

# Dual Flow Fast Cooldown Multilayer JT Cooler 11,2 L28

Type: JTDA112L28

Code: K1000 008-001

**NEW!!**

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



Le-tehnika's Dual Flow **Fast Cooldown multilayer JT** cryocooler model **JTDA112L28** was developed for fast cool down applications needed in nowadays big matrix FPA for cooling missile IR sensors.

- Fast cool down (<5s for 200J)
- Reliable , without bellow
- Temperature stability  $\pm 1K$
- Acoustically Silent
- Vibration Free
- Reduced System Weight

**Cryogenic temperature**

87 **K** can be achieved at ambient temperature from  $-40^{\circ}C$  to  $+87^{\circ}C$  at different attitudes

**Operating gas:** Argon

**Main technical characteristics:**

- The JTDA series automatically reduce gas flow when the FPA reaches the set temperature.
- It is optimized for fast cool down
- The minicooler operates under military, aircraft and missile environments at ambient temperatures  $-40^{\circ}C$  to  $+87^{\circ}C$
- Normal working pressure up to 500 bar

**The gas supply :**

Gas must be of high quality for high pressure high purity systems.

(according to DEF STAN 58-96/3)

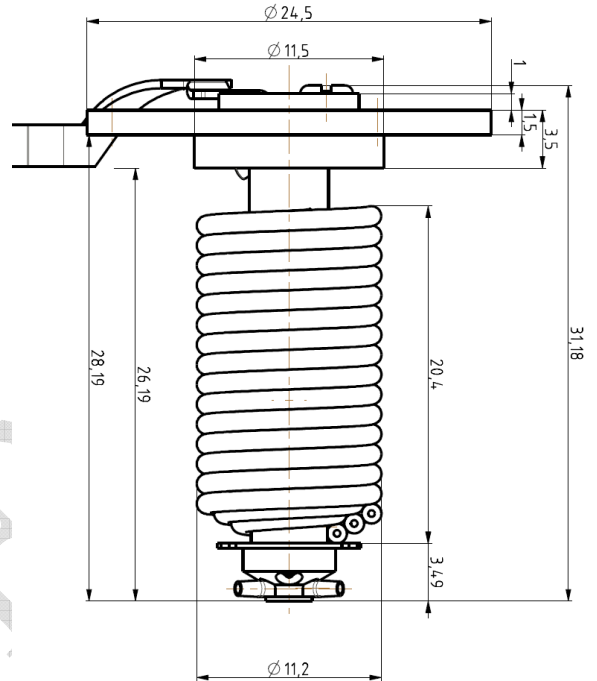
Temperature is controlled via feedback loop directly from the temperature sensor on the FPA. Electronic regulator could be part of the seeker electronic or supplied separately.

**PERFORMANCE SPECIFICATIONS**

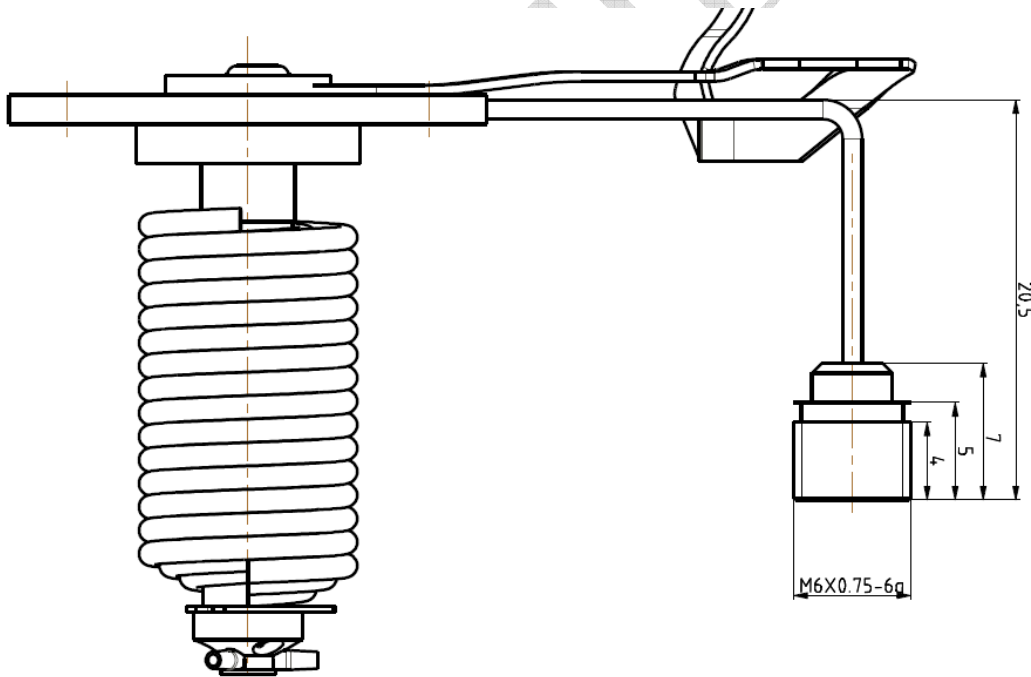
(for an ambient temperature of 23 °C )

