MESBAR KAVEH COMPANY

Mesbar Kaveh Company is established in 2001 by private investment by Mr. Davood Rahmani in Kaveh industrial city on a 10,800 square meter ground located in Saveh province, aiming to develop and upbringing electricity industry and optimal usage of country underground sources and improving copper and aluminum production industry to obtain more added value.
The main activities of this company are:
1. Supplying raw material of the country electricity industry
2. Investment in the electricity industry development
3. Production of copper and aluminum and their alloys semi-manufactured products
By employing managerial experiences and expert's proficiencies together with using world's most advanced machinery and technology from Finland, Germany, England, Italy, Spain, Taiwan, China and … she has managed to present high quality products in accordance with world standards to civil and foreign markets of wire and cable, transformer, electricity post, distribution panel and other related industries.

Outlook:
Developing copper and aluminum industry prospecting economical independency, ranking as the fifth superior company in the Middle East.

Mission:
Supplying the raw materials of electricity industries and developing copper and aluminum semi-manufactured products in the country by benefiting from specialists and experts and using the cutting edge technology to create more added value for the stockholders and the employees.

Target:

1. Fulfilling the commodity basket of the raw material of copper and aluminum products of electricity industry
2. Accomplishing the copper production circuit from the mine to the semi-manufactured products
3. Developing export by promoting the quality and diminishing the full-price
4. Extending loyal customers
5. Increasing and promoting employees' training as the main assets of the company

Values:

- Attempt to create a safe and serene environment for commercial and economical activities
- Attempt to protect the living environment by spoiling green technologies
- Managing according to ethics and commercial values

Strategies:

Aim to becoming a known brand in The Middle East

INTRODUCTION

This company is the exclusive agent of 3 great German Companies as Driescher Company (producer of all kinds of switch gears), Epcos Company (producer of capacitors, ferrites and inductors) and Beluk Company (producer of Power Factor Control) in IRAN

FACTORIES

Copper Rod Factory

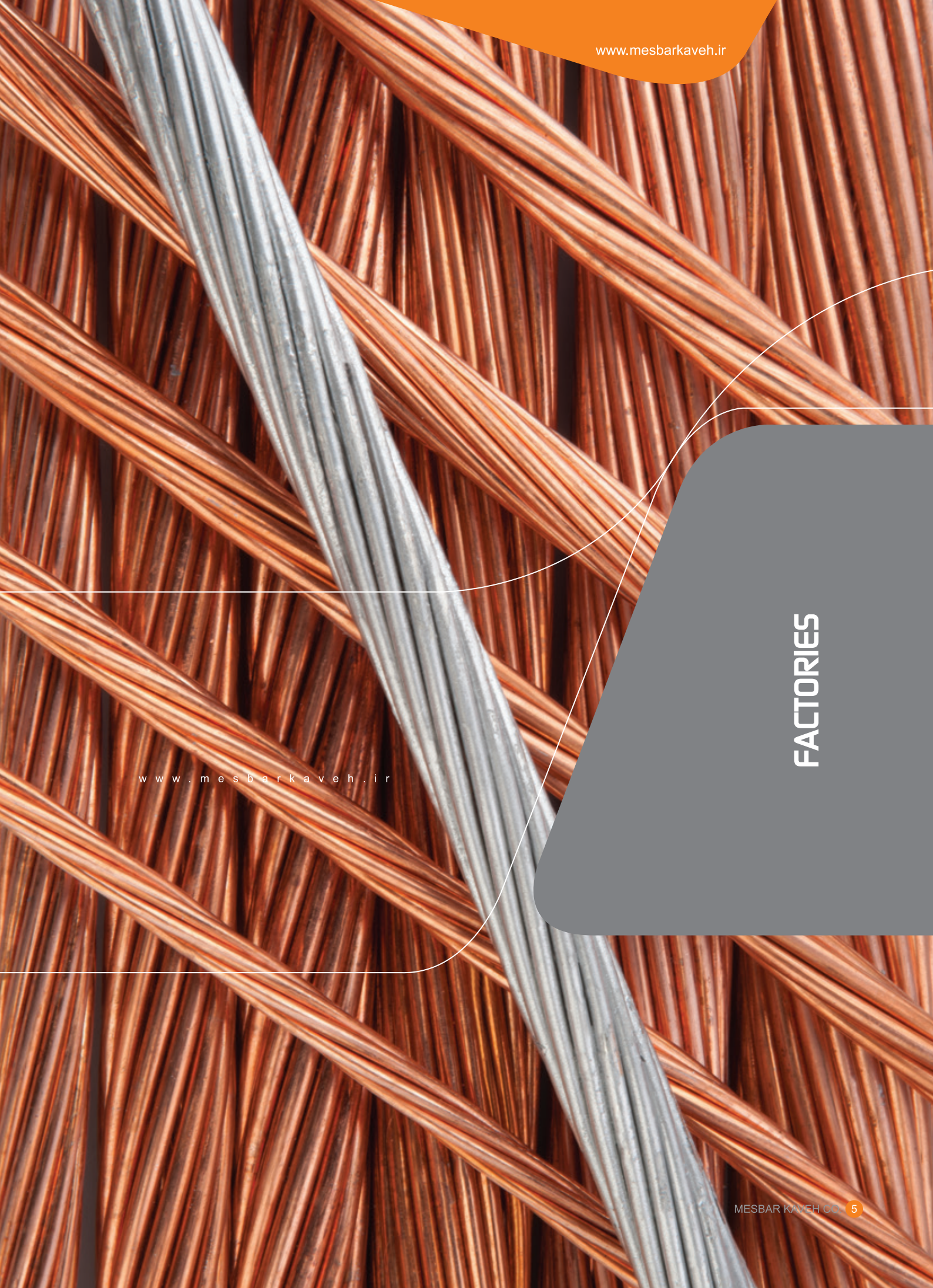
Specifications: This factory has been founded on a 2,000 m^2 ground in Kaveh industrial city of Saveh province. The machinery and the equipment are from Finland.

