WATER-COOLED CRYOREFRIGERATORS

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K 170020 W

CRYOREFRIGERATOR

K 170020 W

FEATURES

+ **High cooling capacity 20 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**

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System Description

The K170020W 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 K170020W 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

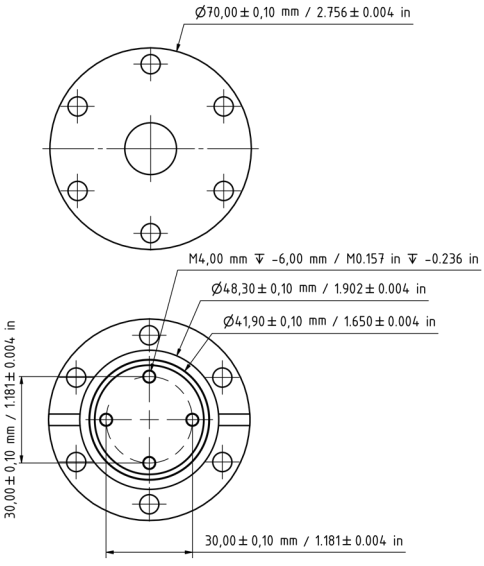
The compact portable water-cooled K170020W can be installed virtually anywhere and cooled down to its operating temperature just within 20 minutes. With the size of 0,36m (L) x 0,33m (W) x 0,35m (H) the compressor unit is suitable for small labs. Due the cryogenic temperatures, new and advanced materials for solid state laser applications can be used. Moreover the K170020W 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.

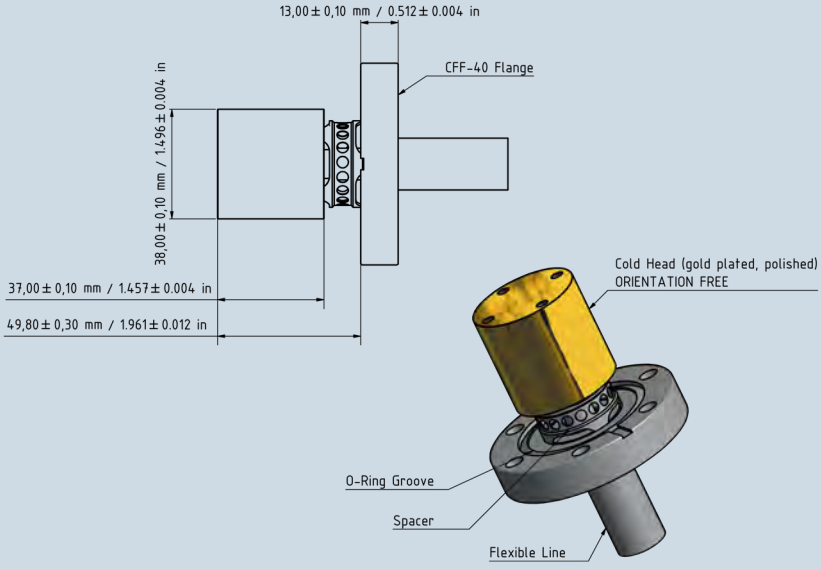
Cold Head Unit

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.

