



PCBS FOR THE SPACE SECTOR

An interview with Jeremy Brook

Marketing & Customer Service Director at Amphenol Invotec -
discussing the company's growth in the international Space sector

Q. How important is the Space sector to Amphenol Invotec?

- A.** The Space sector is certainly significant for us and fits very well with our scope of being recognized for supplying complex, high performance PCBs to high reliability markets that also includes Aerospace & Defence, Communications, Automotive, Rail and Power industries.

Sales to the Space sector now represent greater than 10% of our turnover. To look at it another way, we have supplied product to over 50 different global customers.

Q. What types of printed circuit boards do you manufacture for the Space industry?

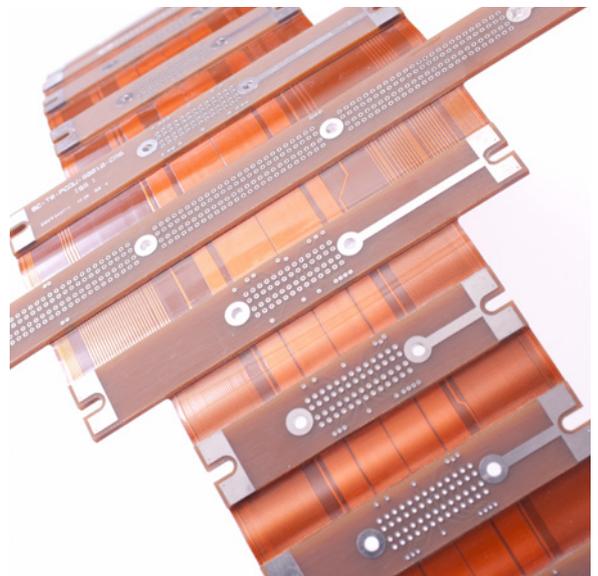
- A.** We offer a comprehensive range of PCB technologies, supported by a wealth of "design for manufacture" expertise, all of which is supported by a detailed working knowledge of space industry standards. The latter point is certainly very relevant as international space standards do have a key role in defining both what the customer can have and in turn what we are approved to offer.

In Europe, the key standard for us falls under ESA (European Space Agency) and for this we are qualified according to ECSS-Q-ST-70-60C in accordance with:

- sequential rigid polyimide
- sequential rigid-flex polyimide

Whilst this is a major part of our scope, it is not the whole story and we do supply a broader range of both technologies and materials into other international standards. In broad terms non-ESA programmes and PCB technologies and materials are also supported according to:

- IPC-6012D
- IPC-6012DS
- IPC-6013D





In terms of end use application, again this is very diverse; from the satellites themselves and their payloads, to the launchers and ground infrastructure.

Q. Why do you think Amphenol Invotec is proving to be so successful in the Space sector?

A. Amphenol Invotec has been involved in the Space industry for more than 15 years and we understand what's required. We've supported some of the most important satellite programmes, for example Ariane V, Inmarsat-6, Gaia, Eutelsat Quantum, Eurostar E3000, ExoMars, EDRS-C and Meteosat (MTG). I could go on but that's probably enough to make the point!

Underpinning all this is the fact we have the right industry approvals. We have been an approved European Space Agency (ESA) supplier since 2014, and our qualifications cover both sequential rigid polyimide and sequential rigid-flex polyimide boards.

As an approved ESA supplier for nearly 6 years we participate alongside many of the key space prime OEMs in twice yearly SMT/PCB Working Group meetings. This gives us vital access to collaborate with policy makers and users, and we use this environment to address and help shape the ongoing and future needs of this sector.

Q. What space programmes are Amphenol Invotec currently working on?

A. We are seeing major investment in Space programmes from governments across the globe; from Europe to the USA, from India to China. But perhaps one of the most significant recent developments is the entry of commercial organisations into the Space industry. Amphenol Invotec is so well established as a key supplier to the Space industry that I can say we are always in discussions with the key players.

