Cu OFE

Aurubis high purity copper is a technical wrought copper of the highest quality made from the high grade cathodes Cu-CATH-1 (CR001A) which inherits their very low content of impurities. Aurubis' oxygen-free quality is maintained throughout the casting process without the addition of deoxidising elements.

Three major characteristics make it the first choice for all electrical and electronic applications:

- With a maximum impurity content of 65 ppm, Aurubis High Purity Copper meets the elevated requirements for electronic, low temperature superconductor and vacuum applications; it is free of elements which evaporate in a vacuum.
- Aurubis High Purity Copper is free of oxygen and so insensitive to hydrogen embrittlement. In contact with hydrogen, the oxygen-bearing quality of copper can be subject to severe internal damage
- Aurubis High Purity Copper is free of phosphorus therefore provides an excellent and reliable electrical conductivity

CHEMICAL COMPOSITION

Aurubis Typical Analysis *																		
Element	Ag	As	Bi	Cd	Co	Cr	Fe	Mn	Ni	O_2	P	Pb	S	Sb	Se	Sn	Te	Zn
[ppm]	10	<1	<0.5	<0.1	<1	<1	<2	<1	<1	<3	<1	<1	<5	<1	<0.5	<1	<0.5	<1

* In accordance to EN standard

		Cu	Ag	As	Bi	Cd	Co	Cr	Fe	Mn	Ni	O	P	Pb	S	Sb	Se	Si	Sn	Te	Zn	Other
		[%]	[ppm]																			
EN 13601 Cu OFE	CW009A	≥99.99	≤25	≤ 5	≤ 2	≤ 1	-	-	≤10	≤ 5	≤10	[1]	≤ 3	≤ 5	≤15	≤ 4	≤ 2	-	≤ 2	≤ 2	≤ 1	-

[1] *The material conforms to the hydrogen embrittlement requirement of EN 1976*

Correspondence to other standards

	DIN	NF	BS	ASTM	JIS
Cu-OFE	OF-Cu	Cu-c2	C110	C10100	C1011
CW009A	2.0040				

PHYSICAL PROPERTIES

Density		Electrical conductivity [2]		Thermal conductivity	Expansion [4]	Specific heat	Elastic modulus
[g/cm³]		[MS/m]	[%IACS] [3]	[W/m·K]	[ppm/K]	[J/kg K]	[GPa]
Conditions	20°C	20°C / annealed	20°C / annealed	20°C	20 to 100°C	20°C	20°C annealed
8.94		>58	>101	393	16.8	386	110

[2] *Resistivity ρ is the inverse value of conductivity, e.g. ρ = 1/58.6 =0.01724 m/MS or Ω·mm²/m.*
[3] *International Annealed Copper Standard: 100% IACS = 0.01724 μ Ω x m at 20°C*
[4] *Linear coefficient of thermal expansion (CTE), as a mean value between the given temperatures.*

Cu OFE

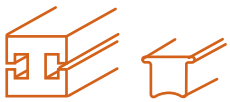
MECHANICAL PROPERTIES

Flat, round, square, hexagonal according to EN13601

Metallurgical State D	Dimensions mm									Hardness				Ultimate Tensile Strength	Yield Strength	Elongation	
	Round, square, hexagonal			Rectangular						HB		HV		Rm [MPa]	Rp0,2 [MPa]	A100 mm [%]	A [%]
	Thickness			Width													
	From	up to	To	From	up to	To	From	up to	To	Min	Max	Min	Max	Min		Min	Min
D	2	-	80	0.5	-	40	1	-	200	Cold drawn product without any specific mechanical properties							
H035 [a]	2	-	80	0.5	-	40	1	-	200	35	65	35	65	-	-	-	-
R200 [a]	2		80	1		40	5		200					200	max.120	25	35
H065	2	-	80	0.5	-	40	1	-	200	65	90	70	95	-	-	-	-
R250	2		10	1	-	10	5	-	200	-	-	-	-	250	min.200	8	12
R250	2	10	30	-	-	-	-	-	-	-	-	-	-	250	min.180	-	15
R230	-	30	80	-	10	40	-	10	200	-	-	-	-	230	min.160	-	18
H085	2	-	40	0.5	-	20	1	-	120	85	110	90	115	-	-	-	-
H075	-	40	80	-	20	40	-	20	160	75	100	80	105	-	-	-	-
R300	2	-	20	1	-	10	5	-	120	-	-	-	-	300	min.260	5	8
R280	-	20	40	-	10	20	-	10	120	-	-	-	-	280	min.240	-	10
R260	-	40	80	-	20	40	-	20	160	-	-	-	-	260	min.220	-	12
H100	2	-	10	0.5	-	5	1	-	120	100	-	110	-	-	-	-	-
R350	2	-	10	1	-	5	5	-	120	-	-	-	-	350	min.320	3	5

[a] *Annealed*

Profiles according to EN13605



Metallurgical State	Dimensions mm		Hardness				Ultimate Tensile Strength	Yield Strength	Elongation	
	Thickness	Width	HB		HV		Rm [MPa]	Rp0,2 [MPa]	A100 mm [%]	A [%]
	Max.	Max.	Min	Max	Min	Max	Min		Min	Min
D	50	180	Same as drawn							
H035 [b]	50	180	35	65	35	70	-	-	-	-
R200 [b]	50	180	-	-	-	-	200	Max.120	25	35
H065	10	150	65	95	70	100	-	-	-	-
R240	10	150	-	-	-	-	240	Min.160	-	15
H080	5	100	80	115	85	120	-	-	-	-
R280	5	100	-	-	-	-	280	Min.240	-	8

[b] *Annealed*