Entry	Process	Product
Cathode (Grade 1)	Foundry	Rod

Production process:

- **Entry:** Cathode grade A is the raw material obtained from National Iranian Copper Industries Co.
- **Process:** Upcast Casting (Made in Finland)

The most advanced method of wire production by Upcast technology is used in Process. In this method wire is moulded vertically in sizes 8-25 mm in 3.5 ton coils.



FACTORIES

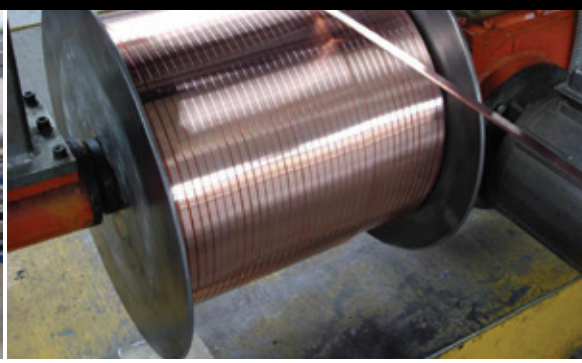
Copper & Aluminum Sections Factory

Specifications: This factory has been founded on a 2,500 m^2 ground in Kaveh industrial city of Saveh province and the machinery and the equipment are from England, Italy, China and Iran.

- Entry
- Process 1
- Process 2
- Process 3

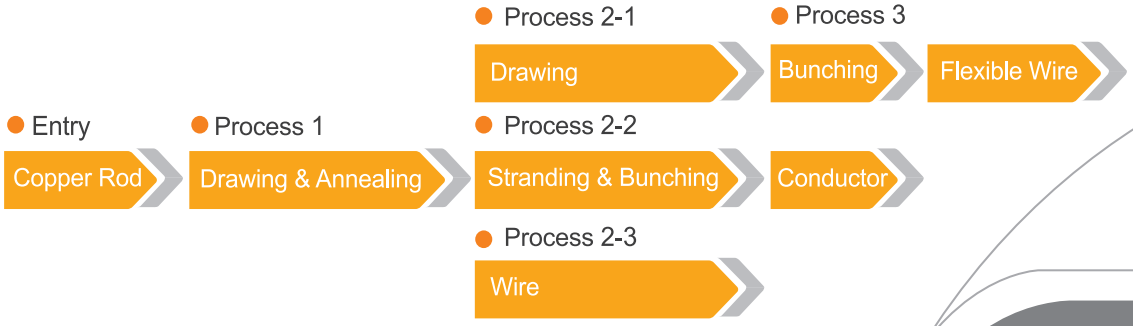
Copper or aluminum rod → Conform → Drawing → Straightening & Cutting → Product

- **Entry:** The raw material is obtained from wire factory in varied dimensions.
- **Process 1:** Conform (Made in England)
  First the copper or aluminum wires are heated up to 650°C by friction and then according to the type of the molds different sections are produced and wound around wooden spools.
- **Process 2:** Drawing (Made in Italy)
  The coils produced in process 1 are size-drawn in drawing machine and then are packed to be delivered to the customer.
- **Process 3:** Straightening and cutting (Made in China)
  If the customer orders Busbar, the size-drawn coils are straightened in this section and then are cut according to the order.



