



MATERION

CASE STUDY

ENABLING SPACE SATELLITE SUCCESS

Materion and
Synopta GmbH
Partner to Develop
Communications
Systems



SupremEX metal matrix composites are a durable replacement for aluminum, titanium, steel and other structural alloys and composites.

PROFILE:

Swiss-based Synopta GmbH develops and produces beam pointing mechanisms for space laser communication systems and advanced optical ground stations with adaptive optics.

CHALLENGE:

The Copernicus Earth Observation Project is a European Union program that monitors the changing conditions and general health of the planet. The initiative provides timely and accessible information about important terrestrial events such as global temperature changes and atmospheric pollution, deforestation and urbanization, melting of the polar ice-caps, changing sea levels and civil security.

At the core of Copernicus are the Sentinel, European Data Relay System (EDRS) and newly-launched ERDS-C satellites, which gather data and take high resolution pictures of relevant areas. In order to transmit the images, these satellites require a reliable, high-speed data link to send pictures down to Earth.

Synopta GmbH was tasked with developing and assembling elements of the high-speed data transmission technology. The system would require lightweight, high stiffness materials that can withstand the harsh environments associated with space exploration.

SOLUTION:

After studying various materials, Synopta selected Materion's AlBeMet® and SupremEX® metal matrix composites for use in critical parts of the satellites' Laser Communication Terminal.

“Both AlBeMet and SupremEX materials from Materion have a unique property set that enabled us to design and produce a lightweight, high precision system,” said Jens Kunde, General Manager, Synopta. “As we selected a material, low mass and high stiffness were priorities for us and these composites offered both.”

AlBeMet and SupremEX materials have been used successfully in space applications for over 60 years due to their unique properties, which include a high strength-to-weight ratio and stiffness.