



Company Profile & 2018 Product Catalogue

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A. Company Profile

We have a good experience in high conductivity copper alloys and aluminum bronzes. We export our goods to all over the world without any quality problem. We guarantee our products to be free of porosity & imperfections. We can supply the centrifugally casted rings, continuous casted round bars and forged plates, discs in a short period with our high technology.

You will find below our standard processes & testing methods before delivery;

- • Chemical Analyze
- • Dimension Control
- • Hardness Test
- • Ultrasonic Test
- • Penetration Test
- • Physical Analyze (if required)

Aluminum Bronzes & TRONA METAL

TRONA is the candidate about leading Hard Bronze supplier of Stainless Steel Sink, Drawing Industry and Aluminum Bronze supplier of several industries in all over the world. By supporting our quality with just in time deliveries we'll become the main supplier of sink, kettle, pressure cooker, pot, cooking hob, service tray etc. manufacturers. We can answer all of our customers' requirements easily by our high production capacity. Approximately 50 tons of our production is ready to use at Sink Industry every month.



High Conductivity Copper Alloys & TRONA METAL

Trona is a supplier of High Conductivity Copper Alloys as plates mould materials for Gravity Die-Casting process, Round Bars for Aluminum Injection, Rings and Plates for Plastic Injection and Automotive Industry, Discs and Round Bars for Welding Industry. We are supplying our best quality mould materials to major faucet manufacturers, plunger tips to aluminum injection, hanger, bucket and euro pallet moulds etc to plastic injection in all over the world. Our Copper Beryllium Moulds are being used in the several sectors with high satisfaction. All of our pieces are delivered with 3.1B full material certificate to the customers.

What makes us special?

- • Long Life and High Technologic Materials
- • Quick Delivery Time
- • A good correlation of high quality and suitable prices
- • Rough machining with 2mm tolerances to the final dimensions
- • Final machining possibility
- • Both sides working surface quality for sink moulds (if required)
- • Forged material for longer life time for sink moulds (if required)
- • Many items from one shop: hard bronzes and its final machining, welding wheels, welding jigs, bronze bushings for the presses etc...



B. Rough Machining;

a. Aluminum Bronzes

- i. Sand or Die Casted Materials; All the materials which are casted according to the model "if required after the forging processes" are delivered with rough machined and +2mm tolerances.



- ii. Centrifugally Casted Materials (Rings); the goods are delivered with +2mm tolerances after the casting.



b. High Conductivity Copper Alloys;

i. Continuous Casted Materials; the goods are delivered as



+2mm tolerances after the quality control processes (if the tolerance is not shown on the order form) which are applied

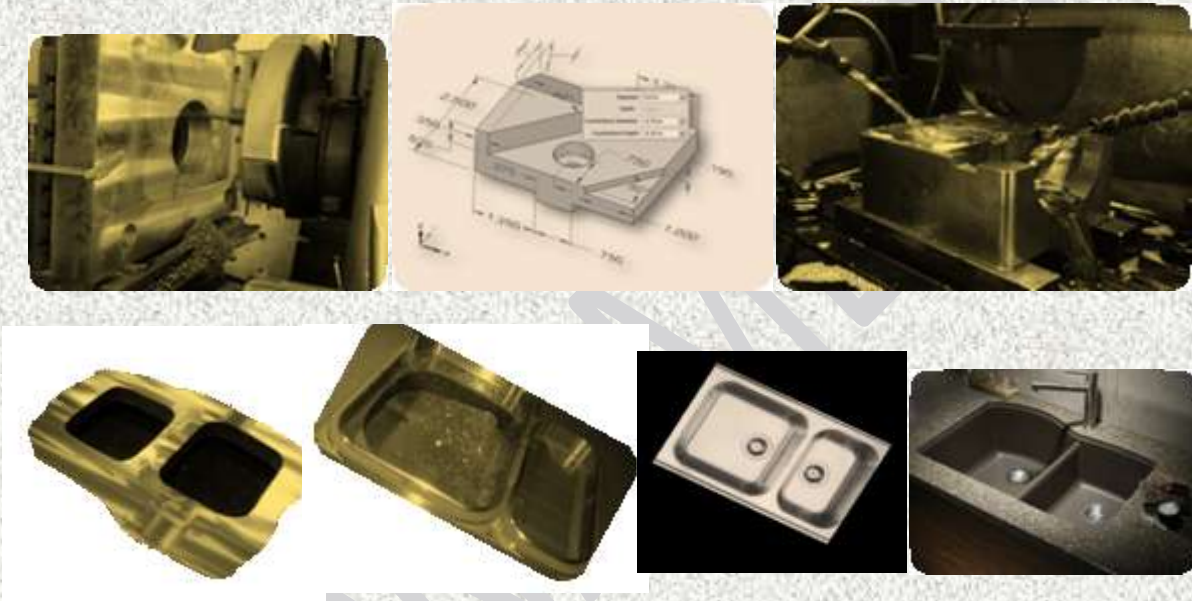


before continuous casted, hot forged, heat treatment etc processes.

