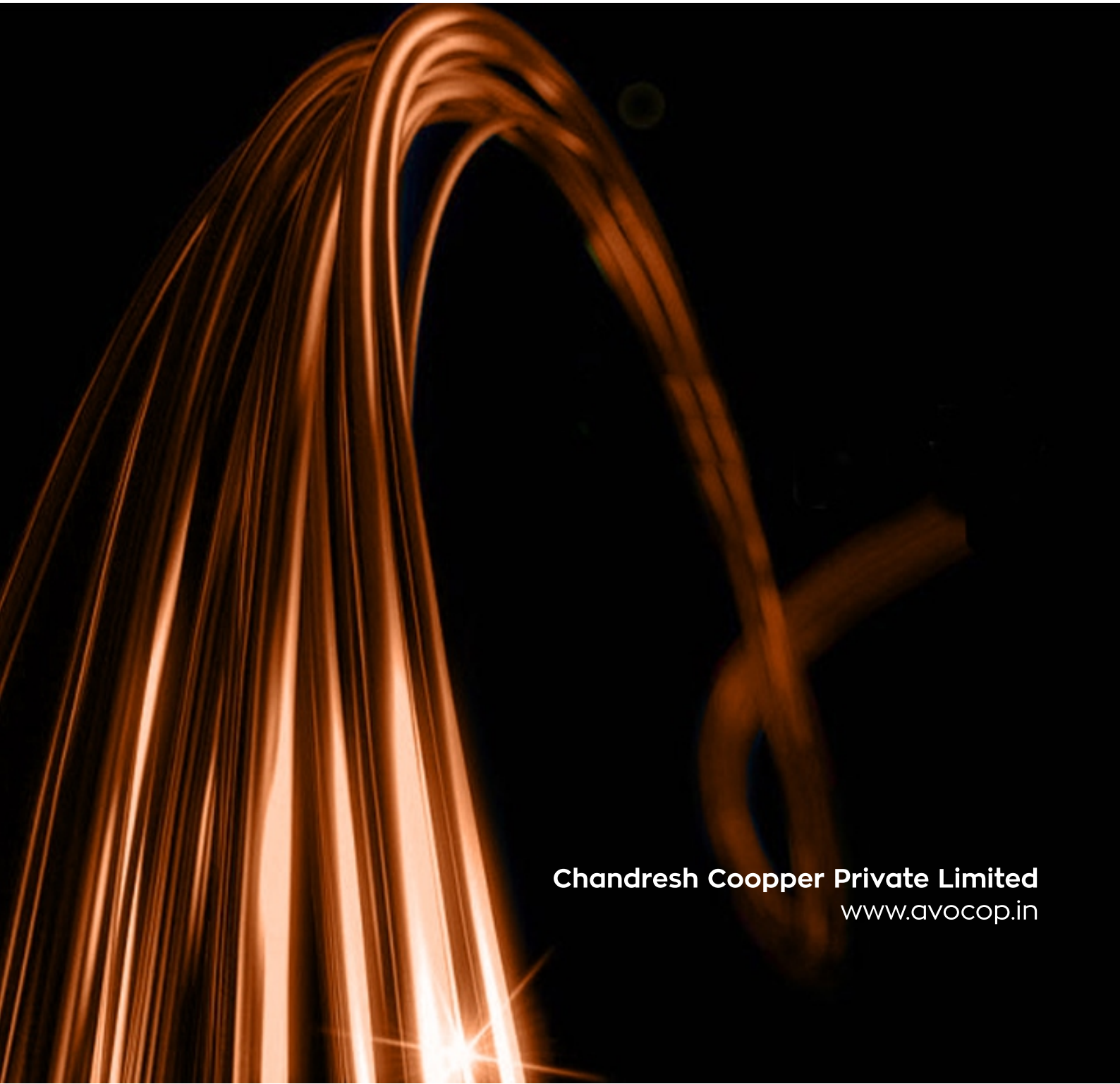
AVOCOP

GENERATING POWER



Chandresh Coopper Private Limited
www.avocop.in

AVOCOP

ABOUT US

CHANDRESH COOPPER PRIVATE LIMITED

Our well established manufacturing setup (spread across an area of 3.5 lakh sq.ft) is situated in the industrial belt of Kalol, Gujarat and our brand name of 'AVOCOP' is a household name across the state and beyond.Established in 1986, year on year, we have attained a sustained growth path, as a result of which, we have established ourselves as one of the leading manufacturers in India.Under the aegis of a strong leadership we are a company with diverse talents & skills. Our leadership structure is ably supported by a well experienced team of professional and skilled workers. We have a higher management team of ambitious, vibrant, highly qualified professionals having techno commercial skills & ability to update with latest trends & requirements of our client. Our team's passion is to take challenges and to deliver to the expectation of our clients.With a vast clientele in India and successful execution of export orders, brand AVOCOP is raring to rise beyond the sky.

OUR RANGE OF PRODUCTS

- Fibre Glass/Douglas Covered Copper/Aluminium Conductors
- Paper Covered Copper & Aluminium Single & Multi-Strand Wire & Bunch Strip
- Bare Copper/Aluminium strips/ Bare Copper Flats
- Twin, Triple Bunched Paper Covered Copper/Aluminium Strips
- Multi Paper Covered Copper Conductor/Connection Cables/ Lead Wires for Transformers
- Soudronic Bare Copper Wires
- Bunched Copper Ropes/Earthing Cables
- PV Ribbon & PV Bus Bar
- Copper Bus Bars/ Copper Flats

MAKE OF PAPER USED

- Dupont (Nomex)
- Munksjo
- Tervakoski
- Nordic
- Tomoegawa

AVOCOP

FIBRE GLASS/DOUGLAS COVERED COPPER/ALUMINIUM CONDUCTORS

Fibre Glass Wires are additionally insulated in order to provide more strength. It exhibits a very high degree of mechanical and thermal stability. Douglas Covered Copper Wires comes with a different base and enduring properties against heat and shock.

APPLICATION