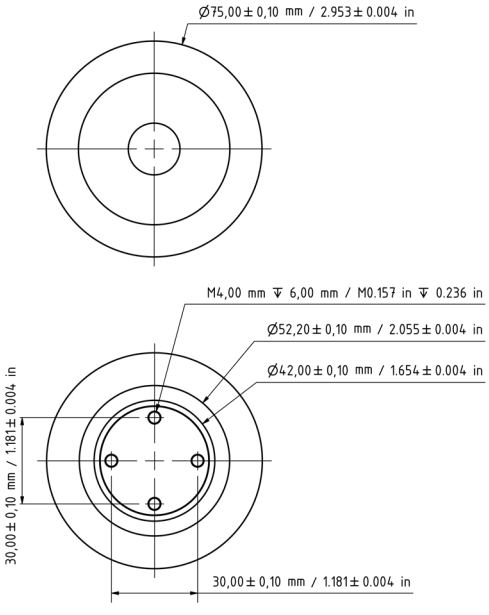
K 170020 W

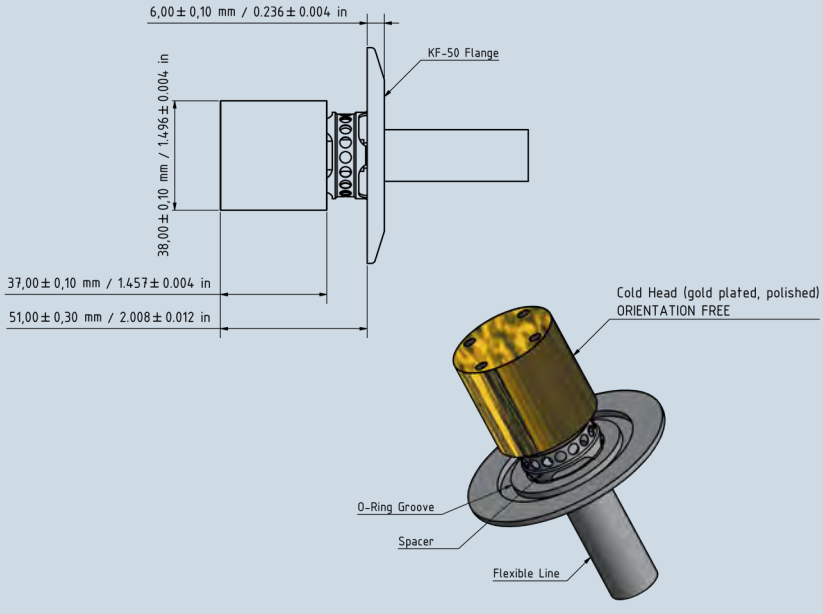
STANDARD CFF-40 COLD HEAD





STANDARD KF-50 COLD HEAD





TECHNICAL DATA - PRELIMINARY

Compressor Unit (water cooled)
Maximum cooling capacity: 20 W @ 170 K [A]
Temperature range: 160 K - 170 K
Cool down time: 20 minutes
Weight: 17 kg (37,5 lbs)
Maximum sound level: 51 dB(A) @ 1 m
Size: 0,36 m (14.2 in) (L) x 0,33 m (13.0 in) (W) x 0,35 m (13.8 in) (H)
Power requirement: AC 220 V-240 V 50 Hz single phase, typ. 540 W
or AC 208 V-230 V 60 Hz single phase, typ. 540 W
Cool lines: Standard 2,5 m (98.4 in)
Minimum bend radius: 0,3 m (11.8 in)

[A] 12 °C water temperature @ 1 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 ($7.5x10^{-13}$ 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)

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K 170040 W

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**

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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

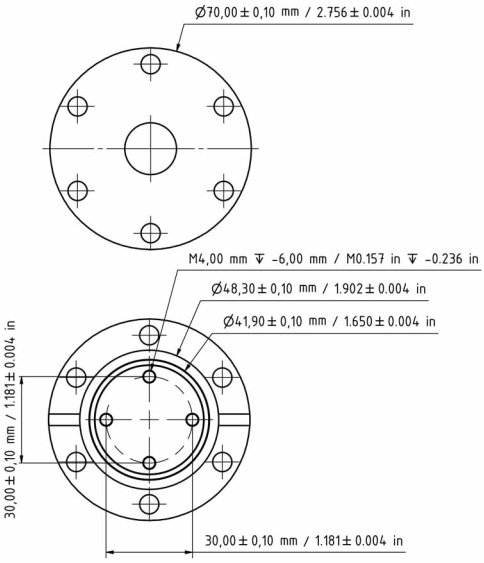
The compact portable water-cooled K170040W can be installed virtually anywhere and cooled down to its operating temperature just within 20 minutes. With the size of 0,36m (L) x 0,33m (W) x 0,35m (H) the compressor unit is suitable for small labs. Due the cryogenic temperatures, new and advanced materials 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.