C. Final Machining;

a. Aluminum Bronzes;

- i. Sand or Die Casted Materials; when the goods rough machined after casting processes; we can also final machine them with our CNC machines according to the drawing if required before delivery.

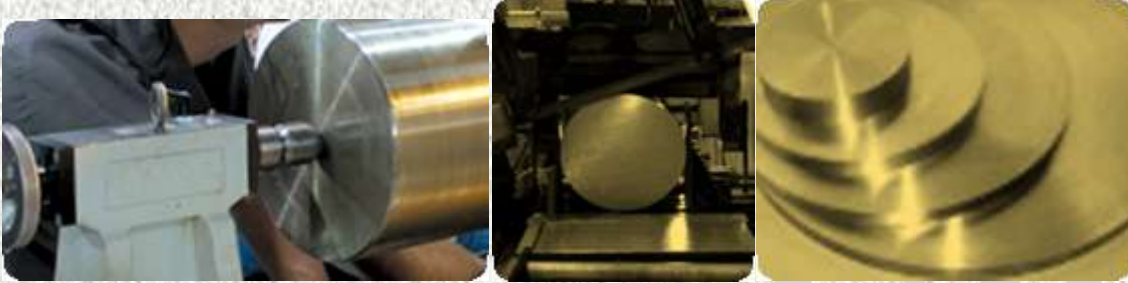


- ii. Centrifugally Casted Materials (Rings); rough machined materials with +2mm tolerances after the centrifugally casting method, if required final machine processes will be done before delivery.

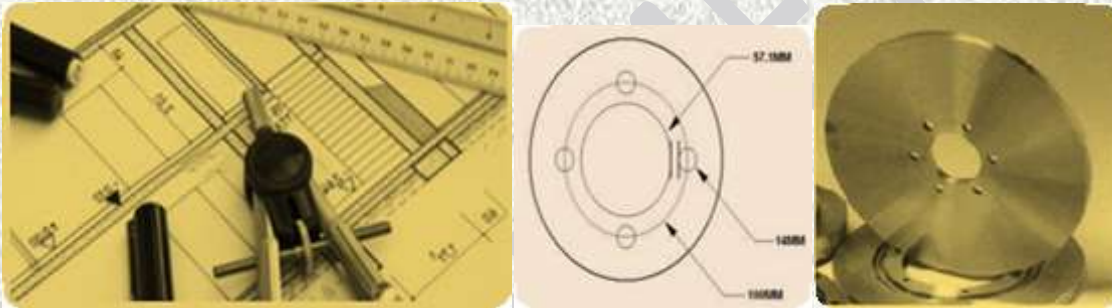


b. High Conductivity Copper Alloys

i. Continuous Casted Materials; when the goods continuous



casted, forged, heat treated and rough machined; if required we can machine them to the final sizes "according to the drawing"



with our CNC machines before delivery.

D. Quality Control;

- a. Chemical Analyzing Test; . Some samples are being used before and after the production for chemical analyze with the usual methods.



- b. Dimension Control; All materials are delivered as rough machined or according to the drawing. If the order sent by rough machined and without tolerances; we use +2mm tolerances. Quality control department do not send the non approved goods after the dimension control.

- c. Hardness Test; All the orders are produced between the top and bottom hardness values of the world standards. If the special requirements near to top or bottom values of hardness; it is possible to produce for us.

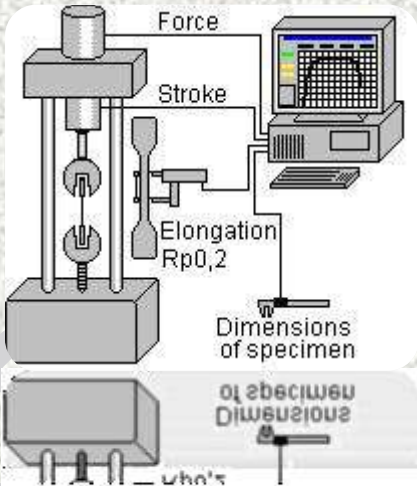


d. Ultrasonic Control; All the products are delivered after the ultrasonic control.