FibreGlass /Douglass lapped conductors (bare) are very suitable for windings of electric motors, high voltage motors, generators, special transformers, and more for high mechanical strength. It gives more durability even after years of installation due to the thick insulation layer with its oil and solvent resistance properties.

Diameter Cross Section Area	Min.	Max.
Width	4	20
Thickness	1	6
Cross Section Area	4 sq.mm	120 sq.mm

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PAPER COVERED COPPER & ALUMINIUM SINGLE & MULTI-STRAND WIRE & BUNCH STRIP

Paper Insulated Copper Conductor is offered as paper insulated copper strip as well as paper insulated copper wire. Paper covering used is of highest quality and according to customer specifications. The thickness of covering and the number of paper layers is easily varied to specific customer requirement.

APPLICATION

Paper Covered Copper & Aluminium Single & Multi-Strand Wire & Bunch Strip are used for winding coils of Oil filled Power & Distribution Transformers and other electrical equipments.

Size Range	Rectangular (Strip)		Round (Wire)
	Width	2 mm to 16 mm	0.75mm to 6mm
	Thickness	0.8 mm to 5.6 mm	

Insulation Range	0.1mm (radial covering) to 2mm (radial covering)

Type of Insulating Material & Specification	Thickness (mil/µm)	Density (g/cm³)	BDV (KV/mm)
	1.5 mil(38.1 µm)	0.79 (±0.05)	10.3 KV/mm
	2.0 mil(50.8 µm)	0.80 (±0.05)	10.5 KV/mm
	2.5 mil(63.5 µm)	0.80 (±0.05)	10.7 KV/mm

Applicable Indian Standards	IS-13730 (Part-27), IS-7404 (Part-1), IS-1897/IEC-60317 (Part-27)

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NOMEX INSULATED COPPER & ALUMINIUM CONDUCTOR

Nomex Paper is one kinds of paper insulation for magnet wire the standard thermal class is 220° C. Nomex (Aramide Paper) Insulated Copper Conductors (NICC) has outstanding physical toughness, chemical resistance, moisture resistance properties. Non-flammability of Nomex™ allows it to be used where there are high fire risks.

APPLICATION

Nomex (Aramide Paper) Insulated Copper Conductors (NICC) are used for **winding coils of Dry Type Transformers, Military and Aerospace Cables** where temperature resistance and dielectric strength requirements are high. Nomex covering corresponds to class H insulation (Temp. class 200° C).

