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Capability & Tolerance for Flex-PC & Rigid-Flex Manufacturing

Seq	Item	Process Capability	
1	Layer count	1-16 layer (contain of Rigid-Flex PCB)	
2	Base material	PI; PET (12.5um-125um)	
3	Copper foil	ED; RA	
4	Copper thickness	12um, 18um, 35um, 70um	
5	Scope of flex products	Single-sided FPC; Double-sided FPC; Multilayer FPC; Aluminum substrate; Copper substrate; Single-sided hollowed-out FPC (Sculptured Flex boards); Double-sided hollowed-out FPC (Sculptured Flex boards)	
6	Max finished size	340mm ×500mm (Whole roll: 13mm × 30m)	
7	Min finished size	6mm × 12mm	
8	Finished board thickness	0.075mm - 4.0mm	
9	Finished board thickness tolerance	±0.01mm	
10	Min line width / spacing	Single-sided	0.050mm (2mil)
		Double sided and Multilayer	0.075mm (3mil)
11	Min drill size	0.2mm (8mil)	
12	Max drill size	6.5mm	
13	Min spacing from line to pad	0.1mm (4mil)	
14	Min spacing from line to edge	Steel die	±0.07mm
		Die cut	±0.2mm



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15	Dimension tolerance	Line width	±0.03mm
		Hole size tolerance	±0.05mm
		Hole location tolerance	±0.05mm
		Outline tolerance	±0.1mm
		Etching tolerance	±0.25 mil
16	Tolerance from conductive to outline		±0.075mm
17	Tolerance for exposure and alignment		±0.05mm (2mil)
18	Tolerance for reinforcing (lay up stiffener) and alignment		< 0.10mm (4mil)
19	Tolerance of Inner against outerlayer		±0.05mm (2mil)
20	Solder mask	Liquid Photoimageable solder mask ink; Lamination coverlay	
21	Surface treatment	OSP; ENIG; Ni/Au Plating; HASL (lead free); Pure-tin plating; Immersion Tin	
22	Withstanding bending times		>150,000 cycles
23	Insulation resistance		1000 MΩ
24	Withstanding voltage		5 KV
25	Peeling strength		1.0Kg f/cm (PI); 1.2kg f/cm (PET)
26	Soldering strength		280°C/10 sec
27	Flammability		94V-0

Flex board thickness

Layer	Finished thickness (thinnest)	Finished thickness (thickest)	Finished thickness (standard)
1 layer	2.4mil (0.06mm)	12mil (0.3mm)	6mil (0.15mm)
2 layer	4mil (0.1mm)	15.7mil (0.4mm)	8mil (0.2mm)
4 layer	10mil (0.25mm)	19.7mil (0.5mm)	12mil (0.3mm)
6 layer	15.7mil (0.4mm)	27.6mil (0.7mm)	17.7mil (0.45mm)
8 layer	19.7mil (0.5mm)	31.5mil (0.8mm)	21.7mil (0.55mm)