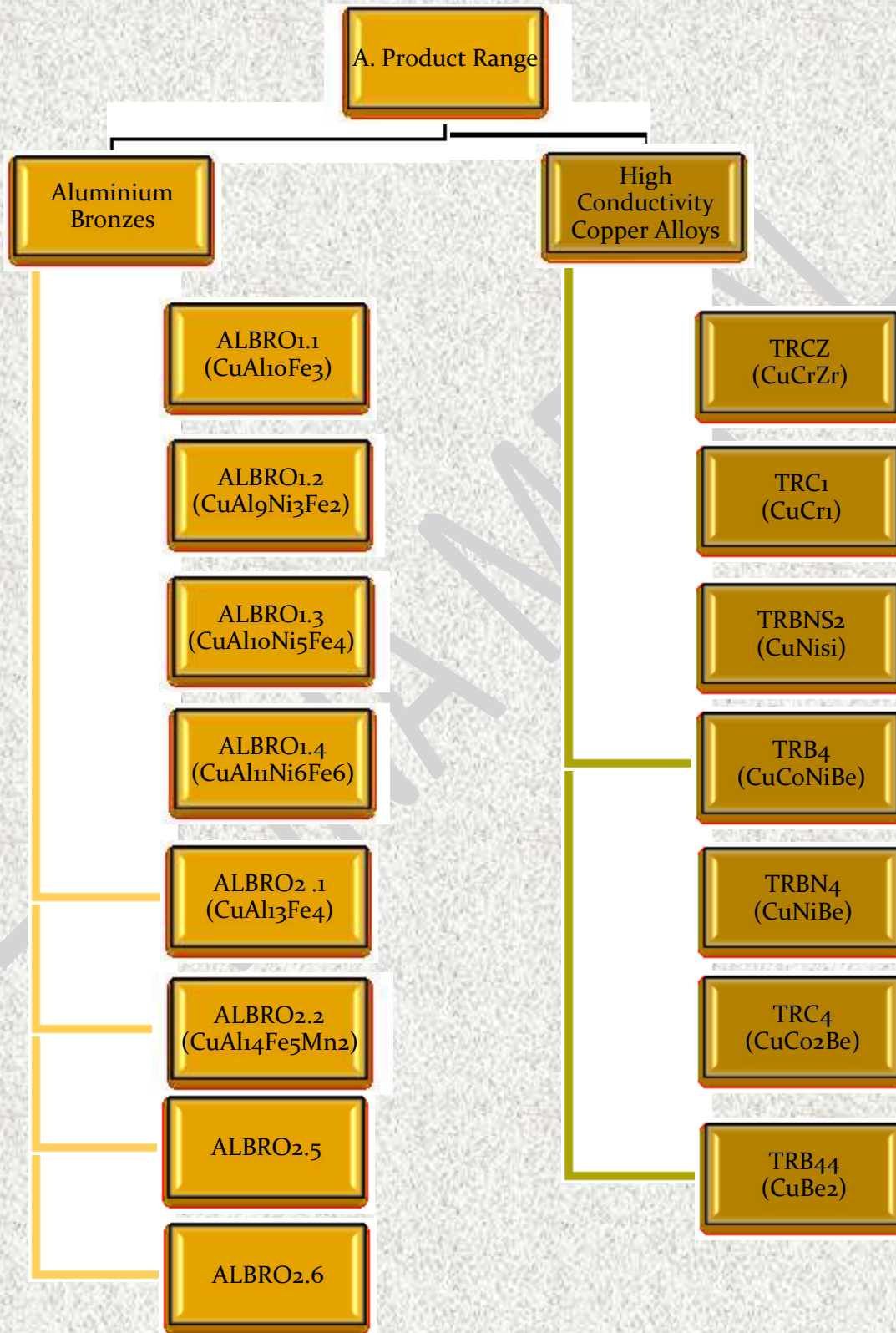


e. Penetration Test; Penetration tests are mandatory for us before shipment as ultrasonic control too.

f. Physical Analyzing Test; If the physical analyzing test report (includes the tensile strength, yield strength etc) required; we can also ensure them from out of our factory.



E. Product Range;



F. Physical & Mechanical Properties of Aluminum Bronzes;

	ALBRO1.1	ALBRO1.2	ALBRO1.3	ALBRO1.4	ALBRO2.1	ALBRO2.2	ALBRO2.5	ALBRO2.6
Density (Kg/dm ³)	7,45		7,6		7,25	7,02	6,95	6,9
Tensile Strenght (Rm) N/mm ² "SCRM"	610-720				520	580	1510	1510
Tensile Strenght (Rm) N/mm ² "CCRM"	650-760	700	640	750	550	580	1545	1600
Tensile Strenght (Rm) N/mm ² "FRM"	620-730			H.T 830	720	620	1575	1615
Yield Strenght (Rp 0,2) N/mm ² "SCRM"	310-350				390	485	675	680
Yield Strenght (Rp 0,2) N/mm ² "CCRM"	320-390	350	270	450	385	485	680	685
Yield Strenght (Rp 0,2) N/mm ² "FRM"	280-310			H.T 590	400	525	700	710
Elongation (A5) % "SCRM"	12-16				1,5	0,5		
Elongation (A5) % "CCRM"	12-16	12	15	5	1,5	0,5		
Elongation (A5) % "FRM"	13-15			(H.T) 3	1	0,5		
Hardness (HB 30) "SCRM"	160-180				280	325	360	415
Hardness (HB 30) "CCRM"	180-210	160	180	>185	285	330	370	420
Hardness (HB 30) "FRM"	190-230			(H.T) >220	295	340	380	425
Thermal Conductivity (W/m.K)	59-63		40		44	42	32	32