Size Range	Rectangular (Strip)		Round (Wire)
	Width	2 mm to 16 mm	0.75mm to 6mm
	Thickness	0.8 mm to 5.6 mm	

Insulation Range	0.1mm (radial covering) to 2mm (radial covering)

Type of Insulating Material & Specification	Grade & Thickness (mil/µm)	Density (g/cm³)	BDV (KV/mm)
	Grade :410 2.0 mil(50.8 µm)	0.72 (±0.05)	18 KV/mm

Applicable Indian Standards	IS-13730 (Part-43 & 44), IEC-60317 (Part-43 & 44)

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KAPTON® (POLYIMIDE FILM) COVERED COPPER CONDUCTORS

Kapton® in KAPTON COVERED ROUND & RECTANGULAR /FLAT COPPER WIRE is the condensation product of an aromatic tetra basic acid and an aromatic diamine. It has no melting point, is infusible and self-extinguishing (does not support combustion). Together besides these excellent physical, chemical and electrical properties Kapton® polyimide film provides important weight and space savings and is suitable for variety of electrical and electronic insulation applications such as formed coil insulation, motor slot liners, magnet wire insulation, transformers and capacitors.

APPLICATION

Kapton® Polyimide Film Covered Conductors offers a wide range of applications in the Motors for heavy duty applications, Traction Motors, Generators, Aerospace, Wind Turbines, Micro Electronics. It provides insulation with high electrical, thermal and mechanical properties over a temperature range of -269° C to +400° C. It provides higher Break Down Voltage (more than 8 KV BDV) as well as Temperature Class (220° C) as compare with other insulated conductors. Insulating materials in traction motors have to withstand high temperatures and frequent changes of load and temperature. Standard materials applied for conductor insulation in Traction Motor application is polyimide film.

Size Range	Rectangular (Strip)		Round (Wire)
	Width	2 mm to 16 mm	0.75mm to 6mm
	Thickness	0.8 mm to 5.6 mm	
Temp. Class	240° C		
Insulation Options	Overlapped upto max. 66% 1 film layer 2 layers cross lapped		
Type of Insulations Options	Polyimide Film only Insulation of mix Polyster & Fibre Glass Yarn		
Applicable Indian Standards	IS-13730 (Part 53)		

AVOCOP

BARE COPPER/ALUMINIUM STRIPS/ BARE COPPER FLATS

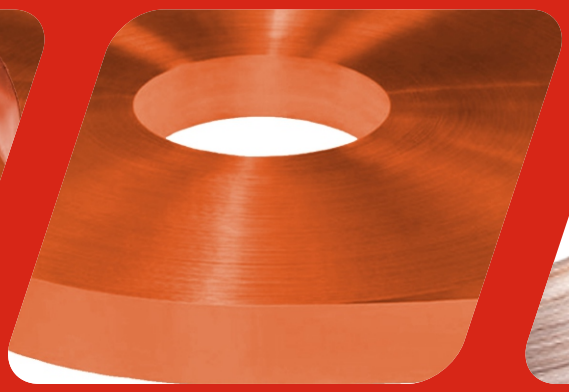
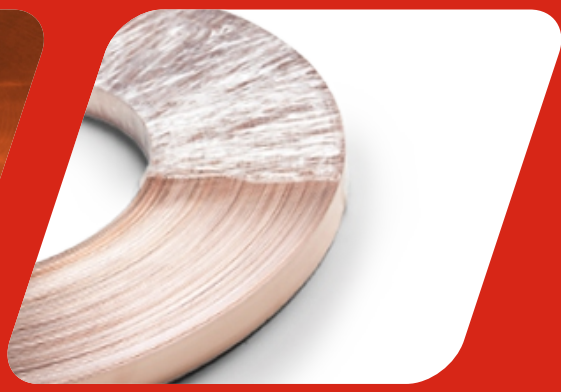
Avocop provides a range of Bare Copper Flats /Aluminium Strips / Bare Copper which are robust, sturdy and resistant to corrosion resulting in longer service life. They are used in automatic machine ensuing enhance in the production and reduction of wastage. The copper flat wire variety is widely preferred as it space saving and uses far less area than rounded cables. Moreover, the length of the copper wires guarantee time delays which is advantageous as it reduces skewing effects.