Typ. Autonomy time with 20ccm bottle@20°C	>100s
Cooldown time to 100K @20°C (200J, p0>300bar)	< 5s
Maximum Input Power Required (during cooldown )	Max 150 mW
Input Power during runtime...	..0 mW
Operating Ambient temperature Range	-40°C to +87°C
Weight .....	< 15g
No. Of Cooldowns .....	>1000
Life time .....	> 1000h

**Dimensions:**

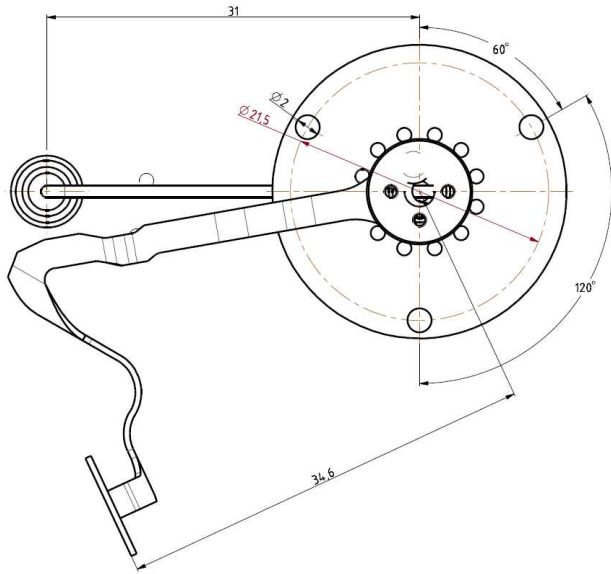


Meets Environmental Conditions per MIL-STD-810D



JT Cooler: Side View.

Connection pipe with the gas adapter and flat cable for electrical connection are shown just as possible solution and are subject of discussion. The same is with flange.

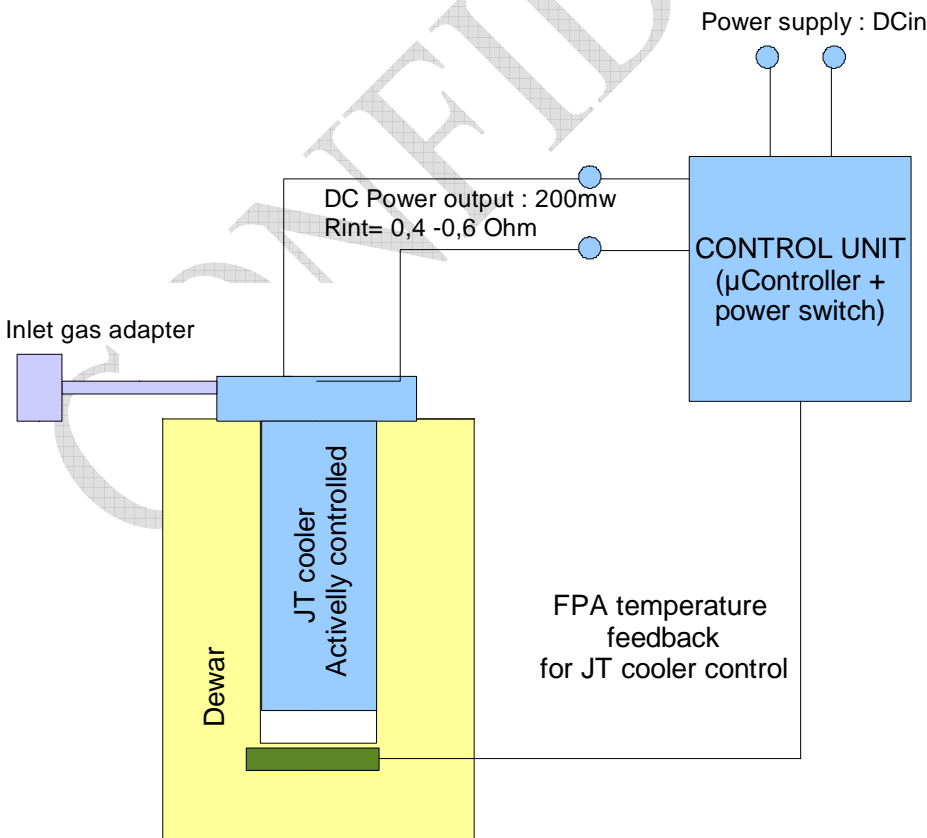


The JT cooler dimensions can be adapted according customer request to suit specific needs in the frame of requested technical performance, especially regarding the main flange design, the gas connector design and electrical power cable design.

JT Cooler: View from the top.

Specifications are subject to change without notice

Schematic of Actively controlled JT cooler connection diagram



In the particular case of Dual Flow JT cooler **JTDA112L28**, the regulation electronics is quite simple. Only power supply of few V and approx. 200mW (depend on configuration) is needed and transistor as a switch controlled by µcontroller, which opens the electrical current at the start and switch of the current when the sensor is cooled to preset temperature. The internal resistance of regulator inside the cooler is in the range from 0,4 to 0,6 Ohm.