SCRM: Sand Cast + Rough Machine, CCRM: Centrifugally Cast + Rough Machine, FRM: Forge + Rough Machine, HT= Heat Treatment

G. Phys. & Mech. Properties of High Conductivity Copper Alloys;

	TRB4	TRB44	TRC1	TRCZ	TRC4	TRBNS2	TRBN4
Density (Kg/dm ³)	8,85	8,5	8,96	8,96	8,86	8,7	8,86
Tensile Strenght (Rm) N/mm ²	650-800	1150-1250	320-380	350-440	650-800	500-700	640-760
Yield Strenght (Rp 0,2) N/mm ²	500-700	900-1100	230-290	300-350	500-700	450-600	500-650
Elongation (A5) %	Min.8	Min.2	Min.12-18	Min.8-15	Min.5	Min.5	Min.8
Hardness (HB 30)	220-250	36-42HRC	120-135	100-160	230-280	180-210	240-280
Thermal Conductivity (W/m.K)	210-320	110-150	323,6	320	210-240	160	210-310

HT= Heat Treatment

H. Technical Data Sheets of Aluminum Bronzes;



ALBRO1.1 technical datasheet

CHEMICAL COMPOSITION						
Cu	Zn	Al	Fe	Ni	Mn	Other
Rest		10,5	3,5		0,5	

DESCRIPTION OF MATERIAL	
This Alluminium Bronze, contains approximately 10,50% Alluminium, 3,50% Iron. It has a good deformation and wear resistance with good sliding properties under load.	

MECHANICAL PROPERTIES			
Production Method	SCRM	CCRM	FRM
Tensile Strength (Rm) N/mm ²	610-720	650-760	620-730
Yield Strength (Rp 0,2) N/mm ²	310-350	320-390	280-310
Elongation (A5) %	12-16	12-16	13-15
Hardness (HB 30)	160-180	180-210	190-230
Elastic Modulus	115 x 10 ⁹ N/ mm ²		

*** SCRM: Sand Cast R.M, CCRM: Centrifugally Cast R.M, FRM: Forged & Rough Machined

PHYSICAL PROPERTIES	
Density	: 7,45 g/ cm ³
Specific Heat	: 0,42 j/g.k
Electrical Conductivity	: 8 MS/ m
Electrical Conductivity (I.A.C.S.)	: 14 %
Thermal Conductivity	: 59-63 W/ m.K
Coefficient of Thermal Expansion	: 16,0 X 10 ⁻⁶ /K

APPLICATIONS	
It uses as gears, bearings bushings, part of plastic injection moulds.	



ALBRO1.2 technical datasheet (DIN:2,0971)

CHEMICAL COMPOSITION						
Cu	Zn	Al	Fe	Ni	Mn	Other
Rest		9	2,5	3	1	

DESCRIPTION OF MATERIAL	
This Alluminium Bronze, contains approximately 9,00% Alluminium, 2,50% Iron and 3,00% Nickel. It has a good deformation and wear resistance with good sliding properties under load.	

MECHANICAL PROPERTIES			
Production Method	SCRM	CCRM	FRM
Tensile Strength (Rm) N/mm ²		700	
Yield Strength (Rp 0,2) N/mm ²		350	
Elongation (A5) %		12	
Hardness (HB 30)		160	
Elastic Modulus	115 x 10 ⁹ N/ mm ²		

*** SCRM: Sand Cast R.M, CCRM: Centrifugally Cast R.M, FRM: Forged & Rough Machined

PHYSICAL PROPERTIES	
Density	: 7,45 g/ cm ³
Specific Heat	: 0,42 j/g.k
Electrical Conductivity	: 8 MS/ m
Electrical Conductivity (I.A.C.S.)	: 14 %
Thermal Conductivity	: 59-63 W/ m.K
Coefficient of Thermal Expansion	: 16,0 X 10 ⁻⁶ /K

APPLICATIONS	
It uses as gears, bearings bushings, part of plastic injection moulds.	





ALBRO1.3 technical datasheet (DIN:2,0966)

CHEMICAL COMPOSITION						
Cu	Zn	Al	Fe	Ni	Mn	Other
Rest		10,5	4	5	0,8	

DESCRIPTION OF MATERIAL	
This Aluminium Bronze, contains approximately 10,50% Aluminium, 4,00% Iron and 5,00% Nickel. It has a good deformation and wear resistance with good sliding properties under load.	

