Datasheet:

EN Cu-DHP / CW024A 99,90% Pure Copper Tubes – Air Conditioning and Refrigeration

Alumeco ApS
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Internal alloy name:	**CW024A**
Metal:	**Copper**
Chemical Symbol:	**Cu-DHP**
EN:	**EN Cu-DHP**
UNS:	**C12200**
SIS:	**5015**
GB:	**TP2 / C12200**
Also known as:	**-**
Alloy type:	**Electrical conducting**

Main usage:

- Automotive – Radiators
- Piping – Gas, Water, Medical, Heating & Air Conditioning

Main properties:

- Excellent for welding and soldering properties
- Great for deforming, either hot or cold

Important norms and literature:

General Standards
EN 12735-1:2010: Copper and copper alloys – Seamless, round copper tubes for air conditioning and refrigeration – Part 1: Tubes for piping systems

Geometric Tolerance:
EN 12735-1:2010: Copper and copper alloys – Seamless, round copper tubes for air conditioning and refrigeration – Part 1: Tubes for piping systems

Chemical composition in %: EN 12735-1:2010

Cu	P	Other elements	
		Each	Together
99,90	0,015 – 0,040	-	-

Mechanical properties: EN 12735-1:2010

Material Condition	Wall Thickness *t*	Tensile Strength R_m	0,2% proof strength $R_{p0,2}$	Elongation *A*	Hardness	
	Max. mm	Min. MPA	MPa	Min. %	HV	HBW
R200	20	200	Max. 110	40	-	-
H040	20	-	-	-	40 – 65	35 – 60
R250	3 – 10	250	Min. 150	15 - 30	-	-
H070	10	-	-	-	70 – 100	65 – 95
R290	5	290	Min. 250	3	-	-
H095	5	-	-	-	95 – 120	90 – 115

*** Information values only;**

Max Allowable Pressure for straight lengths: EN 14276:2020

External diameter (mm)	9,52	12,70	15,87	19,05	22,22	28,57	34,92	41,27	53,97	66,67	79,37	92,07	104,77
Wall Thickness (mm)	0,76	0,89	1,02	1,07	1,14	1,27	1,40	1,52	1,78	2,03	2,29	2,54	2,79
Maximum Allowable Pressure (bar)	105	87	81	70	65	56	49	45	40	37	35	33	32

*** Information values only; The values of maximum allowable pressure refer to the material condition R200. A safety factor of 3.0 is used.**

Physical properties:

Density (20 °C)	Solidification range	Electrical conductivity	Thermal conductivity (20 °C)	Thermal expansion (20 - 300 °C)	Annealing temperature	E – modulus (20 °C)
g/cm³	°C	%IACS	W/m K	µm m^{-1} K^{-1}	ºC	N / mm²
8,94	1070	96 – 100	305	17	-	110.000

Properties and information's (3 Excellent; 2 Good; 1 Poor/not recommendable)[1]

Machinability (Zerspanbarkeitsindex): 20*
*(CuZn39Pb3 = 100)

Forming Methods:

Hot Formability:	2
Cold Formability:	3

Corrosion resistance:

Atmosphere:	2
Waters and alkaline:	2
Acids, Ammonia, Seawater:	1

Joining Methods:

Soldering:	3
Brazing:	2
Oxy-acetylene welding:	1
Gas-shielded arc welding:	1
TIG welding:	1
MIG welding:	1
Spot/seam welding	1
Butt welding	2
Gluing/adhesion:	2

Surface Treatment:

Polishing:	
Mechanical:	2
Electrolytic/chemical:	3
Galvanizing:	3
Hot Dipping:	3

[1]**Information extracted from Kupferverband;**

Tolerances for Tubes for Air Conditioning and Refrigeration of CW024A

Dimensions: EN 12735-1:2010*
Tolerances on outside diameter

Nominal diameter *d* (mm)	**Tolerances on nominal diameter (mm)**		
	Applicable to mean diameter (all material conditions)	Applicable to any diameter	
		R290 (hard)	R250 (half hard)
3 ≤ d ≤ 18	± 0,04	± 0,04	± 0,09
18 < d ≤ 28	± 0,05	± 0,06	± 0,10
28 ≤ d ≤ 54	± 0,06	± 0,07	± 0,11
54 ≤ d ≤ 76,1	± 0,07	± 0,010	± 0,15
76,1 ≤ d ≤ 88,9	± 0,07	± 0,15	± 0,20
88,9 ≤ d ≤ 108	± 0,07	± 0,20	± 0,30
108 ≤ d ≤ 133	± 0,20	± 0,70	-

* Values are referred from Table 3 of EN 12735-1:2010

Dimensions: EN 12735-1:2010*
Tolerances on wall thickness

Nominal outside diameter *d* (mm)	Tolerances on wall thickness *e*	
	e < 1 mm %	*e* ≥ 1 mm %
< 18	± 10	± 13
≥ 18	± 10	± 15*

*±10% for R250 (half hard) tubes of 35, 42 and 54 mm diameter, with wall thickness of 1,2 mm.

* Values are referred from Table 4 of EN 12735-1:2010

Dimensions: EN 12735-1:2010*
Tolerances on length

The lengths shall be equal to or greater than those ordered.

* Values are referred from Section 6.3.5 of EN 12735-1:2010