BAHRA
BUSBARS

BUSBARS

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GENERAL INTRODUCTION

Bahra Cables Company was established in 2008 to serve Saudi & GCC Markets. It is based in Bahra industrial city located 25km from Jeddah. Bahra Cables Factory occupies over 500,000 square meters of prime manufacturing space together with associated design offices, laboratories and storage area. It specializes in Manufacturing and Distributing Electric Cables.

Bahra Cables Company is committed to the production of the best product quality and service, utilizing cutting edge European Technology in its manufacturing. The core technologies in production processes, material applications and logistic procedures were provided by German experts with key functions being managed by German engineers.

The organization has a lean vertical management structure which is designed to integrate with a highly developed IT-based structure. This partnership allows the rapid flow of information through the management chain and facilitates timely response in the best traditions of 'hands on' management. Bahra Cables Company has the flexibility to provide a versatile product range to serve the construction, electric utilities, distribution, industrial, oil & gas and petrochemical sectors including lead sheathed cable. The cables produced comply with both North American standards (CSA , ANSI and ICEA) and European standards (IEC, BS, NF and VDE specifications.)

AREA

Bahra Cables Company has a total land area of about 500,000 sqm at disposal.
The built-up area, including offices, plants and testing facilities is more than 129,000 sqm.
Total available warehouses and open storage area is about 211,500 sqm.

Bahra Cables Company's Quality Management System conforms to the ISO 9001: 2008 International Management Quality System Standard with scope of Design and Manufacturing of Electrical Power Cables and Wires. BCC is certified by American Systems Registrar (ASR), ANAB Accredited, in addition to ISO 14001 and OHSAS 18001.

INTRODUCTION TO BAHRA BUSBARS

Bahra Busbars has started production of a variety of high conductivity copper busbars and rods. The company sources copper from international LME registered companies.

The factory built with the european expertise is completely integrated and equipped with the latest technologies in the field.

CERTIFICATIONS AND TYPE TESTS

- Bahra Busbars has been certified with ISO 9001:2008 by American Systems Registrar (ASR).
- The products have been tested with the following Type Tests by Bereau Veritas Saudi Arabia Testing Services:

Copper Busbars:

- 3mm(T) x 25mm(W), BAR 1/2H
- 5mm(T) x 60mm(W), BAR 1/2H
- 10mm(T) x 50mm(W), BAR 1/2H
- 5mm(T) x 10mm(W), BAR 1/2H
- 10mm(T) x 125mm(W), BAR 1/2H
- 10mm(T) x 35mm(W), BAR 1/2H

GENERAL INFORMATION

BUSBAR PROPERTIES

The raw material is pure copper cathodes of grade "A" with copper purity of 99.99%. This allows our high quality of copper busbars and rods to meet international standards.

1. Volume Resistivity at 20°C/ 68°F 1.7241 $\Omega mm^2/m$
2. Volume Conductivity at 20°C/ 68°F 58.00 MS/m
3. Density 8.91 g/cm3
4. Melting Point 1083 °C
5. Excellent Corrosion Resistance

BUSBAR APPLICATIONS

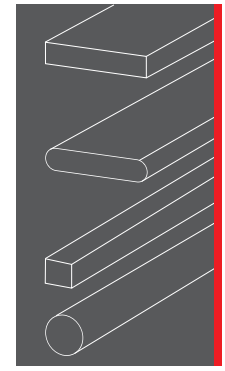
- Switchgear
- Busway and Busduct Enclosures
- Panel Boards
- Earthing (safety grounding)