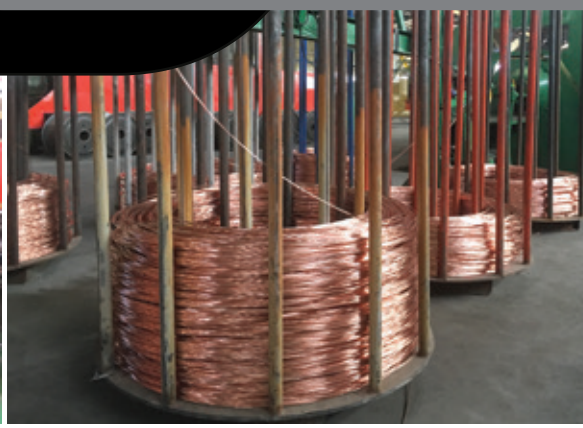
Copper Conductor Factory

Specifications: This factory has been founded on a 1,500 m^2 ground in Kaveh industrial city of Saveh province and the machinery and the equipment are obtained from Taiwan, Italy, Germany and England.



- **Entry:** The raw material is obtained from wire factory in varied dimensions.
- **Process 1:** Primary Drawing & Annealing (Made in Taiwan)
  Here the copper wires are drawn and annealed continuously and the wire diameter can be reduced down to 1.38 mm.
- **Process 2-1:** Secondary Drawing & Annealing (Made in Germany)
  For making stranded wires, now the wires made in the previous process are drawn and reduced down to 0.19 mm.
- **Process 2-2 & 2-3:** Stranding & Bunching machine (Made in Italy and England)
  The stranding machine uses the wires made in process 1 to make air conductors and the ones made in process 2 to make bunched wires. There are two Buncher 630 machines for stranded wires and a Strander 61 for conductors and a Buncher 1250 for earthing wires.

FACTORIES



PRODUCTS AND STANDARDS:

Copper Rod:

Shape and Dimension:

The non-welded copper rod produced by Upcast method wrapped in coil

Product	Dia. (mm)	Coil weight (kg)
Copper rod	8, 10, 15, 16, 20, 25	3,500

Chemical composition:

Alloy	Denomination	Copper (%)	Oxygen (max ppm)	Standard conformance			
				American	Chinese	Europe	Japanese
				ASTM (B49)	GB	EN (1977)	JIS
CU-OFE	Oxygen-free	99.99	5	C10100	TU2	CW009A	C1011
CU-OF	Oxygen-free	99.95	5	C10200	TU1	CW008A	C1020

Mechanical properties:

Product	Electrical Conductivity (IACS)	Tensile Strength (N/mm^2)	Elongation (Min %)	Ductility (mm)	Mean size (mm)
Copper rod	101%	240	28	0.19	0.05

Packaging:

Packed on 1.5 x 1.5 wooden pallets.

Usage:

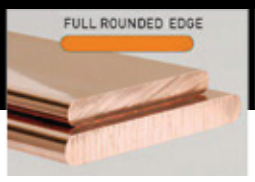
Power transmission and power distribution, copper conductors and cable industry.

Copper & Aluminum sections:

Busbar

Shape and Dimensions:

Thickness (mm)	Width (mm)	Length (m)	Shape
3-20	20-170	≤10	



Coil:

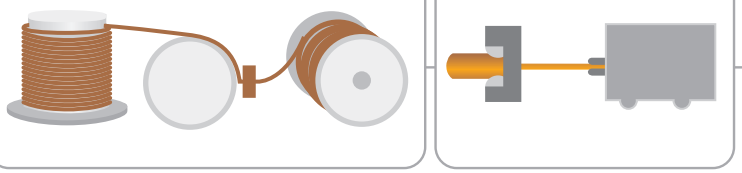
Thickness (mm)	Width (mm)	Length (m)
2-20	20-170	No limitation

