Experts in Cryocooling

Actively Controlled JT Cooler 5,2 L40

Type: JTRA520L40

Code: K1000 001-001

The cooler is intended for use in IR applications but can be used also in other applications.

Le-tehnika's **Actively Controlled JT** cryocooler model was developed together with Diehl BGT Defence for cooling IR sensor of their IRIS-T missile. The main advantage of the ACC is its robust design, low sensitivity to impurities (compared to bellow type JT coolers) and reliability. The ACC can cool down and regulate at different cry stating temperatures depend on the settings, no limitations with boiling temperature. Stability of temperature is declared within 2K, but in normal conditions could be inside 1K.

- Reliable, actively regulated
- Temperature stability (±1,0K)
- Tc can be set according needs
- STAND BY mode possible
- Acoustically Silent
- Vibration Free
- Reduced System Weight

Cryogenic temperature
100 **K** can be achieved at ambient temperature from -54°C to 71°C at different attitudes

Operating gas:
Air,N2, Ar, Mixtures

The gas supply
must be of high quality.
(according to DEF STAN 59-96/3)

Main technical characteristics:

- The JTRA series automatically start regulating when the FPA reaches the set temperature.
- It is optimized for stabile regulation with different gases and long runtime
- The minicooler operates under military, aircraft and missile environments at ambient temperatures between -54°C and +71 °C
- Normal working pressures up to 420 bar (6000psi).
- Average cooling power during cool down between 5W and 10W
- Mass: <6gr

Temperature is controlled via feedback loop directly from the temperature sensor on the FPA. Electronic regulator could be part of the seeker electronic or supplied separately.

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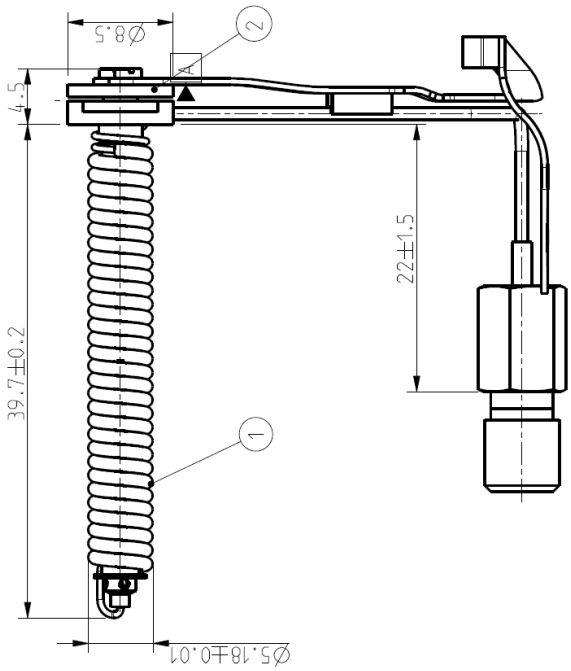
PERFORMANCE SPECIFICATIONS
(for an ambient temperature of 23 °C)

Typ. Run time with 0,15L bottle@340bar…..	>60min
Cooldown time to 100K (200J)	< 15 s
Maximum Input Power Required (during cooldown)	120 mW
Input Power during runtime…	60 mW
Operating Ambient temperature Range	- 54 °C to + 71 °C
Weight	< 7 gr
No. Of Cooldowns	> 600 (tested)
Life time …….	> 500h

Meets Environmental Conditions per MIL-STD-810D

Specifications are subject to change without notice

Dimensions:



Typical performance measurement of ACC with AIM test dewar and 0,15L bottle.

Temperature and pressure versus time for regulated JT minicooler

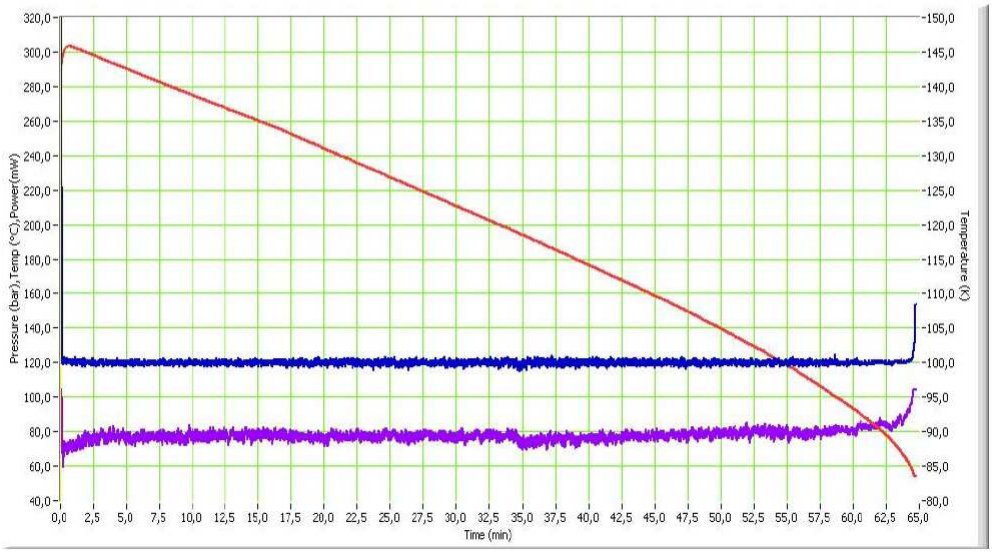
Measurement:1
Cooler SN:58
Test dewar:SN10028
Attitude:HORIZONTALNO
Pressure transd.-p0:M-135

p0=341,6bar Vb=0,15L
Tamb= 23°C

cooling time(140K)=6,0 s
cooling time(100K)=8,8 s
Th= 100,01 K
STD= 0,281 K
tdel= 64,6 min
Th max = 101,2 K
Th min = 99,4 K

Comments:

zajem: zajem podatkov v2.0 PCI
regul.: PWM for regulating revert ACC v3.3
meritev: Cryost AIM v 7.2d



The ACC dimensions can be adapted according customer request to suit specific needs.