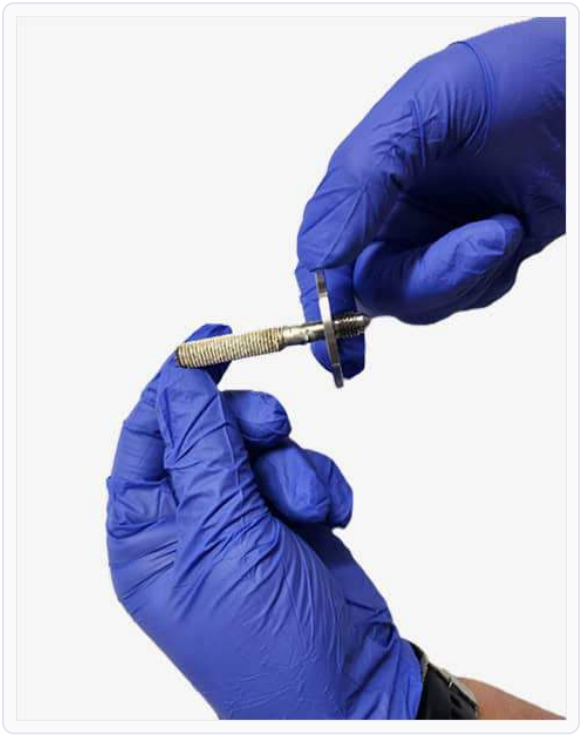
OJTC – Open-cycle Joule-Thomson Cryocooler

Highly reliable fast cool-down miniature JT cryocooler for IR detectors



OPERATING RANGE
77 K – 200 K

KEY ADVANTAGE
Ultra-Fast Cooldown / Miniature

TYPICAL PLATFORM
Airborne / Tactical

Overview & Technology

The OJTC is a miniature fast cool-down cryocooler, aiming for IR detectors. The absence of moving parts makes it vibration-free and highly reliable. Being compatible with various refrigerants, it can provide cooling temperatures between 77 K and 200 K within a few seconds only, with cooling power from tens of milliwatts to kilowatts. The OJTC can be fitted to various Dewars dimensions.

Cooling temperature: 77 – 200 K

The OJTC is suitable for various IR detectors, operating at different wavelengths.

Fast cool-down

The OJTC provides ultra-fast cool down of a few seconds only, for IR detector assemblies with heat capacity up to kilo-Joules.

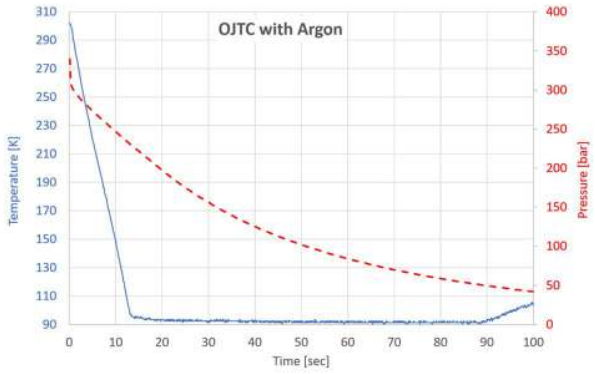
Miniaturization

Our home-made heat exchangers allow miniaturization and compatibility with a variety of Dewar dimensions.

Environmental conditions

The OJTC complies with MIL-STD 810.

Performance Characteristics



Technical Specifications

Parameter	Specification/Value	Notes
Operating Temperature Range	**77 K – 200 K**	Covers a variety of IR detectors
Steady-State Cooling Power	**< 5 W**	Can be adjusted to a specific need
Cool-Down Time	**> 5 sec**	Depends on the Dewar characteristics
Operating Pressure	**< 700 bar**	At normal room temperature
Ambient Temperature Range	**−40°C to +92°C**	Beyond MIL-STD tactical standard
Cold Head Weight	**8 to 100 g**	Varies by class

Target Applications

- ✓ **Fast cool down**
  Fast mission readiness
- ✓ **Limited cooling duration**
  Relatively short mission duration, meaning non 24/7 missions
- ✓ **System miniaturization**
  Miniature seekers and cameras

Compliance & Certifications

All CryoR coolers are engineered to rigorous defense and aerospace standards. Certified ISO 9001:2015.

ISO 9001:2015
Certified

Lead Times & Readiness

Configuration	Lead Time	Minimum Order
Prototypes	**20 weeks after receiving order**	5 units
High-Volume Production	**100 per month, 16 weeks after receiving order**	200+ units

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