MECHANICAL PROPERTIES			
Production Method	SCRM	CCRM	FRM
Tensile Strenght (Rm) N/mm ²		640	
Yield Strenght (Rp 0,2) N/mm ²		270	
Elongation (A5) %		15	
Hardness (HB 30)		180	
Elastic Modulus	115 x 10 ³ N/ mm ²		

*** SCRM: Sand Cast R.M, CCRM: Centrifugally Cast R.M, FRM: Forged & Rouh Machined

PHYSICAL PROPERTIES	
Density	7,60 g/ cm ³
Specific Heat	0,42 j/g.k
Electrical Conductivity	8 MS/ m
Electrical Conductivity (I.A.C.S.)	14 %
Termal Conductivity	59-63 W/ m.K
Coefficient of Thermal Expansion	16,0 X 10 ⁻⁶ /K

APPLICATIONS	
It uses as gears, bearings bushings, part of plastic injection moulds.	



ALBRO1.4 technical datasheet (DIN:2,0978)

CHEMICAL COMPOSITION						
Cu	Zn	Al	Fe	Ni	Mn	Other
Rest		11,5	6	6	0,8	

DESCRIPTION OF MATERIAL	
This Aluminium Bronze, contains approximately 10,50% Aluminium, 6,00% Iron and 6,00% Nickel. It has a good deformation and wear resistance with good sliding properties under load.	

MECHANICAL PROPERTIES			
Production Method	SCRM	CCRM	FRM+HT
Tensile Strenght (Rm) N/mm ²		750	830
Yield Strenght (Rp 0,2) N/mm ²		450	590
Elongation (A5) %		5	3
Hardness (HB 30)		>185	>220
Elastic Modulus	115 x 10 ³ N/ mm ²		

*** SCRM: Sand Cast, CCRM: Centrifugally Cast, FRM+HT: Forged&Rouh Machined+HEAT TREATED

PHYSICAL PROPERTIES	
Density	7,60 g/ cm ³
Specific Heat	0,42 j/g.k
Electrical Conductivity	8 MS/ m
Electrical Conductivity (I.A.C.S.)	14 %
Termal Conductivity	59-63 W/ m.K
Coefficient of Thermal Expansion	16,0 X 10 ⁻⁶ /K

APPLICATIONS	
It uses as gears, bearings bushings, part of plastic injection moulds.	





ALBRO2.1 technical datasheet

CHEMICAL COMPOSITION						
Cu	Zn	Al	Fe	Ni	Mn	Other
Rest		13,15	4,25		0,5	

DESCRIPTION OF MATERIAL
This Aluminium Bronze, contains approximately 13,00% Aluminium, 4,00% Iron. It has better hardness and mechanical properties than ALBRO1.

MECHANICAL PROPERTIES			
Production Method	SCRM	CCRM	FRM
Tensile Strength (Rm) N/mm ²	520	550	720
Yield Strength (Rp 0,2) N/mm ²	390	385	400
Elongation (A5) %	1,5	1,5	1
Hardness (HB 30)	280	285	295
Elastic Modulus	105 x 10 ³ N/ mm ²		

PHYSICAL PROPERTIES	
Density	7,25 g/ cm ³
Specific Heat	0,42 j/g.k
Electrical Conductivity	6 MS/ m
Electrical Conductivity (I.A.C.S.)	10 %
Thermal Conductivity	44 W/ m.K
Coefficient of Thermal Expansion	16,0 X 10 ⁻⁶ /K

APPLICATIONS
This alloy uses for metal forming in stainless steel industry as a mould and insert part, rollers for bending pipes.



ALBRO2.2 technical datasheet

CHEMICAL COMPOSITION						
Cu	Zn	Al	Fe	Ni	Mn	Other
Rest		13,65	4,95		2	

DESCRIPTION OF MATERIAL
This Aluminium Bronze, contains approximately 13,5% Aluminium, %5 Iron, 2% Manganese. It has good hardness, wear resistance and sliding properties.

MECHANICAL PROPERTIES			
Production Method	SCRM	CCRM	FRM
Tensile Strength (Rm) N/mm ²	580	580	620
Yield Strength (Rp 0,2) N/mm ²	485	485	525
Elongation (A5) %	0,5	0,5	0,5
Hardness (HB 30)	325	330	340
Elastic Modulus	103 x 10 ³ N/ mm ²		

PHYSICAL PROPERTIES	
Density	7,02 g/ cm ³
Specific Heat	0,42 j/g.k
Electrical Conductivity	6 MS/ m
Electrical Conductivity (I.A.C.S.)	10 %
Thermal Conductivity	42 W/ m.K
Coefficient of Thermal Expansion	16,0 X 10 ⁻⁶ /K

APPLICATIONS
Deep drawing, Rollers for bending pipes, friction plates and different parts in plastic injection





ALBRO2.5 technical datasheet

CHEMICAL COMPOSITION

Cu	Zn	Al	Fe	Ni	Mn	Other
Rest	-	-	-	-	-	-

DESCRIPTION OF MATERIAL

This alloy has an excellent strength and excellent friction properties.

