

**CEM-1 UPGRADED COPPER-CLAD LAMINATE**
**COBRISOL 714**
**DESCRIPTION**

NEMA CEM-1 UL-V0 paper-glass epoxy composite. It can be processed by both punching and drilling, and is especially suitable for PTS (plating through silver), carbon ink printing, and hot air levelling. Good thermal resistance, outstanding low z-expansion, and improved punching performance, and hole quality. The base laminate complies to IEC-249-2-9 FVO.

PROPERTIES (1,5 mm / 35 µm Cu)		TEST CONDITIONS	UNITS	TYPICAL VALUES
Flammability ul-94	S <sub>x</sub> /x <sub>max</sub>	A	sec	44/8
	Class			V-0
Time to blister at 260°C		A	sec	> 120
Peel strength, after heat shock 10 sec/260°C		A	N/mm	2.0
Pull-of strength		A	N	200
Water absorption		D-24/23	mg	11
Flexural strength,	Lengthwise	A	Mpa	320
	Crosswise	A	Mpa	270
Surface resistance after damp heat and recovery		C96/40/92	M?	2,0E+06
Volume resistivity after damp heat and recovery		C96/40/92	M?.m	3,0E+06
Relative permittivity after damp heat and recovery, 1MHz		C96/40/92	-	4,14
Dissipation factor after damp hat and recovery, 1MHz		C96/40/92	-	0,026
Corrosion at the edges				A/B 1,2
Punchability DIN 53488 at 25°C		A		0,5/0,5
Bow and twist, 1.5 mm (etched)		20"/245	%	0.5
Punching force, 1.3 mm punch diameter		A	N/mm thick	480
Stripping force, 1.3 mm punch diameter		A	N/mm thick	175
Dimensional stability,	Lengthwise	E-30"/150	ppm	-350
	Crosswise	E-30"/150	ppm	-400
Comparative tracking index (CTI) (1)	Copper Side	A	V	300
	Material Side	A	V	300
Resistance to measing, according IPC-650		D0,5/120+30"/260	-	Pass
Maximum operating temperature			°C	130

- (1) Testing according IEC-112. Guaranteed values for material "as received", properly etched and rinsed.  
Other tests according IEC-249-1

The data is based on typical values of standard production and should be considered as general information. Our company reserves the right to future changes. It is the responsibility of the user to ensure that the product complies with his requirements.

**AVAILABILITY**

Standard sheet sizes, mm:                      2144 x 1160                      1070 x 1160  
    2540 x 1070                      1270 x 1070  
    2760 x 1270 (only SS)      920 x 1270  
 Upon request                                        2050 x 1060                      1025 x 1060  
 Tolerance:    +5/-0mm  
 Squareness:                                        3mm max., as differential between diagonal measurements  
**Standard size tolerance in cut panels:**    + 0.3mm  
 Also available in cut to size, and edge milled panels.  
**Material marked by red logo:**                VR  
**Colour: White**

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