



CRYOREFRIGERATOR K 170040 W

FEATURES

- + High cooling capacity 40 W
- + Temperature 170 K
- + Cool-down time 20 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 K170040W 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 K170040W 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.

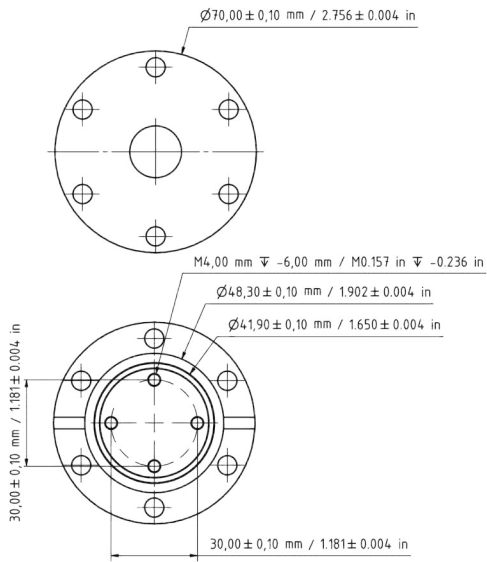
Compressor Unit

The compact portable water-cooled K170040W can be installed virtually anywhere and cooled down to its operating temperature just within 20 minutes. With the size of 0,37m (L) x 0,32m (W) x 0,35m (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 K170040W 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.

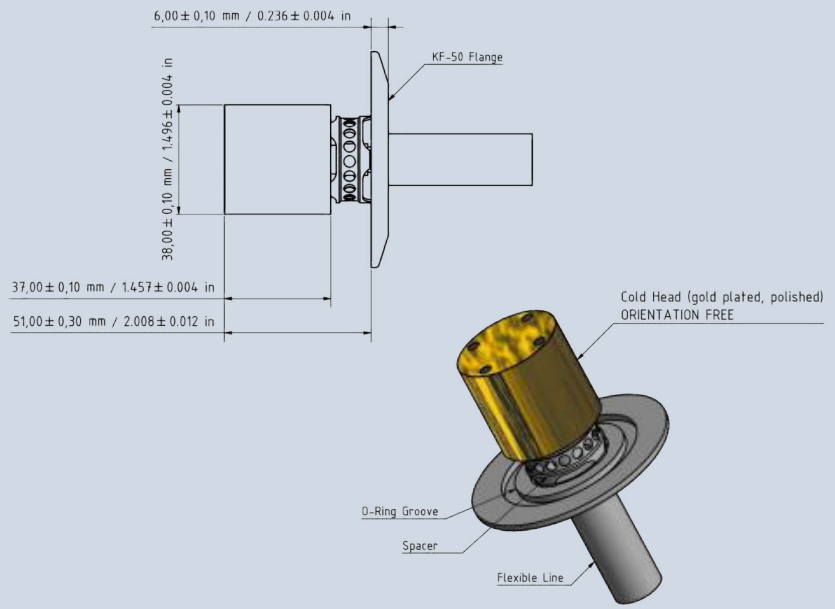
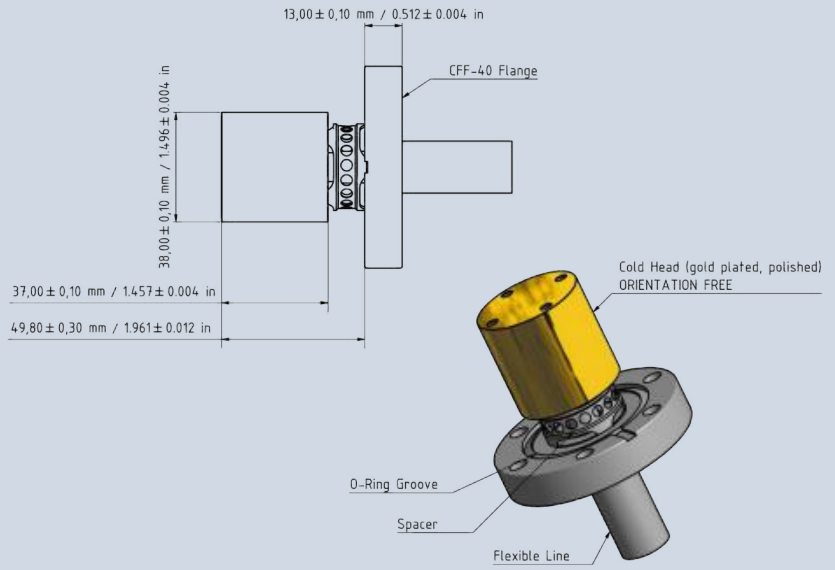
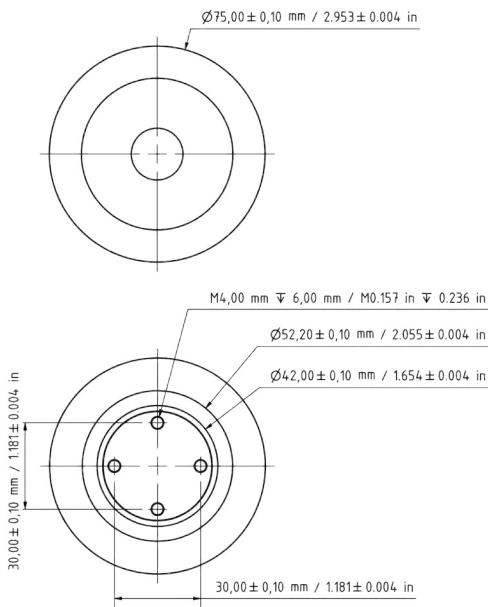
Cold Head Unit

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 - PRELIMINARY

Compressor Unit (water cooled)
 Maximum cooling capacity: 40 W @ 170 K (☒)
 Temperature range: 160 K - 170 K
 Cool down time: 20 minutes
 Weight: 25 kg (55.1 lbs)
 Maximum sound level: 52 dB(A) @ 1 m
 Size: 0,37 m (14.6 in) (L) x 0,32 m (12.6 in) (W) x 0,35 m (13.8 in) (H)
 Power requirement: AC 220 V-240 V 50 Hz single phase, typ. 590 W
 or AC 208 V-230 V 60 Hz single phase, typ. 590 W
 Cool lines: Standard 2,5 m (98.4 in)
 Minimum bend radius: 0,3 m (11.8 in)

☒ 12 ° C water temperature @ 2 l/min.

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 Cryogenics is our passion.

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 (7.5x10⁻¹³ 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 (7.5x10⁻⁸ torr)

脉动科技有限公司
 中国代理商

北京总部 地址: 海淀区中关村东路84-8号 传真: 010-62565117-803
 二层1-104单元, 100190 邮箱: info@pulsepower.cn
 电话: 010-62565117 官网: www.pulsepower.cn

上海办事处 深圳办事处 成都办事处
 021-60720971 0755-26922729 17710735621

www.cryospectra.com

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