

# Technical characteristics

## COPPER SHEETS FOR ELECTRICAL APPLICATIONS

Designations		Nominal thickness $t^a$	Hardness HV		Tensile Strength $R_m$		Proof stress of 0.2% $R_{p0.2}$		Elongation				
									for thicknesses of 0,1 mm up to and including 2.5 mm		A		
Material Symbolic	Numerical	Metallurgical State	mm		N/mm <sup>2</sup>		N/mm <sup>2</sup>		% min.	% min.			
			from	up to and including	min.	max	min.	max					
		M	10	25	Rough Lamination								
Cu-ETP <sup>b</sup> Cu-FRCH <sup>b</sup> Cu-OF CuAg0.10 <sup>b</sup> CuAg0.10 <sup>b</sup> CuAg0.10(OF) Cu-PHC Cu-HCP	CW004A <sup>b</sup> CW005A <sup>b</sup> CW008A CW013A <sup>b</sup> CW016A CW019A CW020A CW021A		0,10	5	40	65	-	-	-	-	-	-	
						-	-	220	260	-	(140)	33	42
				0,20	10	40	65	-	-	-	-	-	-
						-	-	200	250	-	(100)	-	42
				0,10	10	65	95	-	-	-	-	-	-
						-	-	240	300	180	-	8	15
				0,10	10	90	110	-	-	-	-	-	-
						-	-	290	360	250	-	4	6
				0,10	2	110	-	-	-	-	-	-	-
						-	-	360	-	320	-	2	-
		NOTE 1 – 1 N/mm <sup>2</sup> equivalent to 1 Mpa											
		NOTE 2 – The numbers in brackets are not requisites for this norm, they are given only for informative purposes.											
<sup>a</sup> For thicknesses inferior to 0.10 mm, mechanical properties must be agreed on between client and supplier.													
<sup>b</sup> For Cu-ETP (CW004A), Cu-FRCH (CW005A) and CuAg0.10 (CW013A) with thicknesses included between 0.10 mm up to and including 0.20 mm, the following values must be applied:													
$R_m$ min. 200N/mm <sup>2</sup> and $A_{50\text{ mm}}$ min. 28%.													

## COPPER SHEETS FOR GENERAL PURPOSES

Designations		Nominal thickness		Tensile Strength $R_m$		Proof stress of 0.2% $R_{p0.2}$	Elongation		Hardness HV		Grain size		
Material		mm		N/mm <sup>2</sup>			$A_{50\text{ mm}}$ for thicknesses up to 2.5mm inc.	A for thicknesses greater than 2.5mm	min.	max.	min.	max.	
Symbolic	Numerical	Metallurgical State	from	up to and including	min.	max.	N/mm <sup>2</sup>	% min.	% min.	min.	max.	min.	max.
		R200	greater than 5		200	250	(max. 100)	–	42	–	–	–	–
		H040			–	–	–	–	–	40	65	–	–
		R220	0,2	5	220	260	(max.140)	33	42	–	–	–	–
		H040			–	–	–	–	–	–	40	65	–
Cu-ETP Cu-FRTP Cu-OF Cu-DLP Cu-DHP	CW004A CW006A CW008A CW023A CW024A	R240	0,2	15	240	300	(min. 180)	8	16	–	–	–	–
		H065			–	–	–	–	–	65	95	–	–
		R290	0,2	15	290	360	(min. 250)	4	6	–	–	–	–
		H090			–	–	–	–	–	90	110	–	–
		R360	0,2	2	360	–	(min. 320)	2	–	–	–	–	–
		H110			–	–	–	–	–	110	–	–	–