APPLICATION

Some of the applications of Bare Copper Strips are:

- Electrical Conductors
- Switch Terminals
- Electrical Contacts
- Circuits

SIZE RANGE	Min.	Max.
Width	4 mm	150 mm
Thickness	0.1 mm	12 mm
Cross Section Area	10 sq. mm	150 sq.mm
W/T Ratio	1.2	8

AVOCOP

TWIN, TRIPLE BUNCHED PAPER COVERED COPPER/ALUMINIUM STRIPS

Twin , Triple Bunched Paper Covered Copper Strips carries with it numerous advantages and benefits making it an ultimate fit for various industrial appliances. It's high ranking tensile strength , reliability , current carrying capacity, flexibility and the safety it provides against excess energy waste makes it as mentioned before, the ultimate fit for industrial appliances.

APPLICATION

Some of the applications of Bare Copper Strips are:

- Electrical Conductors
- Switch Terminals
- Electrical Contacts
- Circuits

SIZE RANGE	Min.	Max.
Width	4 mm	25 mm
Thickness	0.80 mm	4 mm
Cross Section Area	3.2 sq. mm	100 sq.mm
W/T Ratio	2	3

Insulation Option

Insulating Kraft Paper, Thermally Upgraded Insulating Kraft Paper, Crepe Paper, Nomex, Mica

Applicable Specification/Standards

Iec, Din, Is, Other Relevent National, International / Customized Standard

Insulation Range

0.300 Mm - 6.00 Mm, Subject To Insulation & Covering Option, Plastic Reel, Wooden Reel, Steel Reel

AVOCOP

MULTI PAPER COVERED COPPER & ALUMINIUM CONDUCTOR / CONNECTION CABLES / LEAD WIRES FOR TRANSFORMERS

It is used as a lead connection cable in Oil filled Power & Distribution Transformers having Electrical grade Insulating Kraft / Creep Paper & Nomex (Aramide) Paper. They come with premium quality and variety of insulation options for different kind of rigorous applications.

APPLICATION

It is used as a lead connection cable in Oil Filled Power & Distribution Transformers.

SIZE RANGE

Solid Round	Min.	Max.
Diameter	1.50 mm	16.00 mm
Cross Section Area	1.75 mm	200.0 mm

STRANDED/FLEXIBLE/BUNCHED ROUND		
Diameter	2.00 mm	30.00 mm
Cross Section Area	3.00 mm	450.0 mm

INSULATION RANGE :

- Min (RADIAL) 0.300 mm
- Max (RADIAL) 10.00 mm

AVOCOP

SOUDRONIC BARE COPPER WIRES

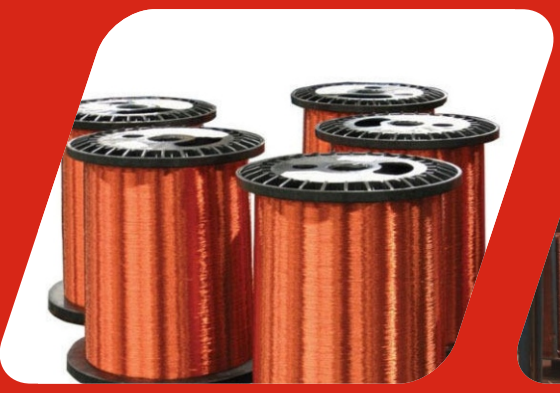
The main characteristic of the Soundric Bare Copper Wire provided by Avocop is High Resistance to Corrosion and the possession of smooth and clean surface. This results in consistence performance in welding cans, tins and similar processes. It is a round section copper wire.

APPLICATION

Soudronic machines for

- Highspeed and Low speed
- Three piece Can
- Blow Can
- CAN / TIN Manufacturers

SIZE RANGE	Min.	Max.
Diameter	1.100 mm	5.00 mm



AVOCOP

BUNCHED COPPER ROPES/EARTHING CABLES

AVOCOP provides bunched copper ropes which have a high tolerance to compensate for vibration and expansion. They are sustainably designed for additional strength, easy handling and to be used as connectors for more flexibility which makes it a good fit for application as connectors.

