thermal Aluminium Alloy Conductor INVAR Reinforced)
Rhino ACSS (Aluminium Conductor Steel Supported)
Rhino ACSS/TW (Aluminium Conductor Steel Supported – TW)
Rhino ACAR (Aluminium Conductor Alloy Reinforced)
Rhino AL59 (Aluminium Alloy Conductor)
Rhino ACSR/GS (Aluminium Conductor (Galvanized) Steel Reinforced)
Rhino ACSR/AW (Aluminium Conductor (Aluminium Clad) Steel Reinforced)
Rhino AACSR (Aluminium Alloy Conductor Steel Reinforced)
Rhino AAAC (All Aluminium Alloy Conductor)
Rhino AAC (All Aluminium Conductor)

Product Research & Development



Capacity Up gradation



High Temperature Low Sag Conductor

Rapid urbanization in big cities has raised the demand for higher power consumption. Electricity has become a basic need in our daily routine. A lot of existing overhead transmission lines were built years ago and almost fail to support today's electricity demand which has been increasing about 5% every year. Building new transmission tower requires huge area. So, an alternative method to increase the capacity of current is by the use of overhead transmission line. By changing the existing conductor we can increase the current capacity without any limitation.

HTLS conductors will help customers and utilities to optimize the efficiency of overhead lines. HTLS will provide best solution for increasing power flow and support the future increase in demand. HTLS conductor consist of new developed Aluminium/ Alloy and Core Materials that are that operate continuously at higher temperature upto 150 °C to 250 °C, while material used for tradition types of overhead conductors such as ACSR and AAAC are limited to maximum operating temperature of 80 °C.

New materials for central core have been developed for HTLS Conductors to limit the sag at high temperatures and improve mechanical properties of complete conductor(INVAR , Aluminium Clad Steel , Mischmetal coating (Galfan) steel).

Different types of HTLS Conductor are high voltage level 66 kV to 220 kV & extra high voltage level 400 kV to 1200 kV.

- GAP Type (GTACSR/GZTACSR) Conductor
- TACSR Conductor
- TACSR / TW Conductor
- STACIR Conductor
- ACSS Conductor
- ACSS/TW Conductor

GAP TYPE THERMAL RESISTANT ALUMINIUM ALLOY CONDUCTOR STEEL REINFORCED (GTACSR/GZTACSR)

GZTACSR Conductor has unique construction featuring a small annular Gap is maintained between a high-strength steel core and the first layer of aluminum alloy strands. The gap between the first layer trapezoidal shaped aluminum strands and the steel core is filled with high thermal resistant grease. Extra and Ultra High Strength steel core with adequately tested galvanization/Aluminium Cladding and temperature resistance up to 210°C. High temperature grease developed to allow the aluminium to move freely over the steel core resistant to temperatures up to 300°C. These conductors are excellent solution for up rating overhead lines. Existing ACSR conductors can easily be replaced by Gap conductors offering up to double the capacity, improved conductivity.

The principle of the Gap type conductor is that it can be tensioned on the steel core alone during erection. This results in a conductor with a knee-point at the erection temperature. Above the knee point conductor will have a thermal expansion equal to that of steel. This construction allows for low sag properties above the erection temperature and good strength.

Features

GTACSR/GZTACSR conductors have the following features:

- Carry up to twice the current of conventional overhead conductors due to their high temperature capability.
- Better self damping property
- Low sag at high temperature
- Low thermal knee point

Applicable Specification

GTACSR/GZTACSR conductors are manufactured by Gupta Power in accordance to the following standards IEC 62004, IEC 61232, IEC 61089/IEC 62420 & Other Standard

SUPER THERMAL RESISTANT ALUMINIUM ALLOY CONDUCTOR ALUMINIUM CLAD INVAR REINFORCED (STACIR)

STACIR Conductors are very similar in construction to a conventional ACSR conductor but the EC Grade Aluminium wires are replaced with Heat Resistant Aluminium Zirconium Alloy (generally known as STAL). The center wire or wires are made up of Aluminium clad invar and the outer layer or layers are made up of thermal resistant Aluminium alloy. INVAR : Special Fe/Ni Alloy with very low coefficient of linear expansion. Zirconium doped aluminum alloy maintain the electrical and mechanical properties at elevated temperatures, thus making these conductors cost effective with enhanced capacity.

