



CRYOREFRIGERATOR K 100500 W

FEATURES

- + High cooling capacity 500 W
- + Cryogenic temperature 90 K
- + Cool-down time 30 minutes
- + Cold head vibration-free
- + Almost noiseless
- + Compact design
- + Maintenance-free

APPLICATIONS

- + Laser crystal cooling
- + High power laser amplifier
- + CEP stabilized laser system
- + Ti:Sapphire multi-millijoule, multi-kHz amplifier system
- + Quantum Cascade Laser
- + Cryopumping

COLD HEAD UNIT-FEATURES

- + Compact chamber design
- + Vibration-free
- + Orientation-independent operation
- + CFF-40- or KF-50-flange
- + Diamagnetic metal head
- + Extremely high heat conductivity

System Description

The K100500W is a compact high power recirculating cooling system for cryogenic high cooling capacity applications. Especially designed to work in compact chambers for high power laser systems, the closed-loop cooling system ensures maintenance-free operation. The K100500W consists of a compressor unit, a flexible coolant delivery line and a special cold head with a vacuum flange that directly connects a heat source such as a laser crystal assembly to a chamber in high power lasers. The cold head guarantees an absolutely ultra-compact vibration-free cold source inside chambers.

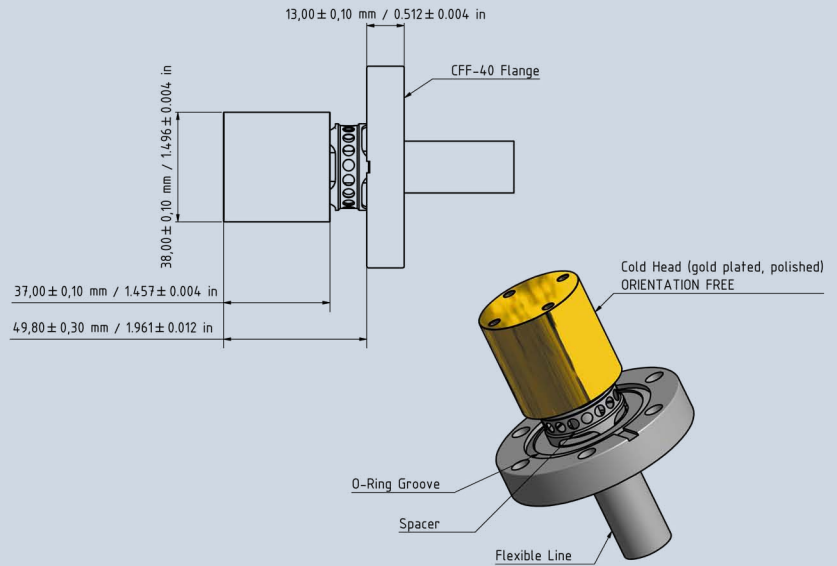
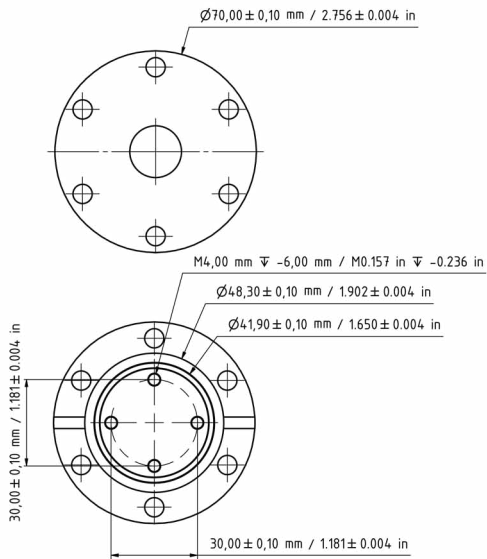
Compressor Unit

The compact portable water-cooled K100500W can be installed virtually anywhere and cooled down to its operating temperature just within 30 minutes. With the size of 0,82m (L) x 0,90m (W) x 0,58m (H) the compressor unit is suitable for small labs. Due to the cryogenic temperatures, new and advanced materials for solid state laser applications can be used. Moreover the K100500W is the best choice to ameliorate the beam quality of the laser system and to enable higher beam power. The repetition rate of the system can be increased and problems with the thermal lense can be solved.