APPLICATION

Their other application includes

- Switchboards
- Flexible links
- Transformers
- Generators

SIZE RANGE

STRANDED / FLEXIBLE / BUNCHED ROPE		
Diameter	2.00 mm	30.00 mm
Cross Section Area	3.00 mm	450.0 mm

AVOCOP

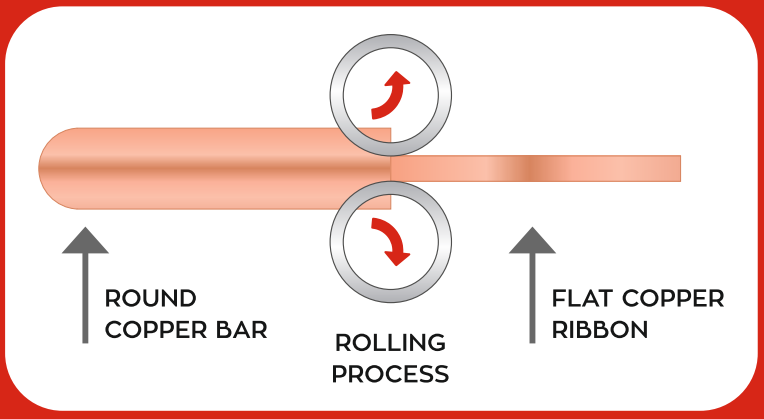
PV RIBBON & PV BUSBARS

PV Ribbon is a copper-based flat wire used to connect silicon cells electrically and to carry out current in crystalline silicon and thin-film photovoltaic modules. It reduces cell breakages and reduces electrical resistance in modules. Combined with consistent quality, excellent spooling and straightness.

Our Interconnect Wire is rolled from round wire in a proprietary process, then solder coated on all four sides. This combination of processes results in superior coatings and a completely burr free product. Our PV Ribbon products are produced from the highest quality material with each order engineered to your dimensional and physical property specifications.

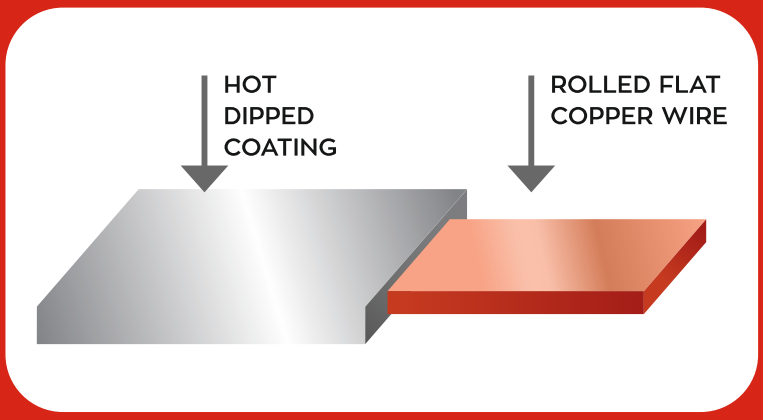
The latest annealing and plating technology in interconnect PV ribbon products is completely chemical-free and compatible with new lead-free soldering alloys and saves energy. It was developed to help our customers to improve their production yield and product performance.

PV RIBBON is a hot dip solder coated copper conductor of flat shape used in photovoltic solar panels.



THE INTERCONNECT

The Interconnect ribbon is directly soldered onto silicon crystal to interconnect solar cells in a solar panel.The interconnect ribbon carries the current generated in solar cells to PV bus-bar.



PV BUSBAR

PV Bus-bar is a hot dip tinned copper conductor installed around perimeter of the solar panels. PV bus-bar connect interconnect ribbon to the junction box.