PRODUCTS

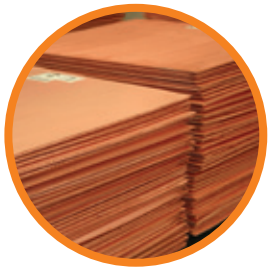
Production Process

Conform

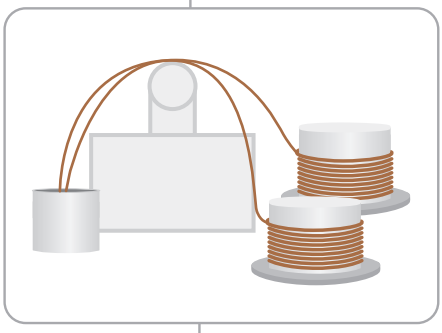
Drawing



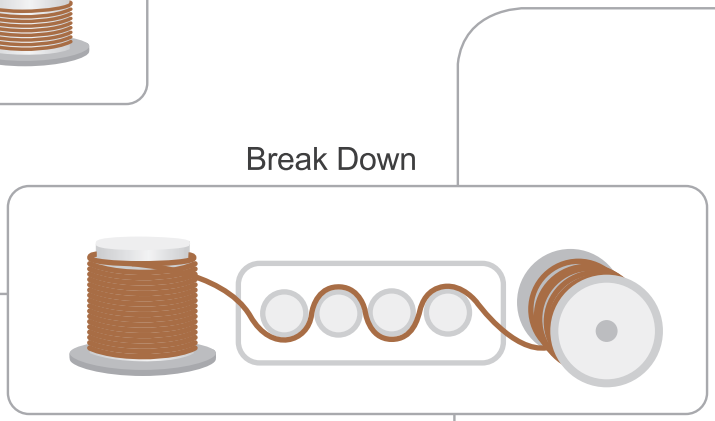
Cathode



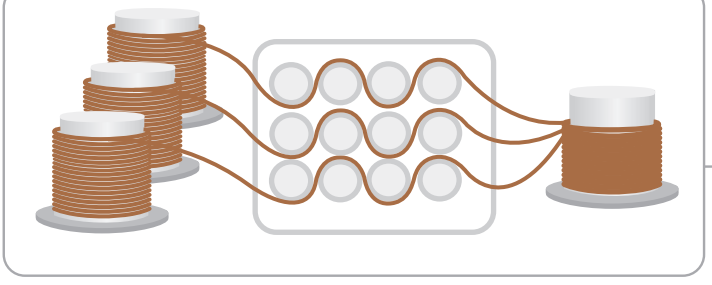
UpCast



Break Down

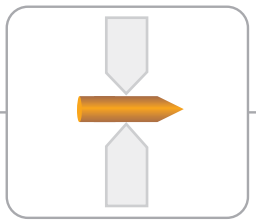


Multi Wire

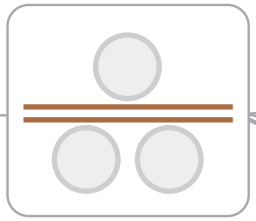


Rod

Machining Shop



Straighting

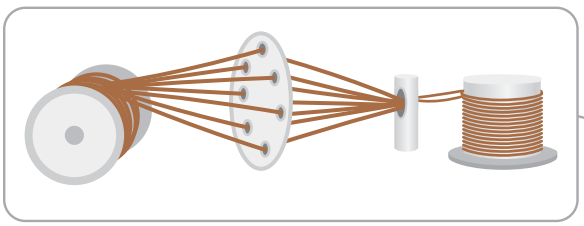


Earth Rod

Busbar

Coil

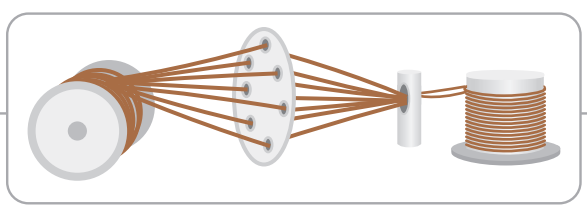
Twisting



Section

Wire /
Soudronic

Buncher

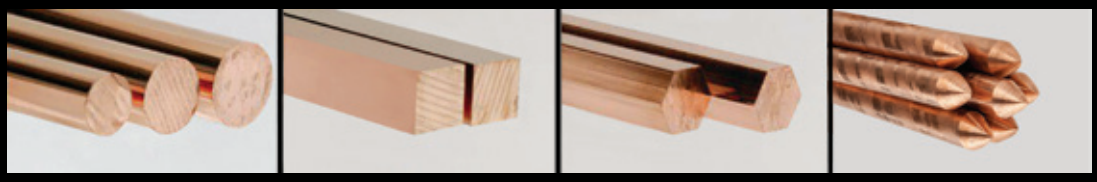


Conductor

Flexible Wire

Rod, Square bar, Hexagonal bar, Round bar

Shape	Dimensions (mm)	Length (m)
Rod	8-80	Up to 10
Square rod	3-50	
Hexagonal rod		
Earth rod	16 & 20	