MECHANICAL PROPERTIES

Production Method	SCRM	CCRM	FRM
Tensile Strength (Rm) N/mm ²	1510	1545	1575
Yield Strength (Rp 0.2) N/mm ²	675	680	700
Elongation (A5) %	-	-	-
Hardness (HB 30)	360	370	380
Elastic Modulus	110 x 10 ³ N/mm ²		

*** SCRM: Sand Cast R.M, CCRM: Centrifugally Cast R.M, FRM: Forged & Rough Machined

PHYSICAL PROPERTIES

Density	: 6,95 g/ cm ³
Specific Heat	: 0,42 j/g.k
Electrical Conductivity	: 4 MS/ m
Electrical Conductivity (I.A.C.S.)	: 8 %
Thermal Conductivity	: 32 W/ m.K
Coefficient of Thermal Expansion	: 16,0 X 10 ⁻⁶ /K

APPLICATIONS

This alloy is used in stainless steel industry for drawing die of sink, washing machine tumblers, built-in refrigerator, stainless steel pots, kettles, service trays etc production.



ALBRO2.6 technical datasheet

CHEMICAL COMPOSITION

Cu	Zn	Al	Fe	Ni	Mn	Other
Rest	-	-	-	-	-	-

DESCRIPTION OF MATERIAL

This material has a high hardness level and machining processes are too hard. This material is also quite useful for deep drawing industry and it can work under the heavy loads.

MECHANICAL PROPERTIES

Production Method	SCRM	CCRM	FRM
Tensile Strength (Rm) N/mm ²	1510	1600	1615
Yield Strength (Rp 0.2) N/mm ²	680	685	710
Elongation (A5) %	-	-	-
Hardness (HB 30)	415	420	425
Elastic Modulus	110 x 10 ³ N/mm ²		

*** SCRM: Sand Cast R.M, CCRM: Centrifugally Cast R.M, FRM: Forged & Rough Machined

PHYSICAL PROPERTIES

Density	: 6,90 g/ cm ³
Specific Heat	: 0,42 j/g.k
Electrical Conductivity	: 4 MS/ m
Electrical Conductivity (I.A.C.S.)	: 8 %
Thermal Conductivity	: 32 W/ m.K
Coefficient of Thermal Expansion	: 16,0 X 10 ⁻⁶ /K

APPLICATIONS

This material is used in stainless steel industry for deep drawing production.



İ. Technical Data Sheets of High Conductivity Copper Alloys;



TRCZ (CuCrZr) technical datasheet

CHEMICAL COMPOSITION						
Cu	Cr	Be	Zr	Ni	Si	Other
Rest	0,3-1,2		0,03-0,2			

DESCRIPTION OF MATERIAL
CuCrZr contains; approximately 1% Chromium and 0,1% Zirconium. This alloy has good hardness and high electrical and thermal conductivity after forging and heat treatment processes.

SPECIFICATIONS		
DIN: 2,1293	ASTM: C18150	RWMA: CLASS II

PHYSICAL PROPERTIES	
Density	8,96 g/ cm ³
Specific Heat	0,38 j/g.k
Electrical Conductivity	49-59 MS/ m
Electrical Conductivity (I.A.C.S.)	70-76 %
Thermal Conductivity	320 W/ m.K
Coefficient of Thermal Expansion	20-100 °C 17,0 X 10-6 /K
Working Temperature	500 °C maks.

MECHANICAL PROPERTIES	
Tensile Strength (Rm) N/mm ²	350-440
Yield Strength (Rp 0,2) N/mm ²	300-350
Elongation (A5) %	Min.8-15
Hardness (HB 30)	100-160
Elastic Modulus	120 x 10 ³ N/ mm ²

APPLICATIONS
It uses as spot welding electrodes, electrode holders and seam welding discs in resistance welding, electrodes for spark erosion, moulds for continuous casting of steel and aluminium, electrical components working under mechanical stress and dies working under low pressure in casting of non ferrous metals.



TRC1 (CuCr1) technical datasheet

CHEMICAL COMPOSITION						
Cu	Cr	Be	Zr	Ni	Si	Other
Rest	0,3-1,2					

DESCRIPTION OF MATERIAL
CuCr1 contains; approximately 1% chromium and it has high conductivity and better mechanical properties than pure copper with fairly good conductivity. After forging and heat treating, it is possible to have better hardness and mechanical properties.

SPECIFICATIONS		
	ASTM: C18200	RWMA: CLASS II

PHYSICAL PROPERTIES	
Density	8,96 g/ cm ³
Specific Heat	0,38 j/g.k
Electrical Conductivity	49-51 MS/ m
Electrical Conductivity (I.A.C.S.)	76-80 %
Thermal Conductivity	323,6 W/ m.K
Coefficient of Thermal Expansion	20-100 °C 17,0 X 10-6 /K
Working Temperature	500 °C maks.

