# Status of ultra-long life coolers at AIM

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## ABSTRACT

Since 2007, AIM has been developing technologies for a substantial extension of cryocooler life times and reliability. On the compressor side, AIM designed Flexure Bearing Moving Magnet compressors featuring a contactless movement of the pistons inside the sleeve and the elimination of internal contamination potential. In parallel, a compact co-axial Pulse Tube coldfinger has been developed fitting into a standard ½"-inner dewar. The standard Stirling-expander has been replaced by a new expander made of a high performance one-piece plastic with less wear and a new pneumatic drive mechanism.
Combining these technologies on the on hand, AIM designs and delivers ultra-long life Pulse Tube Coolers for IR-detectors for space applications providing highest reliability with life times in excess of 100,000 hours and full in-orbit capability. On the other hand, AIM provides compact long life Stirling-Coolers including digital controller with life times of up to 50,000 hours to achieve lowest total cost of ownership.
This presentation will review the status of AIM's long life cryocoolers and gives an overview of its applications, qualification, life time testing and availability.

### KEYWORD LIST

Cryocooler, long life, Pulse Tube, Stirling