

# Choose ELMATICA® as your supplier of Flex/Flex-Rigid Printed Circuits

Elmatica delivers Flexible printed circuits, Flex-Rigid, HDI and Multilayer Flexible PCBs in all technologies to customers in a various of industries like Energy, Defence, Medical, Civil Aviation, Automotive, Automation and Telecommunication.

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ELMATICA is a highly qualified technology center with deep knowledge in technical design and DFM problem solving, on Flex and Flex-Rigid printed circuits. We offer valuable technical advice, efficient design and cost-optimization. Established in 1971, our long presence in the market gives us a solid experience to help you solve your challenges, and ensure the optimal Printed Circuit for you.

1

**FLEX/FLEX-RIGID PRINT**  
delivered from about 10 days,  
depending on complexity  
and volume.

2

**QUICK REPLY** on price, delivery  
and technical consulting.

3

Highly qualified **TECHNICAL,  
COMMERCIAL, DFM ADVICE**  
and problem solving.

4

We offer **TAILORED SEMINARS AND  
WORKSHOPS** within designing,  
production and cost optimization of  
Flex and Flex-Rigid PCB.

5

ELMATICA was established in 1971  
and is the **WORLD'S MOST  
EXPERIENCED BROKER** of printed  
circuits. Delivering 22 million  
circuits a year.

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# Why choose Flexible Circuits?

There are multiple advantages by choosing flexible circuits. Flexible circuits are all tailored to fit a certain demand, and designed thereafter. They also have extremely good thermal management, and can solve problems with packaging.

### LOWER THE ASSEMBLY COSTS

Testing of circuits and elimination of connectors and solder joint prior to assembly, reduces the costs.

### SOLVE WEIGHT AND SPACE ISSUES

Thin materials and less wires might reduce the weight.

### THERMAL MANAGEMENT

Flexible circuits are more resistant to heat than other circuits.

### SOLVE PACKAGING PROBLEMS

The flexibility of the circuit also enables a packaging size reduction, and simplifies the installation.

### INCREASED DESIGN POSSIBILITIES

Designers experience an increase of design possibilities when using flexible circuits.

### DYNAMIC FLEXIBLE

The thin materials opens up to multiple possibilities for flexible applications.

#### IPC 6013 Type 1

- > Single conductive layer
- > Insulating material one or both sides
- > Access to conductors on one or both sides

#### IPC-6013 Type 2

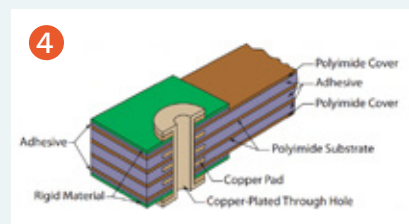
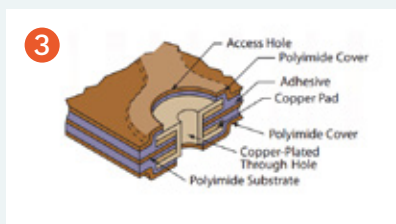
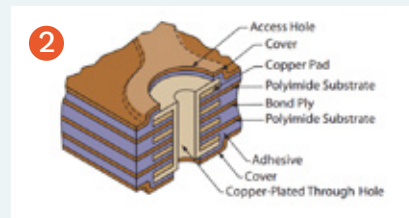
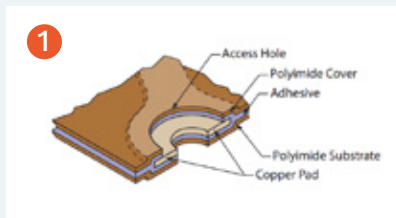
- > Two conductive layers with flexible insulating film between them
- > Plated interconnect holes
- > Insulating cover material on one or both sides
- > Access to conductors one or both sides

#### IPC 6013 Type 3

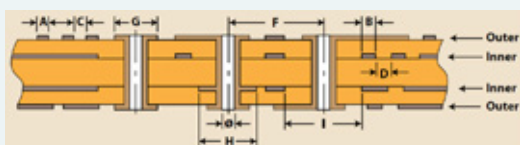
- > Three or more conductive layers
- > Flexible insulating material between layers
- > Plated interconnect holes
- > Insulating cover material one or both sides
- > Access to conductors one or both sides

#### IPC 6013 Type 4

- > Two or more conductive layers
- > Insulating material may be rigid or flexible
- > Plated interconnect holes through flex and rigid materials
- > Access to conductors one or both sides through cover material or SMOBC



## General FLEX PCB Design Guideline



ATTRIBUTE	DETAIL	NOMINAL	
		MINIMUM	PREFERRED
Track Width Outer Layers	A	0.075mm	≥ 0.100mm
Track Width - Inner Layers *	B	0.065mm	≥ 0.085mm
Track to track Space - Outer Layers	C	0.085mm	≥ 0.100mm
Track to track Space - Inner Layers *	D	0.075mm	≥ 0.100mm
PTH Diameter - Drilled	Ø	0.150mm	0.200mm
PTH to PTH pitch - Center to Center	F	Ø+ 0.200mm	Ø+ 0.250mm
PTH Pad Diameter - Outer Layer	G	Ø+ 0.300mm	Ø+ 0.400mm
PTH Internal Land Dia - Inner Layers	H	Ø+ 0.300mm	Ø+ 0.400mm
PTH Clearance Dia - Inner Layers	I	Ø+ 0.350mm	Ø+ 0.400mm

\* Inner Layers, Etch only, Not plated. If plated, use values as Outer Layers.