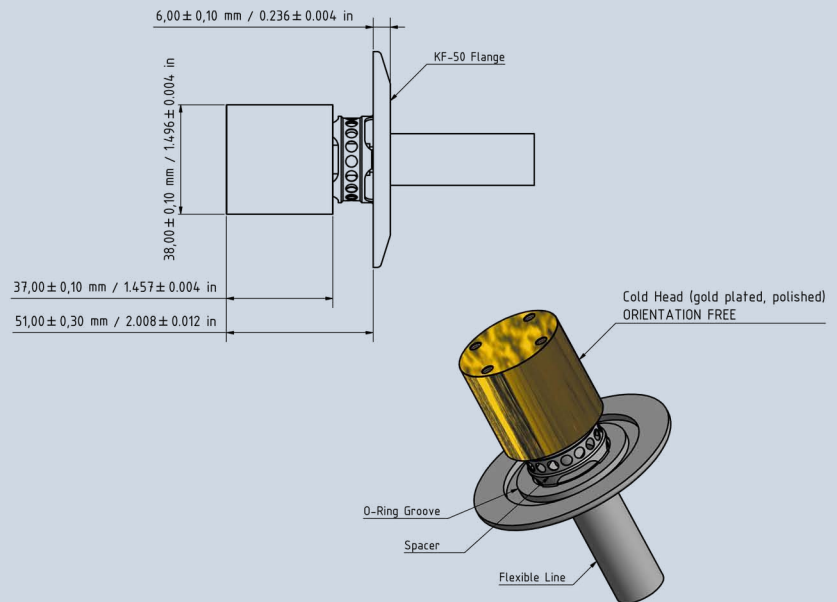
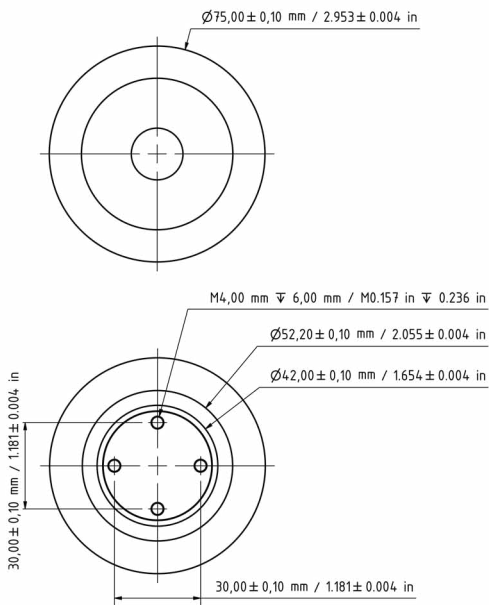
Cold Head Unit

Our standard cold head-units are available with CFF-40 flanges or KF-50 flanges. Both cold head-units can easily be attached to the chamber. Special vacuum chambers are no longer needed. Moreover, the unique design makes it possible to reduce size and costs of the chambers. This fact provides better vacuum conditions which can be attained faster. All cold heads are gold plated and polished for highest quality demands concerning heat conductivity, optical reflectivity and oxidation protection. The CFF-40 cold head is made for ultra high vacuum conditions. The leakage rate of this vacuum flange is lower than 10^{-11} mbar l/s.

STANDARD CFF-40 COLD HEAD



STANDARD KF-50 COLD HEAD



TECHNICAL DATA

Compressor Unit (water cooled)

Maximum cooling capacity: 500 W @ 100 K ^(A)
 Temperature range: 90 K - 100 K
 Cool down time: 30 minutes
 Weight: 137 kg (302 lbs)
 Maximum sound level: 64 dB(A) @ 1 m
 Size: 0,82 m (32.3 in) (L) x 0,90 m (35.5 in) (W) x 0,58 m (22.8 in) (H)
 Power requirement: AC 380 V-420 V 50 Hz three phase, typ. 6400 W
 or AC 380 V-420 V 60 Hz three phase, typ. 6400 W
 Cool lines: Standard 3,0 m (118.1 in)
 Minimum bend radius: 0,3 m (11.8 in)

^(A) 12 °C water temperature @ 8 l/min.

Cold Head CFF-40 Unit

Weight: 0,645 kg (1.42 lbs)
 Surface: Gold plated, highly polished
 Size: See cold head - unit line drawing
 Designed for vacuum applications up to 10^{-12} mbar (7.5×10^{-13} torr)

Cold Head KF-50 Unit

Weight: 0,450 kg (0.99 lbs)
 Surface: Gold plated, highly polished
 Size: See cold head - unit line drawing
 Designed for vacuum applications up to 10^{-7} mbar (7.5×10^{-8} torr)