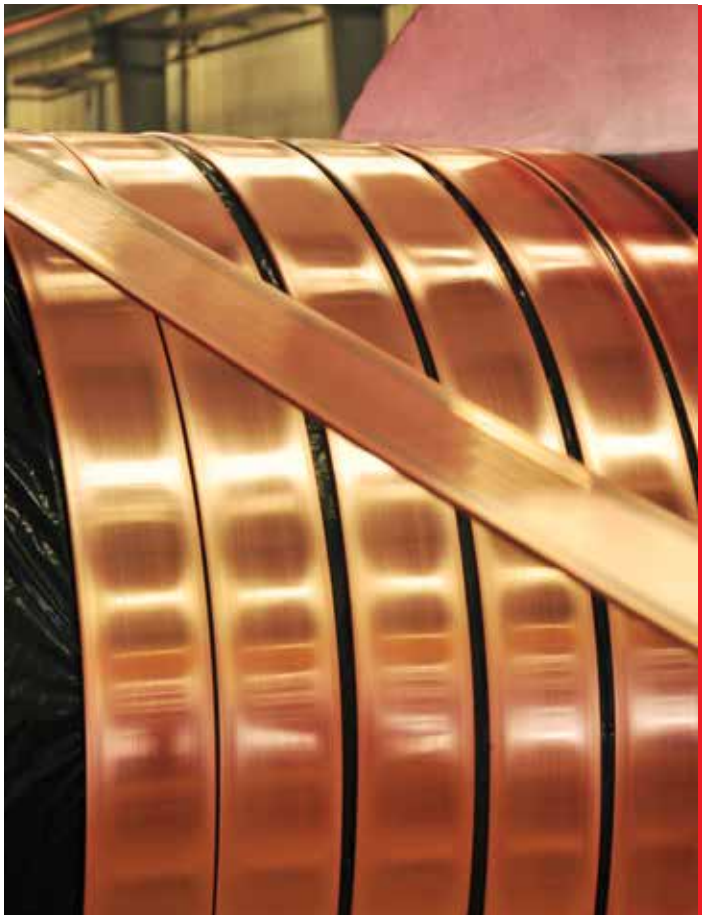
BUSBAR EDGE SHAPES

Sharp Corners - SH

Rounded Corners - RD

Semi-Circular Edges - CE
(Full Round Edges)





COPPER FLATS / COPPER BUSBARS

Using excellent Oxygen-Free copper "CU-OF" with different hardness grade and different tensile strength with the designations as in Table 1 & 2, to produce copper busbars according to the Japanese International Standard "JIS H-3140:2012" and British Standards "BS EN 13601:2013".

TABLE 1

Standard	Alloy No	Temper Grade	Tensile Strength [N/mm2]	Elongation %	Designation
JIS H3140:2012	C1020	¼ Hard	215 to 275	25min	C1020 BB-¼H
		½ Hard	245 to 315	15min	C1020 BB-½H
		Hard	275 min	---	C1020 BB-H

