



Our Capabilities

CATEGORY	SUB-CATEGORY	ITEM	IN-HOUSE	SUB-CONTRACT	UNITS	AVAILABILITY		COMMENTS
						DEVELOPMENT/ LOW VOLUME	MEDIUM/ HIGH VOLUME	
DESIGN & CAM	Design	SolidWorks 3D CAD	•					
		AutoCAD	•					
	CAM	Tibor Darvas Planmaster	•					
		Frontline Genflex	•					
		Altium Designer	•					
PRODUCT RANGE	Flexible Circuits	Single layer, single-side access	•			•	•	
		Single layer, double-side access	•			•	•	
		Double-layer, non pth	•			•	•	
		Double-layer, pth	•			•	•	
		Multilayer pth	•			•	•	
	Sculptured Circuits	Sculptured jumpers	•			•	•	
		Sculptured flex circuits	•			•	•	
		Surface mount interconnects	•			•	•	
	Flex-Rigid Circuits	Surface-bonded	•			•	•	
		Sandwich	•			•	•	
		Regal-Flex	•			•	•	
	Local Reinforcement	Stiffeners (additional coverlay material)	•			•	•	
		Rigidisers (unclad rigid backers)	•			•	•	
			Moulded materials					
			Assembly carriers					
			Heatsinks/Planes	•			•	•
			Anti wear strips	•			•	•
			Transfer tapes	•			•	•
			Damping materials	•			•	•
		Hybrid Structures	Bonded and through plated combinations	•			•	•
	Assembly	SMT	•			•	•	

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PRODUCT RANGE contd	Assembly contd.	BGA	•			•		
		Pin in hole	•			•	•	
		Brazed pins	•			•	•	
		Soldered pins	•			•	•	
		Ribbon wire links	•			•		
		Rivets/Eyelets	•			•		
		Oddform	•			•	•	
		Conformal coating	•			•	•	
		Backpotting and encapsulation	•			•	•	
		Flex to ceramic	•			•		
MECHANICAL	Working Area (Standard Panel)	24" x 18" (610mm x 457mm) panel max	•		mm	750 x 457 #	560 x 406	# Excluding release and process test coupons
		18" x 12" (457mm x 305mm) panel max	•		mm	407 x 356	407 x 356	Typical working area including release and process test coupons
		24" x 24" (610mm x 610mm) block max	•		mm	570 x 570	570 x 570	Reel to reel imaging only, (Excluding release /process test coupons & max bond areas)
	Finished Thickness	Rigid max	•		mm	6.5	6.5	
		Flexible min	•		mm	0.03	0.04	Single layer, not protected
	Panel Aspect Ratio	Thickness to min hole size	•			12:1	8:1	0.2mm upwards finished hole size
	Number of Layers	Flexible bonded max	•			8	8	Actual limit is constrained only by the required flexibility of the finished circuit
		Flexible selectively unbonded max	•			10	10	
		Flex-Rigid max	•			30	16	
	Multilayer Bonding Configurations	Flexible only	•			•	•	
		Rigid-flex-rigid sandwich	•			•	•	
		Surface-bonded flex-rigid	•			•	•	
		Sculptured multilayer	•			•	•	
		Sequential	•			•	•	
	Hole sizes	Mechanically drilled, PTH min	•		mm	0.15	0.2	

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MECHANICAL contd.	Hole sizes contd.	Mechanically drilled non-PTH max	•		mm	6.40	6.4	
		Laser drilled, PTH min	•		mm	0.03	0.05	Dependant upon material structure and aspect ratio
	Conductor Line Width	Minimum line width	•		mm	0.050	0.075	Figure refer to 0.5oz copper
		SFC Standard 250um copper	•		mm	0.200	0.300	Standard SFC etched feature tolerance is +/-0.13mm
		Minimum compensation at CAM from design	•		mm	0.025	0.025	Per ounce per feature edge - Flex circuits. Exceptions by discussion
			•		mm	0.025	0.025	General per ounce per feature edge - Sculptured Flex circuits. Teknoflex recommend all Sculptured flex designs are reviewed by our Applications engineering team to optimise these feature per design & copper thickness at the earliest opportunity in the project.
	Conductor Space Width	Minimum gap width	•		mm	0.075	0.125	Note variation with copper weight below. Figures stated refer to 0.5oz copper.
		Minimum compensation at CAM from design	•		mm	0.025	0.025	Per ounce per feature edge - Flex circuits
			•		mm	0.015	0.015	Per ounce per feature edge - Sculptured Flex circuits
	Conductor thickness (Copper)	Min	•		µm	2	5	
		Max	•		µm	500	500	
	Copper Thickness (Silver)	Typical	•		µm	12	12	
	Annular Ring	Solderable land	•		mm	0.05	0.05	IPC-6013A requirement
	Drilling, Positional Accuracy	Mechanically drilled	•		mm	±0.05	±0.05	
		Laser			mm	±0.025	±0.025	
	Drilling, Hole Size Accuracy	General	•		mm	±0.025	±0.025	
	Profile Cutting Accuracy	Flexible materials, steel rule die	•		mm	±0.25	±0.4	
		Flexible materials, punch and die set	•		mm	±0.05	±0.125	