INVAR : Special Fe/Ni Alloy with very low coefficient of linear expansion.

Features

STACIR conductors have the following features:

- Low conductor Thermal Expansion Coefficient
- Work at High Temperature upto 210°C without any loss of Strength
- Easy installation
- Excellent resistance to corrosion

Applicable Specification

STACIR conductors are manufactured by Gupta Power in accordance to the following standards IEC 62004, IEC 62774, IEC 61089 & Other Standard

THERMAL RESISTANT ALUMINIUM ALLOY CONDUCTOR STEEL REINFORCED - TACSR

The constructions of TACSR Conductors are similar to a conventional ACSR conductor, but the EC Grade Aluminium wires are replaced with Heat Resistant Aluminium Zirconium Alloy (generally known as TAL). The center wire or wires are made up of galvanized steel and the outer layer or layers of thermal resistant Aluminium alloy. Zirconium doped aluminum alloy maintain the electrical and mechanical properties at elevated temperatures, thus making these conductors cost effective with enhanced capacity.

Features

TACSR conductors have the following features:

- Work at High Temperature upto 150°C without any loss of Strength
- Power Transfer Capacity enhanced by approx. 50%.
- Offers optimal strength for line design

Applicable Specification

TACSR conductors are manufactured by Gupta Power in accordance to the following standards IEC 62004, IEC 60888, IEC 61089 & Other Standard

THERMAL RESISTANT ALUMINIUM ALLOY CONDUCTOR AL - CLAD STEEL REINFORCED (TACSR/AW & TACSR/AW-TW)

TACSR/AW Conductors are very similar in construction to a conventional ACSR conductor but the EC Grade Aluminium wires are replaced with Heat Resistant Aluminium Zirconium Alloy (generally known as TAL) . The center wire or wires are made up of Al-Clad steel and the outer layer or layers of thermal resistant Aluminium alloy. Zirconium doped aluminum alloy maintain the electrical and mechanical properties at elevated temperatures, thus making these conductors cost effective with enhanced capacity.

Features

TACSR/AW conductors have the following features:

- Work at High Temperature upto 150°C without any loss of Strength
- Power Transfer Capacity enhanced by approx. 50%.
- Excellent resistance to corrosion thus preferred in corrosive and coastal environments
- Withstand high tensile load

Applicable Specification

TACSR/AW conductors are manufactured by Gupta Power in accordance to the following standards IEC 62004 , IEC 61232 , IEC 61089 & Other Standard

ALUMINIUM CONDUCTOR STEEL SUPPORTED / TRAPEZOIDAL WIRE (ACSS/TW)

ACSS/TW, a non homogeneous conductor, is a trapezoidal shaped wire compact concentrically-stranded conductor made from annealed aluminum 1350-O wires and round, coated steel core wire(s). ACSS/TW conductors with equal area or equal diameter as compared to ACSS conductors are available for overhead lines. Steel core wires are protected from corrosion by selecting an appropriate coating of the wire like galvanizing, mischmetal alloy coating or aluminum clad. The type of coating is selected to suit the environment to which the conductor is exposed and operating temperature of the conductor. Standard, High, Extra and Ultra High Strength steel are also available.

Features

ACSS/TW conductors have the following features:

- Work at High Temperature upto 250°C without any loss of Strength
- Better self damping property
- Low sag at high temperature
- Improved current carrying capacity

Applicable Specification

ACSS/TW conductors are manufactured by Gupta Power in accordance to the following standards ASTM B 857 & Other Standard

ALUMINIUM CONDUCTOR STEEL SUPPORTED (ACSS)

ACSS Conductor, a non-homogenous conductor, is a concentric-lay stranded conductor made from round annealed aluminum 1350-O temper wires and round coated steel core wire(s). Steel core wires are protected from corrosion by selecting an appropriate coating of the wire like galvanizing, mischmetal alloy coating or aluminum clad. The type of coating is selected to suit the environment to which the conductor is exposed and operating temperature of the conductor. Standard, High, Extra and Ultra High Strength steel are also available. ACSS conductors are prone to resist the effects of aeolian vibration due to very little or no mechanical load on the annealed aluminum wires.