TABLE 2

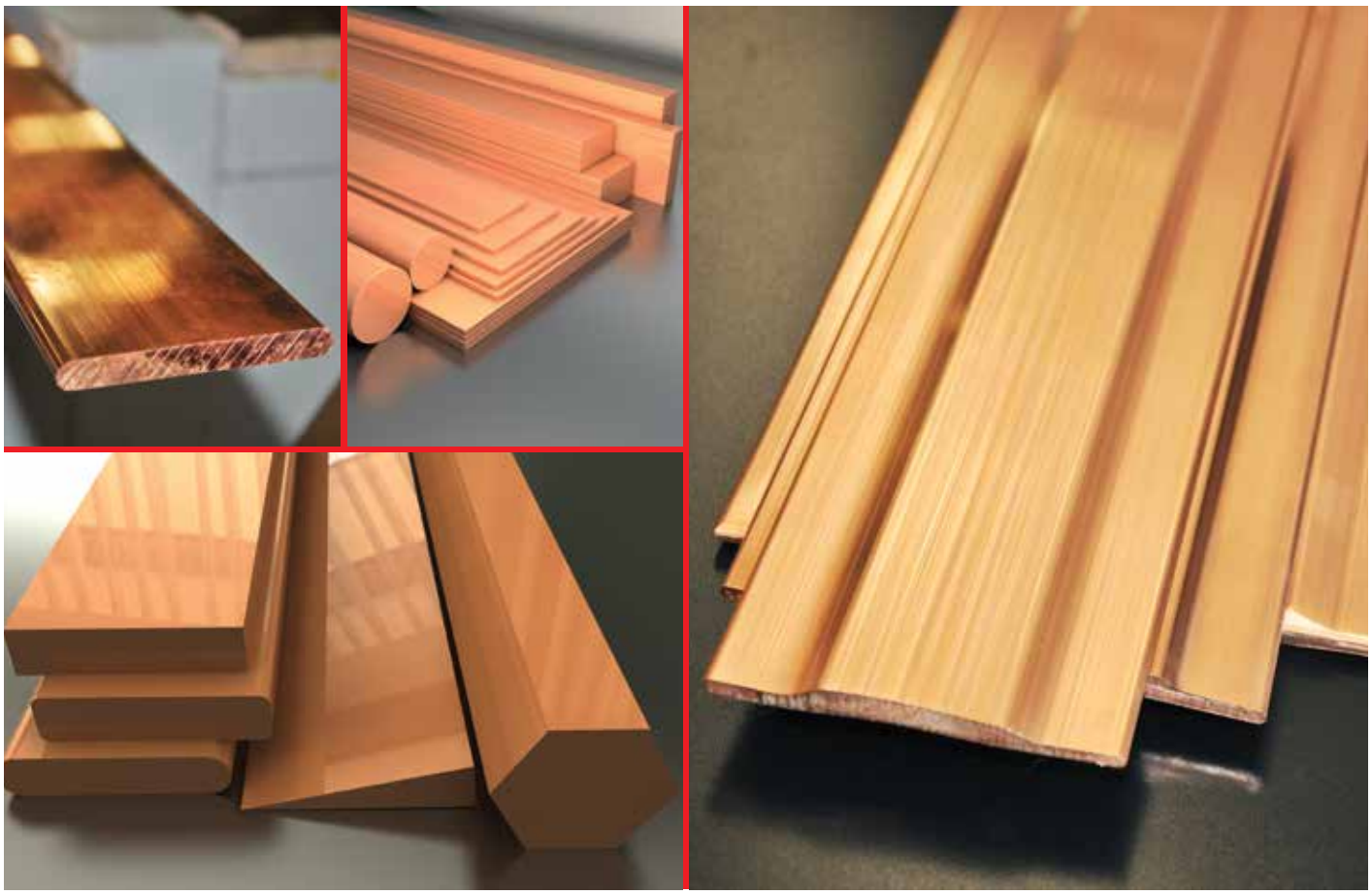
Standard	Alloy No	Temper Grade	Tensile Strength [N/mm2]	Brinell Hardness	Designation
BS EN 13601:2013	CW008A	R250	250	65-90	CW008A-R250
		R300	300	75-100	CW008A-R300
		R350	350	100 min	CW008A-R350

Bahra Busbars can be in the range of dimensions as described below:

Width: from 10mm up to 240mm.

Thickness: from 2mm up to 24mm.

Cross section area: from 30 mm^2 up to 3800mm^2.



TINNED COPPER BUSBARS

Tinned busbars are manufactured by state-of-the-art Electrolytic Tinning process, using a computerized system, which provides the best quality of tinned busbars to be used in Electrical Panels, Switchgears and Transformers.

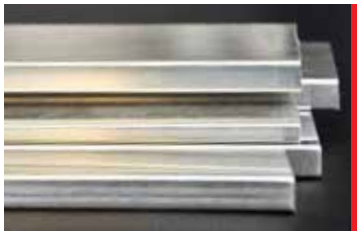
SPECIFICATIONS

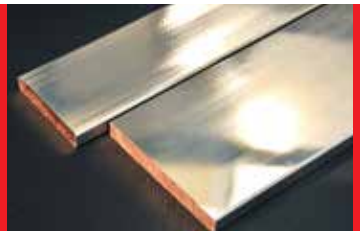
Coating thickness (default): 6 microns *(Special coating thickness can be obtained upon request)*

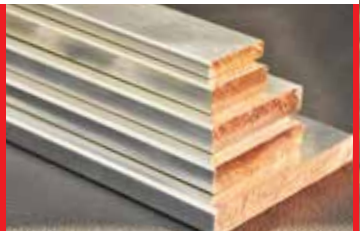
Purity of coating material: Minimum 99.85%, as per ASTM B339

Bahra labs are capabile of performing all required tests for tinned busbars, like;

- Tin thickness test
- Adhesion test







COPPER RODS "ROUND"

Using excellent Oxygen Free copper **CU-OF**, half-hard temper grade, with designations as in Table 3 and 4, to produce Copper Rod "round shape" according to Japanese International Standards "JIS H 3140:2012" and British Standards "BS EN 13601:2013".