Small sizes are spool-coiled
Any profile or special section is producible due to order
All above products can be produced tin-coated

Technical specifications and standards:

The non-welded copper wires produced by Upcast method wrapped in coil

Alloy	Main Element (%)	Standard conformance			
		American	Chinese	Europe	Japanese
		ASTM(B49)	GB	EN(1977)	JIS
CU-OFE	Cu: 99.99 (min)	C10100	TU2	CW009A	C1011
CU-OF	Cu: 99.95 (min)	C10200	TU1	CW008A	C1020
Al	Al: 99.7 (min)	Series 1000, 3000, 4000, 5000, 6000, 8000			

Packaging:
Packed on wooden pallets

Usage:
Electric and electronic industry, distribution panel

Copper Conductors

Hard conductors

Technical information:

Hard conductors stranded continually

Normal Cross section	Number & Nominal Wire diameter	Approx Overall diameter	Approx conductor weight	Max D.C Resistance At 20°C	Cloulated Breaking load
mm	NR×mm	mm	kg/km	Ohm/km	KN
10	7×1.35	4.1	90	1.8060	4.1
16	7×1.70	5.1	142	1.1385	6.5
25	7×2.10	6.3	217	0.7461	9.9
35	7×2.50	7.5	308	0.5264	14.0
50	7×3.00	9.0	444	0.3656	20.2

* The above conductors can be produced tin-coated

Chemical composition:

Alloy	Denomination	Copper (%)	Oxygen (max ppm)	Standard conformance			
				American	Chinese	Europe	Japanese
				ASTM(B49)	GB	EN(1977)	JIS
CU-OFE	Oxygen-free	99.99	5	C10100	TU2	CW009A	C1011
CU-OF	Oxygen-free	99.95	5	C10200	TU1	CW008A	C1020

Standard:

In conformance with BSEN 60228 2005 version

The weight is changeable due to order

Usage:

Overhead power transmission and power distribution

Soft copper conductors (earthing)

Technical information:

Annealed conductors stranded continually with or without tin coating

Normal Cross section	Number & Nominal Wire diameter	Approx Overall diameter	Approx conductor weight	Max D.C Resistance At 20°C	Cloulated Breaking load
mm	NR×mm	mm	kg/km	Ohm/km	KN
50	1.80×19	9.0	436	0.3759	19.8
70	2.10×19	10.5	593	0.2762	26.9
95	2.50×19	12.5	840	0.1949	38.1
120	2.80×19	14.0	1054	0.1554	47.8
120	2.01×37	14.0	1054	0.1554	47.8
150	2.25×37	15.7	1326	0.1238	60.1
185	2.50×37	17.5	1640	0.1003	74.2
240	2.25×61	20.2	2208	0.0753	89.0
300	2.50×61	22.5	2226	0.0610	122.3
400	2.89×61	26.0	3643	0.0456	163.4
500	3.23×61	29.1	4550	0.0365	204.2

The above products are producible in sector compact due to order.

Chemical composition:

Alloy	Denomination	Copper (%)	Oxygen (max ppm)	Standard conformance			
				American	Chinese	Europe	Japanese
				ASTM(B49)	GB	EN(1977)	JIS
CU-OFE	Oxygen-free	99.99	5	C10100	TU2	CW009A	C1011
CU-OF	Oxygen-free	99.95	5	C10200	TU1	CW008A	C1020

Packing:

- Wooden or plastic coated metal spool
- Weight 100-500 kg
- The weight is changeable due to order

Usage:

Ground power transmission and power distribution, earthing system, electric and flexible cables

Flexible Copper Conductors

Technical information and dimensions:

Continually annealed stranded conductors

Nominal cross Section (mm^2)	Strands dia. (mm)	Mean diameter (mm)		Weight (kg/km)	Max Conductor Resistance at 20°C	Current Capacity at 25°C (A)	Voltage(V)
		min	max				
0.5	16*0.20	2.5	2.1	9	39	6	300-500
0.75	24*0.20	2.7	2.2	12	26	9	300-500
1	32*0.20	2.8	2.4	15	19.5	11	300-500
1.5	30*0.20	3.4	2.8	21	13.3	16	450-750
2.5	50*0.20	4.1	3.4	32	7.98	21	450-750
4	56*0.30	4.8	3.9	48	4.95	28	450-750
6	84*0.30	5.3	4.4	68	3.3	36	450-750
10	80*0.40	6.8	4.7	115	1.91	49	450-750

Chemical composition:

Alloy	Denomination	Copper (%)	Oxygen (max ppm)	Standard conformance			
				American	Chinese	Europe	Japanese
				ASTM(B49)	GB	EN(1977)	JIS
OFE	Oxygen-free electronic copper	99.99	5	C10100	TU2	CW009A	C1011

Packing:

- Wooden or plastic coated spring spool
- Weight 400 kg
- The weight is changeable due to order

Soudronic wire

Shape and dimensions:

Continually annealed single core wire

Technical properties:

Tensile Strength	Elongation (%)	Highest resistance in 20°C (Ωg/m)
245-285	22-28	0.15328

Alloy	Denomination	Copper (%)	Oxygen (max ppm)	Standard conformance			
				American	Chinese	Europe	Japanese
				ASTM(B49)	GB	EN(1977)	JIS
CU-OFE	Oxygen-free	99.99	5	C10100	TU2	CW009A	C1011
CU-OF	Oxygen-free	99.95	5	C10200	TU1	CW008A	C1020

Chemical composition:

Product	Diameter (mm)	Spool weight (kg)
Sydronic wire	1.38 and 1.5	400

Packing:

- Wooden or plastic coated metal spool
- Weight 400 kg

Usage:

specially Manufactured for welding machines

PRODUCTS

TIN-PLATED COPPER ROD AND BUSBAR

Tin-plated copper rod and busbar helps upgrade design and provides the best quality for switchgears, switchboards, electrical panels, power transformers and busducts by:

- Applications
- Switchboards, Switchgears, Electrical Panels, Power Transformers, Busduct & etc.

The Purity of Coating Material:	Tin anode, 99.5% up
Coating Thickness:	3 - 30 microns and as per customer's requirement

Quality control and laboratories

Controls are categorized in 3 main sections:

The raw material control and matching their properties with company needs
Production in process control and matching with standards
Final product control and issuing test report

1. The raw material control:

All entry material that are influential to the product quality are inspected upon entering the factory and just in case the quality control unit approves their conformance with the predefined acceptance criteria, they are allowed to the production line.

2. Production in process control:

All intermediate products are inspected in each level of production line and if they meet the technical specifications, they are used in the next level. The inspection status is recorded on the cards designed for each level of production and attached to the wrapping. The non conformant intermediate products cannot be used in processes unless they are corrected and verified. Generally in all production phases the dimensional examination and mechanical and electrical properties of the conductor are in control.

3. Final product control:

The final products are inspected as well. This control consists of dimensions, contact and discontact, electrical resistancy, wrapping and ...

obviously, none of the above are attainable unless having suitable equipment and Mesbar Kaveh quality control lab employs precise lab equipment to serve the customers as best.

- Dimensional measurement tests
- Micro ohm meter devices for measuring electric resistancy (up to 30 kΩ)
- Sigma test devices for measuring electric conductivity
- Oxygen test devices for measuring oxygen level
- Weigher devices (up to 30 kg)
- Hardness measuring devices (up to 130 Vickers)
- Twist measuring devices per rotation
- Tensile strength device (diameter up to 4 mm)
- Elongation test device (diameter up to 20 mm)
- Punch and bend test device
- Quantometer instrument for analyzing material
- Refractometer instrument (up to 32% Brix)

Available tests

	Kind of test	Standard
1	Number, size, resistance and weight	DIN 48201
2	Electrical resistancy	IISIRI 3084
3	Tensile strength	ASTM B3
4	Wire Length and twisting	ASTM B49 ASTM B193
5	Busbar electrical conductivity	DIN 13601 DIN 13599
6	Busbar electrical resistancy	
7	Busbar dimensions and weigh	
8	Busbar bend, twist and hardness	

QUALITY CONTROL