

Flex and rigid flex specification standards

GLENAIR FLEX
AND RIGID-FLEX

IPC 6012/6013 Class I, II, III,
Types 1-4 Certified Production

Manufacturing Formats and Specifications

The following tables describe, in brief, Glenair flex and rigid-flex manufacturing formats and specifications. Glenair recommends commercial customers specify IPC-6012/6013 standards of workmanship which are fully supported by Glenair. Military customers may alternatively cite specifications IAW MIL-PRF-31032.

FLEX ASSEMBLIES	
Design Formats	PADS • PADS PRO • Pro E / Creo • SolidWorks • Autodesk Inventor • CAM 350 • Altium • Valor • POLAR • XPedition
Manufacturing Formats	DXF • Gerber • ODB++ • IPC 2581
Layer Count	Max typ. up to 8
Termination	Thru hole • Straddle-mount • ZIF • Surface-mount
Conductor Width/Space	Lines: .003" • Spacing: .003" (dependent on copper weight)
Bend Radius (military)	Single Metal Layer: 4–6X overall flex thickness • Double Metal Layers: 6–10X overall flex thickness • Multi Layer Metal: 12–15X overall flex thickness
Materials / Tg	Substrate: DuPont™ Kapton® adhesive and adhesiveless -60°C to 125°C, Panasonic Felios Cover layer: DuPont™ Kapton®, Panasonic Felios Stiffener: FR4 or DuPont™ Kapton® (metal stiffeners available upon request) Conductor: Copper, Constantan High-temperature materials and more available
Surface Finish	ENIG • HASL • Immersion Tin and Silver • Soft and Hard Gold
Specs and Quality Management	IPC-6013 Class I, II, III, types 1-3 • ISO 9001, AS 9100J-STD-001 Space
RIGID-FLEX ASSEMBLIES	
Design Formats	PADS • PADS PRO • Pro E / Creo • SolidWorks • Autodesk Inventor • CAM 350 • Altium • Valor • POLAR • XPedition
Manufacturing Formats	DXF • Gerber • ODB++ • IPC 2581
Max Panel Thickness	Range of thicknesses from .010" to as thick as .250"
Layer Count	27 +
Via Technology	Blind • Thru hole • Filled (conductive and non-conductive)
Conductor Width/Space	Lines: .003" • Spacing: .003" (dependent on copper weight)
Materials / Tg	Substrate: Nelco 4000, Rogers, Megtron, Polyimide, and more
Surface Finish	ENIG • HASL • Immersion Tin and Silver • Soft and Hard Gold
Specs and Quality Management	IPC-6013 Class I, II, III, type 4 • ISO 9001, AS 9100, J-STD-001 Space

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