TABLE 3

Standard	Alloy No	Temper Grade	Tensile Strength [N/mm²]	Elongation %	Designation
JIS H3140:2012	C1020	¼ Hard	215 to 275	25min	C1020 BB-¼H
		½ Hard	245 to 315	15min	C1020 BB-½H
		Hard	275 min	---	C1020 BB-H

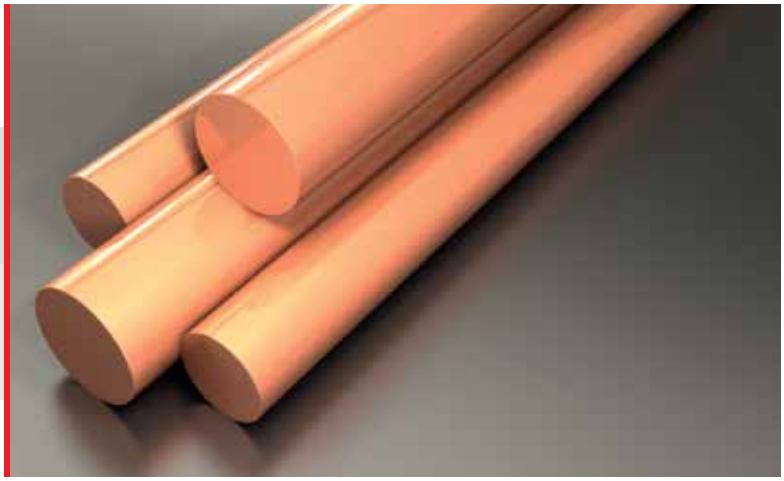
TABLE 4

Standard	Alloy No	Temper Grade	Tensile Strength [N/mm2]	Brinell Hardness	Designation
BS EN 13601:2013	CW008A	R250	250	65-90	CW008A-R250
		R300	300	75-100	CW008A-R300
		R350	350	100 min	CW008A-R350

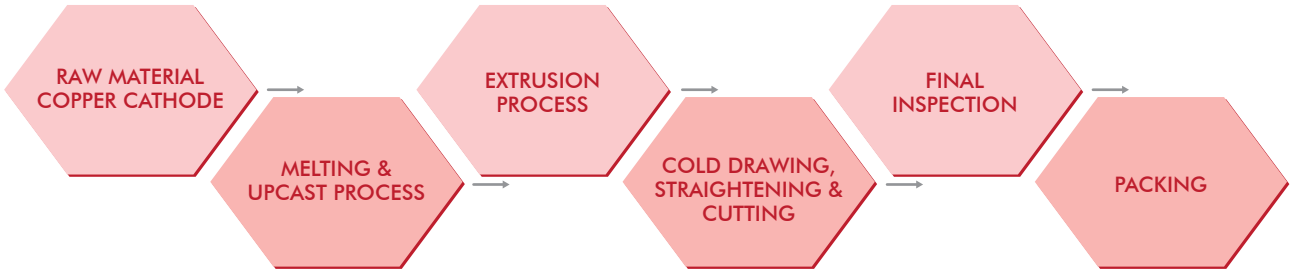
Bahra Rods can be produced in range of:

DIAMETER — 6 mm upto 70 mm

CROSS SECTION — 30 mm² upto 3800 mm²



MANUFACTURING

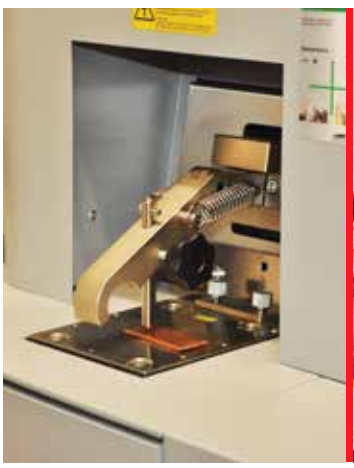


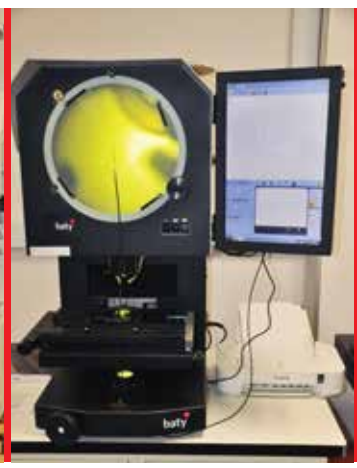



QUALITY CONTROL

To provide high quality and timely analysis of raw materials, semi-finished and finished products and to consistently meet our clients' requirements. Key elements essential in achieving our performance objectives:

- Tests are performed in accordance with the international standards, stated methods, laboratory policies and procedures, and the clients' requirements.
- A Quality System based on the concepts of ISO 9001 is utilized.
- The effectiveness of the management system is continually improved.
- A rigorous Quality Control Program is in place to monitor the quality of test results. This program includes analysis and evaluation of internal quality control samples with every batch. (These samples include primary, duplicate samples, standard reference)
- Laboratory personnel are familiar with the Quality Policy and implement it in the workplace. They are provided with the knowledge, training, and tools necessary to perform laboratory operations and testing.
- Testing lab is fully equipped with the state-of-the-art computer controlled testing equipment which are capable to achieve the accuracy required and complying with specifications relevant to the tests concerned.
- Calibration and intermediate checks are periodically performed according to calibration procedures.



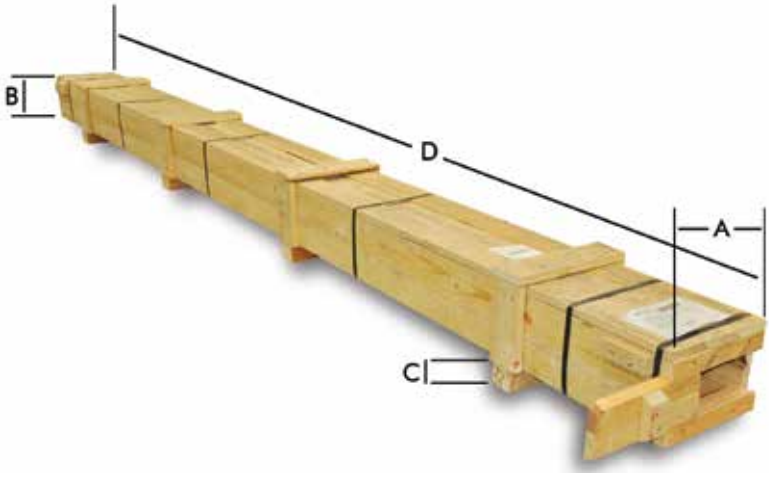

PACKAGING

Busbar

Wooden Boxes with one inspection opening at the side of the box which allow to take some of the samples without damaging the packing box and Copper will be wrapped with special paper or plastic.

TABLE 7

Packing Type	Dimensions (mm)				Net Weight (kg)
	A	B	C	D	
Wooden Box	30cm	27cm	7cm	3 to 6 meters	1000 approx.

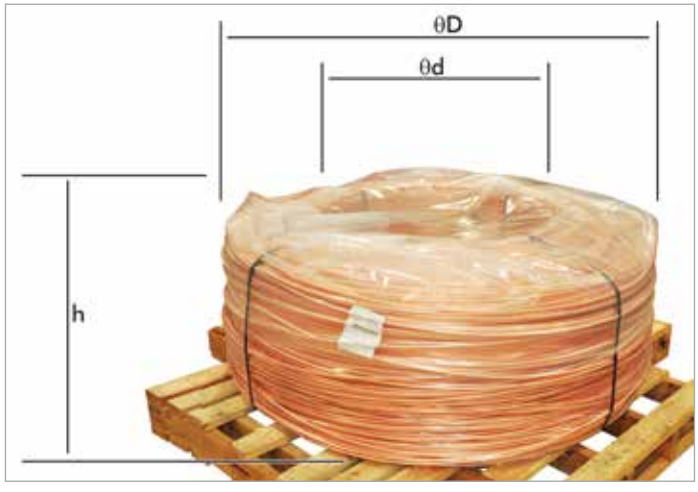


Copper Rod - 8mm

Supplied in coils with the following dimensions:

TABLE 8

Packing Type	Pallet Dimensions (mm)	Dimensions (mm)			Net Weight (kg)
		Outer Dia (mm) "D"	Inner Dia (mm) "d"	Height (mm) "h"	
Coil	2000x2000	1500-1750	750-1000	500-600	2500 approx.



Bahra Advanced Cable Manufacture Co. Ltd.

شركة بحرة المتطورة لصناعة الكابلات المحدودة ش.م.م

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