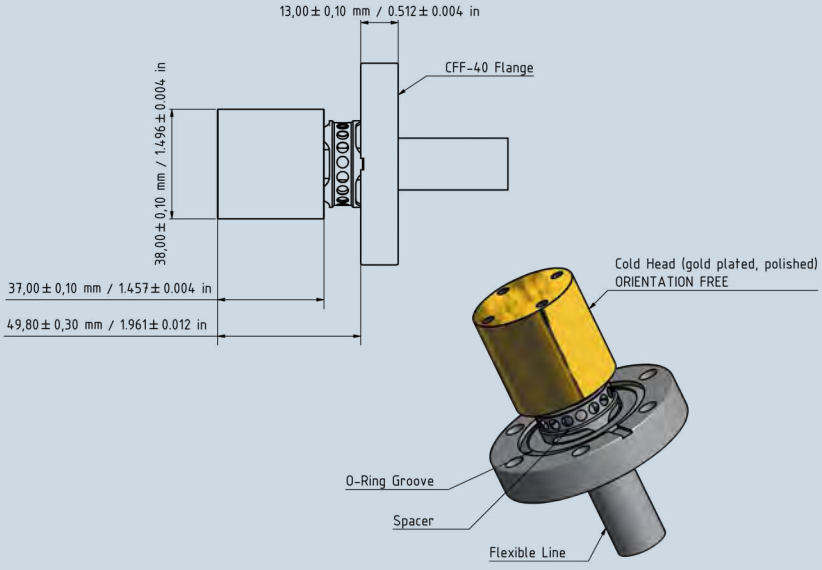
Cold Head Unit

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.