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MECHANICAL contd.	Profile Cutting Accuracy contd.	Flexible materials, laser			mm	±0.025	±0.05	
		Rigid and Flex-Rigid, CNC routing	•		mm	±0.2	±0.2	Allowing for machine, tooling feature & material movements
		Controlled depth	•		mm	0.02	0.02	Controlled depth from top surface & capability dependant on design
	Cut Feature Dimensions	Steel rule minimum (slit)	•		mm	0	0	
		Steel rule minimum (slot)	•		mm	2.0	2.0	
		Punch and die set minimum (slot)	•		mm	0.5	0.5	
		Laser minimum (slot)	•		mm	0.03	0.03	
		CNC routed slot	•		mm	0.5	0.5	Depending upon material
	Print Registration Accuracy	Screen Print	•		mm	±0.075	±0.10	
		Photoimagined	•		mm	±0.05	±0.05	
MATERIALS	Base Materials	Polyimide	•			•	•	
		PET (Polyester)	•			•	•	
		PEN	•			•	•	
		FEP	•			•		
		FEP/PI composite	•					
		Epoxide woven glass	•			•	•	
		PTFE	•			•	•	
		PI Glass	•			•		
	Conductor Materials	Copper foil HDED	•			•	•	
		Copper foil RA	•			•	•	
		Copper foil LTA	•			•	•	
		Screen printed silver polymer	•			•	•	
		Screen printed carbon polymer	•			•	•	
		Screen printed silver/carbon polymer	•			•		
		Aluminium	•			•		
	Adhesive Systems	Modified acrylic cast film	•			•	•	
		Modified epoxy cast film	•			•	•	

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MATERIALS contd.	Adhesive Systems contd.	Epoxy pre-preg	•			•	•	
		Polyimide cast film	•			•	•	
		Polyimide pre-preg	•			•	•	
		Acrylic pressure-sensitive	•			•	•	
		Cross linking polyester	•			•	•	
		Polyurethane	•			•	•	
		Adhesiveless - PI, FEP & composites	•			•	•	
	Coverlay Dielectric Materials	Polyimide	•			•	•	
		Polyester	•			•	•	
		PEN	•			•	•	
		PI/FEP composite	•			•		
	Covercoat Materials	Solder resist, screen printed	•			•	•	
		Solder resist, photoimageable	•			•	•	
		Peelable resist	•			•	•	
		Hydrophobic coatings	•			•	•	
	Metallic Finishes	Bare copper	•			•	•	
		HASL SnPb	•			•	•	
		HASL SAC		•				
		Electroplated SnPb	•			•	•	
		Electroplated matt Sn	•			•	•	
		Electroplated Bright Sn				•	•	
		ENIG		•		•	•	
		Electrolytic Nickel/Gold		•		•	•	
		Electrolytic hard Gold		•		•	•	
		OSP Entek 56	•			•	•	
		Immersion silver		•		•	•	
		Immersion tin		•		•	•	Whisker resistant tin/silver alloy
		Electrolytic Bright Tin		•		•	•	
		Copper Edge plating (Flex)	•			•	•	

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MATERIALS contd.	Metallic Finishes contd.	Mixed finished		•		•	•	
	Heatsinks	Thermally bonded	•			•	•	
		PSA bonded	•			•	•	
	Marking Ink	Two-part epoxy	•			•	•	
INSPECTION & TESTING	Bare Board Shorts & Opens	Bed of nails	•			•	•	Double sided double density
		Flying probe	•			•	•	
		Harness	•			•	•	
		In circuit	•			•	•	Inductance, Capacitance & resistance
		Functional	•			•	•	By agreement depending upon requirements
	Test Voltage	Min	•		VDC	30	30	
		Max	•		VDC	1000	1000	
		Max	•		VAC	1800	1800	
		Programmable Continuity Range	•		Ω	0.3-8000	0.3-8000	
		HiPot	•		V/s			Including leakage current testing
		Insulation Resistance	•		MΩ	1200	1200	Programmable up to maximum stated
		Resistance	•		mΩ	10	10	Kelvin probe measurement
	AOI	Flex	•			•	•	
		FRML	•			•	•	
		SFC	•			•		Slide 2
ASSEMBLY	Smallest Component Size	SMT. BGA. QFP etc.	•			1005	1005	
	Wave soldering		•			•	•	
	Manual assembly		•			•	•	
	Tin/Lead		•			•	•	
	RoHS		•			•	•	
	Potting/Encapsulation		•			•	•	
	AOI		•			•	•	

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ASSEMBLY contd.	Minimum Brazed Pin Pitch	Pinflex	•		mm	1.9	1.9	
	Minimum Pitch	BGA			mm	•	0.6	
LABORATORY	Optical Microscopy		•					
	Microsection		•					
	Chemical Analysis		•					
	Flexural Test		•					
	Peel Test		•					
	Thermal Shock		•					
	Solderability		•					
	Accelerated Ageing		•					
	Porosity		•					
	Environmental							
	X-ray		•					
	Electron Microscopy							
	Ionic Surface Contamination		•					