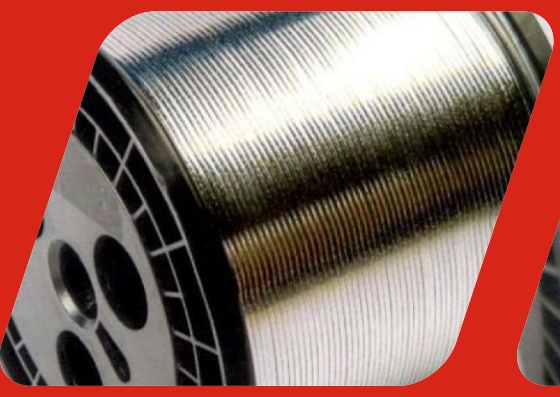
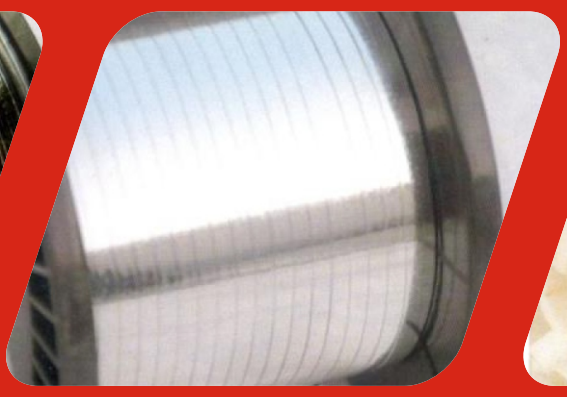
AVOCAB PV is rolled from high purity oxygen free copper round wire and is hot dipped tinned. This state-of-the-art manufacturing technology gaurantees consistent quality. We provide all typical coatings, including Silver based and RoHS compliant lead-free coatings.

AVOCOP

Technical Specifications

PV Interconnect Ribbon (Round & Flat) & PV Busbar Range			
	Interconnect Ribbon (Round)	Interconnect Ribbon (Flat)	Busbar
Width	0.2 mm to 0.5 mm	0.5 mm to 1.7 mm	3.0 mm to 8.0 mm
Thickness		0.1 mm to 0.5 mm	
Thickness Tolerance	± 0.005	± 0.008	
Width Tolerance		± 0.008	
Coating Thickness	15µm ~ 25µm per side on standard products		
Tensile Strength	> 200 Mpa		
Yield Strength	< 70 Mpa		
Elongatin	≥25%		
Camber	< 3 mm		

Base Metal Specification			
Specification Of the CORE Base Metal (Copper)			
	Interconnect Ribbon (Round)	Interconnect Ribbon (Flat)	Busbar
CopperGrades	Cu-Etp		
	Cu-OF		
Resistivity	≤ 1.707 x10 Ωmm2 @20° c		
Density	8.89 gm/cm		
Conductivity (100% min)	≥ 101 %		

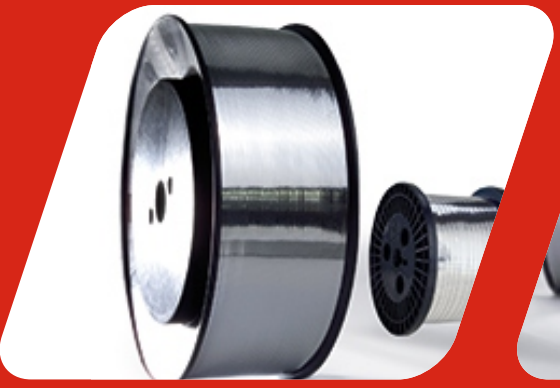



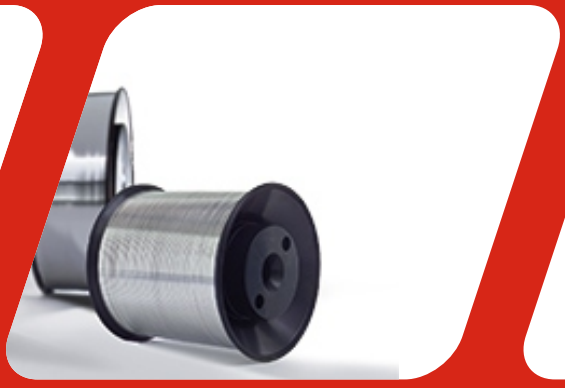

AVOCOP

Technical Specifications

Specifications Of The Solder Coating		
	Interconnect Ribbon	Busbar
Tin Coating Thickness	≥20μm (**Other Thickness is available on request)	≥20μm (**Other Thickness is available on request)
Tin Thickness Coating Error	±0.005 mm	±0.009 mm
Type Of Coating And Composition	Curing Temperature (°c)	Curing Temperature (°c)
Leaded (Non-RoHS) 60Sn40Pb	183 °c	190 °c
Leaded (Non RoHS) 62Sn36Pb2Ag	179 °c	189 °c
RoHS Compliance Lead Free 96.5Sn3.5Ag / Sn100 / SnAgCu	221 °c	221 °c