Features

ACSS conductors have the following features:

- Work at High Temperature upto 250°C without any loss of Strength
- Improved conductivity
- Better self damping property
- Low sag at high temperature
- High current carrying capacity

Applicable Specification

ACSS conductors are manufactured by Gupta Power in accordance to the following standards ASTM B 856 & Other Standard

ALUMINIUM CONDUCTOR ALLOY REINFORCED (ACAR)

ACAR conductors are made up of concentrically stranded wires of Aluminium 1350 on high strength Aluminium - Magnesium - Silicon (AlMgSi) alloy (6101/6201) core. The number of wires of Aluminum 1350 & AlMgSi alloy (6101/6201) may vary as per the design of the cable. The general design construction comprises a stranded core of AlMgSi alloy strand, but in certain constructions, the wires of AlMgSi alloy strands could be distributed in layers throughout the Aluminium 1350 strands.

ACAR has better mechanical and electrical properties as compared to an equivalent ACSR, AAC or AAAC. Due to good balance between mechanical and electrical properties, ACAR conductors are the best choice where the ampacity, strength and light weight are the main preference of the line design. These conductors are extensively used in overhead transmission and distribution lines.

Features

ACAR conductors have the following features:

- High strength to weight ratio
- Balanced mechanical and electrical properties
- Improved electrical characteristics
- Excellent resistance to corrosion

Applicable Specification

ACAR conductors are manufactured by Gupta Power in accordance to the following standards AS; ASTM; EN(BS EN); CAN -CSA; DIN; IEC; IEEE; IS; NFC; SS; UL; ANSI.

AL 59 CONDUCTORS (AL-59)

AL-59 alloy conductors are manufactured from Al-Mg-Si (aluminum-magnesium-silica) rods. The conductor comprises of an inner core and concentrically arranged strands forming the inner and outer layers of the conductor.

These are low resistance High Conductivity alloy conductors with excellent electrical characteristics, excellent sag-tension characteristics and superior corrosion resistance to that of ACSR. As compared to ACSR they have lighter weight, comparable strength and current carrying capacity, lower electrical losses and superior corrosion resistance have given this conductor wide acceptance as a transmission conductor. It has found limited use, however, as a distribution conductor.

Gupta Power Infrastructure Limited can manufacture and supply AL 59 on Non returnable wooden/steel reels or Returnable steel reels depending on customer's requirement.

Features

AL 59 conductors have the following features:

- High strength to weight ratio
- Improved sag characteristics
- Power Transfer Capacity enhanced by approx. 15%.
- Better Conductivity, so better power transmission.
- Lower Operating costs due to lower ohmic losses
- Can be recycled easily.

Applicable Specification

AL 59 conductors are manufactured by Gupta Power in accordance to the following standards SS 4240814 & SS 4240813.

Our other range of products



Flexible Cable

- Single Core Industrial Flexible Cable
- Multi Core Industrial Flexible Cable
- Co Axial TV Cable
- Submersible Cable
- Telephone Switch Board Cable



Rhino LED Lighting

- Indoor Lighting
- Outdoor Lighting
- Retail Lighting
- Corporate campus Lighting
- Warehouse Lighting
- Facades
- Healthcare Lighting
- Residential Lighting



Wire Rod

- Aluminium and Alloy as per AA-
- 1XXX ▪ 5XXX ▪ 6XXX ▪ 8XXX



HT-LT Cable

- HT-LT Power Cables (66 KV)
- 1.1 KV LT XLPE/PVC Power Cables
- HT-LT Aerial Bunched Cables
- Instrumentation Cables
- Control Cables
- Mining Cables
- Thermocouple Cables
- Airfield Lighting Cables
- Railway Signalling Cables
- Other Specialised Cables



Optical Fibre Cable

- Duct Cable
- Armored Cable
- Cable with Glass Rovings
- Micro Cable
- ADSS Cable
- Aerial Cable
- Hybrid Cables
- CATV Cables
- FTTH Cables
- Indoor Cables

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