MECHANICAL PROPERTIES	
Tensile Strength (Rm) N/mm ²	320-380
Yield Strength (Rp 0,2) N/mm ²	230-290
Elongation (A5) %	Min.12-18
Hardness (HB 30)	120-135
Elastic Modulus	130 x 10 ³ N/ mm ²

APPLICATIONS
It uses as resistance welding electrodes, electrode holders and seam welding discs. Current carrying arms, cable connectors, electrical and thermal conductors working under mechanical stresses.





TRBNS₂ (CuNiSi) technical datasheet

CHEMICAL COMPOSITION						
Cu	Cr	Be	Zr	Ni	Si	Other
Rest	0,3-0,5			2,2-2,6	0,5-0,7	

SPECIFICATIONS		
DIN : 2.0855	ASTM: C18000	RWMA: CLASS III

MECHANICAL PROPERTIES	
Tensile Strength (Rm) N/mm ²	: 500-700
Yield Strength (Rp 0,2) N/mm ²	: 450-600
Elongation (A5) %	: Min 5
Hardness (HB 30)	: 180-210
Elastic Modulus	: 131 x 10 ³ N/ mm ²

DESCRIPTION OF MATERIAL
TRBNS ₂ contains; approximately 2,4% Nickel,0,6 Silicium and 0,4% Chromium. This alloy gains relatively good hardness, electrical and thermal conductivity after hot forging and heat treatment processes. CuNiSi is Beryllium Free and alternative to CuCoNiBe alloy.

PHYSICAL PROPERTIES	
Density	: 8,7 g/ cm ³
Specific Heat	: 0,38 J/g.k
Electrical Conductivity	: 26-28 MS/ m
Electrical Conductivity (I.A.C.S.)	: 45-48 %
Thermal Conductivity	: 160 W/ m.K
Coefficient of Thermal Expansion	: 20-100 °C 17,5 X 10-6 /K
Working Temperature	: 480 °C maks.

APPLICATIONS
It uses as plunger tips in Aluminium injection industry to the alternative of CuCoNiBe. It uses also as cooling pins in plastic injection industry to the alternative of CuBe2 and CuCoNiBe. Moulds for casting of non-ferrous material. Chill moulds in casting of brass and bronze material. Due to its good surface quality, homogen and fast cooling rate this alloy has an excellent working performance.



TRB₄ (CuCoNiBe) technical datasheet

CHEMICAL COMPOSITION						
Cu	Co	Be	Zr	Ni	Si	Other
Rest	0,8-1,3	0,4-0,7		0,8-1,3		

SPECIFICATIONS		
DIN : 2.1285	ASTM: C17500	RWMA: CLASS III

MECHANICAL PROPERTIES	
Tensile Strength (Rm) N/mm ²	: 650-800
Yield Strength (Rp 0,2) N/mm ²	: 500-700
Elongation (A5) %	: Min 8
Hardness (HB 30)	: 220-250
Elastic Modulus	: 135 x 10 ³ N/ mm ²

DESCRIPTION OF MATERIAL
CuCoNiBe Copper Alloy contains approximately 1% Cobalt, 1% Nickel, 0,5% Beryllium. After hot forging and heat treatment processes; this material gains considerably good hardness, grain size, electrical and thermal conductivities. It is possible to reach different combinations of electrical conductivity and hardness by changing the heat treatment conditions.

PHYSICAL PROPERTIES	
Density	: 8,85 g/ cm ³
Specific Heat	: 0,42 J/g.k
Electrical Conductivity	: 24-30 MS/ m
Electrical Conductivity (I.A.C.S.)	: 38-48 %
Thermal Conductivity	: 210-320 W/ m.K
Coefficient of Thermal Expansion	: 20-100 °C 17,0 X 10-6 /K
Working Temperature	: 480 °C maks.

APPLICATIONS
Welding electrodes, electrode holders and seam welding discs in resistance welding. Plunger tips in Aluminium Die Casting industry. Injection nozzles, cooling inserts in plastic injection industry. Moulds for casting of non-ferrous material. Chill moulds in casting of brass and bronze material. Due to its good surface quality, homogen and fast cooling rate this alloy has an excellent working performance.





TRBN₄ (CuNiBe) technical datasheet

CHEMICAL COMPOSITION						
Cu	Co	Be	Zr	Ni	Si	Other
Rest	>0,3	0,2-0,6		1,4-2,2		

SPECIFICATIONS		
DIN : 2.0850	ASTM: C17510	RWMA: CLASS III

MECHANICAL PROPERTIES	
Tensile Strength (Rm) N/mm ²	: 640-760
Yield Strength (Rp 0,2) N/mm ²	: 500-650
Elongation (A5) %	: Min 8
Hardness (HB 30)	: 240-280
Elastic Modulus	: 138 x 10 ³ N/ mm ²

DESCRIPTION OF MATERIAL
CuNiBe copper alloy contains; approximately 0,3% Cobalt, 1,8% Nickel and 0,4% Beryllium. This material gains considerably good hardness with good electrical and thermal conductivity after hot forging and heat treatment processes.

