ABSOLUT SYSTEM
INNOVATIVE CRYOGENIC SOLUTIONS

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Thermal Links

for observation satellites.

We develop, manufacture and qualify on-board thermal links for observation satellites. They physically link the cryogenic cooler to the application to be cooled (focal plane, detector, thermal screen, etc.).

Thermal links are based on a complex process of assembling strips of conductive materials:

- **High-purity aluminum**
- **OFHC copper (high purity)**
- **POG (Pyrolytic oriented graphite)**

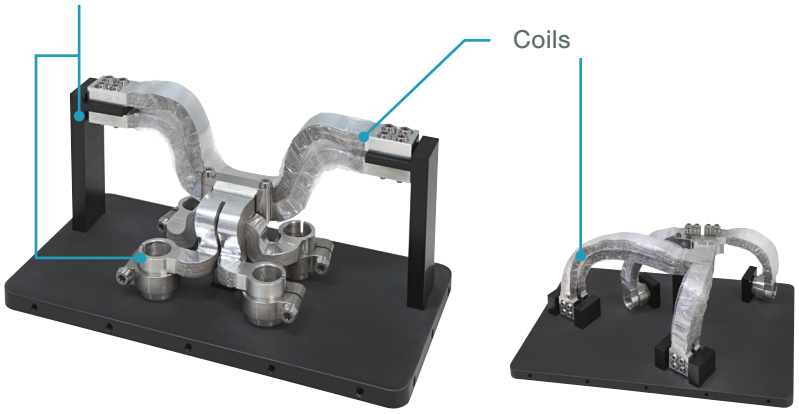
Thermal links are used to ensure **high conductive coupling between the coolers** (nominal and redundant) and **the detectors on the optical bench.** Thanks to the flexibility of the straps, they allow the accumulation of a 3-axis static bias (alignment of the detector and dynamic deflections during the flight phase).

The rigorous constraints of the space sector are met thanks to a reduced mass that allows us to remain within the reduced static and dynamic volume of the *Interface Requirement Document.*

- **Very high thermal conductivity**
- **Reduced mass**
- **Compact footprint**
- **Meets space requirements (cleanliness / durability)**
- **Micro-vibration filtering**
- **Flexibility**
- **Mechanical resistance to flight**
- **Particle and molecular cleanliness (detector proximity)**

Simplified design

Thermal contact zones



Thermal links in oriented pyrolytic graphite

Absolut System thermal links in flight

FCI and IRS	Third-generation Meteosat satellite (MTG)
IASI-NG instrument	MEtOp SG satellite
METImage instrument	EUMETSAT polar system satellite
NISP instrument	EUCLID space mission, mapping the dark universe
CO2M and LSTM	Copernicus

Technical Informations

The choice of conductive material for strip assemblies depends on the operating temperature:

	Temperatures	Mass	Flexibility	Cleanliness
Pure Aluminium	10 - 80 K	+	+	+ +
OFHC Copper	< 10 K	=	=	=
Oriented pyrolitic graphite	> 80 K	+ +	+ +	+

Cleanliness is a very important factor given the proximity of the detector: solutions have been developed for the various technologies to ensure cleanliness levels below 50 PPM.

All thermal links manufactured by Absolut System **comply with the cleanliness requirements imposed by the proximity of the detector**, and survive launch loads and thermal cycles without performance degradation.

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