Observed Value Of AVOCOP PV Interconnect Ribbon & Busbar		
Testing Name	Interconnect Ribbon	Busbar
Dimensions Tolerance	±0.008 mm X ±0.08mm	±0.016 mm X ±0.010mm
Straightness	≤4mm / 1000mm	≤3mm / 1000mm
Solder Coating Thickness Tolerance	±0.005mm	±0.009mm
Tensile Strength	135 Mpa ≤ Ts ≤ 250 Mpa	135 Mpa ≤ Ts ≤ 250 Mpa
Yield Strength ($Rp_{0.02\%}$)	50 MPa ≤ Ys ≤ 70 Mpa	≤ 130 Mpa
Elongation	≥ 25 %	≥ 25 %
Electrical Resistivity	≤ 2.2 X 10-8 Ωm@20 °c	≤ 2.2 X 10-8 Ωm@20 °c





AVOCOP

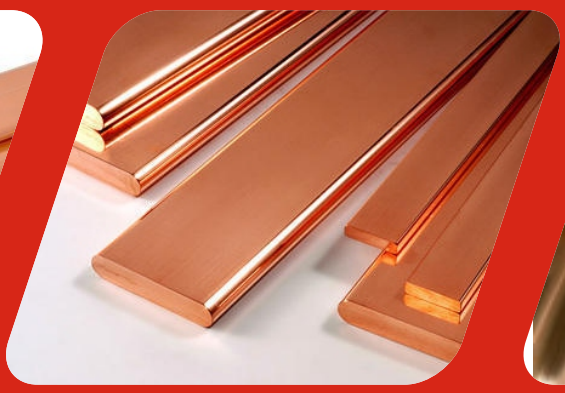
COPPER BUS BARS/ COPPER FLATS

We are manufacturing high conductivity and high purity (HCHC) copper products mainly used in Switchgears manufacturing, power plants, Transformer industries, panel manufacturing. We manufacture bus bars / flats as per the specifications and requirements of the customers. We supply the products with Square edges, corner radius edges or full round edges as per the customer requirements. Specification followed by us are IS, ASTM, DIN, BS.

APPLICATION

Electrical Installations use copper busbars for distributing power from a supply point to a number of output circuits, resulting in numerous applications including switchgear, transformers, circuit breakers, busbar trunking systems, terminals and connectors.

SIZE RANGE	Min.	Max.
Width	3 mm	250 mm
Thickness	1 mm	30 mm



AVOCOP

OUR CLIENTELE

ELECTROTHERM (INDIA) TRANSFORMER DIVISION

TMC TRANSFORMERS INDIA PVT LTD

TRANSFORMERS & RECTIFIERS (I) LIMITED

GUJARAT TRANSFORMERS PVT LTD

VIDYUT TRANSFORMERS PVT LTD

DANISH PRIVATE LIMITED

TBEA ENERGY (INDIA) PRIVATE LIMITED

KAY PEE CORPORATION

PRATIK ELECTRICALS

ARYA ELECTRONICS

RAAJRATNA VENTURES LTD SOLAR DIVISION

ROHITRA INDIA PRIVATE LIMITED (RIPL)

LAMCO TRANSFORMERS PRIVATE LIMITED

NJA INDUSTRIES PVT. LTD.

UNITED TRANSFORMERS

RAJKOT POWERTRANS PRIVATE LIMITED

PND TRANSFORMER PVT LTD.

HADRON POWER TRANSMISSION PVT. LTD.

RAJASTHAN TRANSFORMERS

BILASPUR TRANSFORMERS

CHINTAMANI LAMINATION

RISHABH TECHNOLOGIES PVT. LTD.

FUJIYAMA POWER PVT. LTD.

GAUTAM SOLAR LTD.

SHIVAM PHOTOVOLTAICS

KLK VENTURES PRIVATE LIMITED

SRI SAVITR SOLAR PVT. LTD.

RAAJRATNA VENTURES LTD.

SOURAJ SOLAR PVT. LTD.

Chandresh Coopper Private Limited

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