PHYSICAL PROPERTIES	
Density	: 8,86 g/ cm ³
Specific Heat	: 0,40 J/g.k
Electrical Conductivity	: 24-30 MS/ m
Electrical Conductivity (I.A.C.S.)	: 34-48 %
Thermal Conductivity	: 210-310 W/ m.K
Coefficient of Thermal Expansion	: 20-100 °C 17,0 X 10-6 /K
Working Temperature	: 480 °C maks.

APPLICATIONS
Welding electrodes, electrode holders and seam welding discs in resistance welding. It uses rarely as plunger tips in Aluminium Die Casting industry. It uses also injection nozzles, cooling inserts in plastic injection industry. Moulds for casting of non-ferrous material. Chill moulds in casting of brass and bronze material. Due to its good surface quality, homogen and fast cooling rate this alloy has an excelent working performance too.



TRC₄ (CuCo₂Be) technical datasheet

CHEMICAL COMPOSITION						
Cu	Co	Be	Zr	Ni	Si	Other
Rest	2,2-2,7	0,4-0,7		0,3		

SPECIFICATIONS		
DIN : 2.1285	ASTM: C17500	RWMA: CLASS III

MECHANICAL PROPERTIES	
Tensile Strength (Rm) N/mm ²	: 650-800
Yield Strength (Rp 0,2) N/mm ²	: 500-700
Elongation (A5) %	: Min 5
Hardness (HB 30)	: 230-280
Elastic Modulus	: 135 x 10 ³ N/ mm ²

DESCRIPTION OF MATERIAL
CuCo ₂ Be copper alloy contains; approximately 2,5% Cobalt, 0,3% Nickel and 0,5% Beryllium. This material gains considerably good hardness with good electrical and thermal conductivity after hot forging and heat treatment processes. It has also slightly better mechanical and physical properties than CuNiBe.

PHYSICAL PROPERTIES	
Density	: 8,86 g/ cm ³
Specific Heat	: 0,40 J/g.k
Electrical Conductivity	: 24-30 MS/ m
Electrical Conductivity (I.A.C.S.)	: 34-48 %
Thermal Conductivity	: 210-240 W/ m.K
Coefficient of Thermal Expansion	: 20-100 °C 17,0 X 10-6 /K
Working Temperature	: 480 °C maks.

APPLICATIONS
Welding electrodes, electrode holders and seam welding discs in resistance welding. It uses rarely as plunger tips in Aluminium Die Casting industry. It uses also injection nozzles, cooling inserts in plastic injection industry. Moulds for casting of non-ferrous material. Chill moulds in casting of brass and bronze material. Due to its good surface quality, homogen and fast cooling rate this alloy has an excelent working performance too.



TRB44 (CuBe2) technical datasheet

CHEMICAL COMPOSITION

Cu	Co	Be	Zr	Ni	Si	Other
Ret	0,35	1,8-2,2		0,35	0,1-0,2	

SPECIFICATIONS

DIN : 2,1247	ASTM: C17200	RWMA: CLASS IV
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MECHANICAL PROPERTIES

Tensile Strength (Rm) N/mm ²	: 1150-1250
Yield Strength (Rp 0,2) N/mm ²	: 900-1100
Elongation (A5) %	: Min 2
Hardness (HRC)	: 36-42
Elastic Modulus	: 135 x 10 ³ N/mm ²

DESCRIPTION OF MATERIAL

CuBe2 contains; approximately 2% Beryllium, 0,6% Cobalt and Nickel. This copper alloy has considerably high mechanical properties, hardness with reasonable thermal and electrical conductivity. It is possible to reach different combinations of electrical conductivity and hardness by changing the heat treatment conditions.

PHYSICAL PROPERTIES

Density	: 8,5 g/cm ³
Specific Heat	: 0,42 j/g.k
Electrical Conductivity	: 24-30 MS/ m
Electrical Conductivity (I.A.C.S.)	: 38-48 %
Thermal Conductivity	: 110-150 W/ m.K
Coefficient of Thermal Expansion	: 20-100 °C 17,0 X 10-6 /K
Working Temperature	: 3000 °C maks.

APPLICATIONS

CuBe uses as resistance welding electrodes in manufacturing of steel wheels, non-sparking safety tools, corrosion resistant, anti magnetic and high strength bushings. Mould plates and cooling inserts in plastic injection industry.

J. Casting Methods;



K. Transformation Methods;