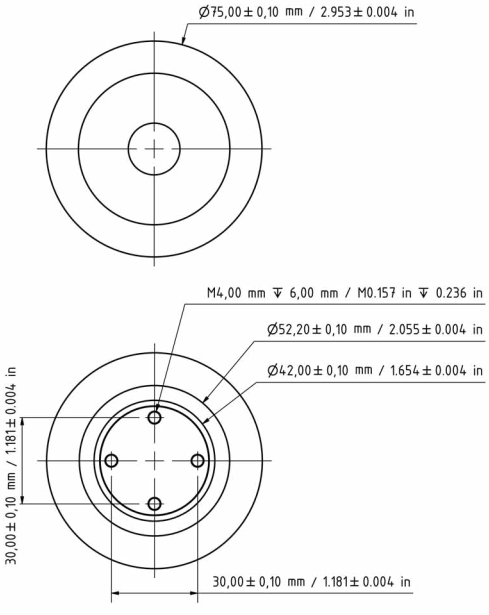
K 170040 W

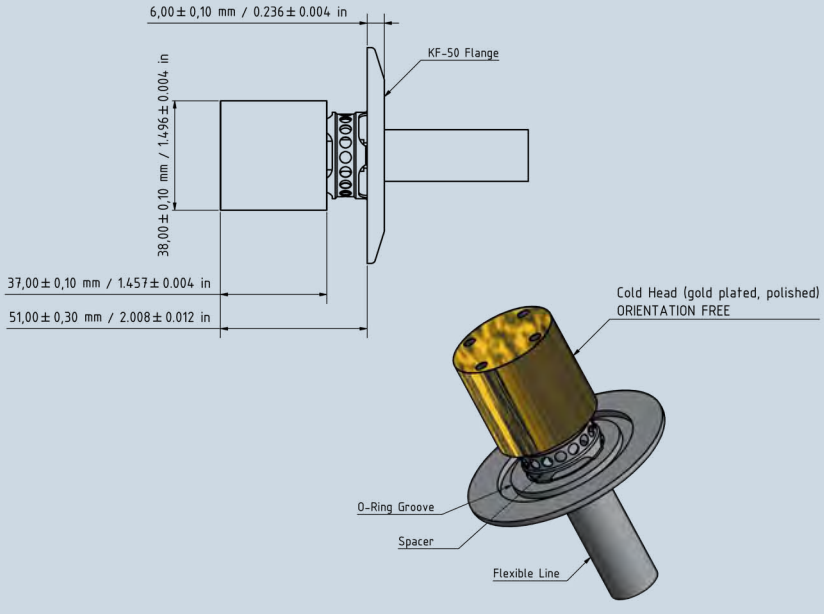
STANDARD CFF-40 COLD HEAD





STANDARD KF-50 COLD HEAD





TECHNICAL DATA - PRELIMINARY

Compressor Unit (water cooled)
Maximum cooling capacity: 40 W @ 170 K [A]
Temperature range: 160 K - 170 K
Cool down time: 20 minutes
Weight: 18 kg (39,7 lbs)
Maximum sound level: 52 dB(A) @ 1 m
Size: 0,36 m (14.2 in) (L) x 0,33 m (13.0 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)

[A] 12 °C water temperature @ 2 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 ($7.5x10^{-13}$ 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)

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K 130075 W

CRYOREFRIGERATOR

K 130075 W

FEATURES

+ **High cooling capacity 75 W**
+ **Cryogenic temperature 100 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**

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System Description

The K130075W 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 K130075W 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.

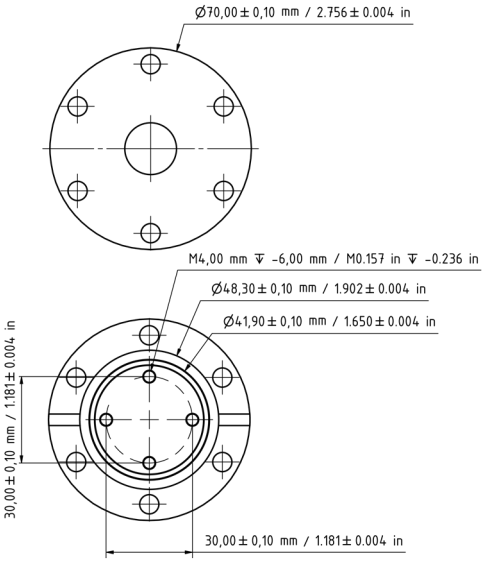
Compressor Unit

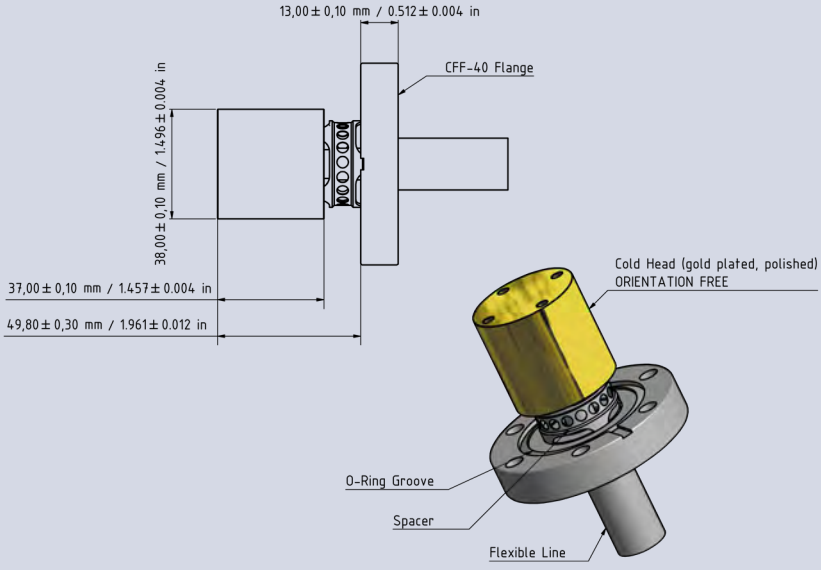
The compact portable water-cooled K130075W can be installed virtually anywhere and cooled down to its operating temperature just within 20 minutes. With the size of 0,57m (L) x 0,42m (W) x 0,40m (H) the compressor unit is suitable for small labs. Due the cryogenic temperatures, new and advanced materials for solid state laser applications can be used. Moreover the K130075W 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

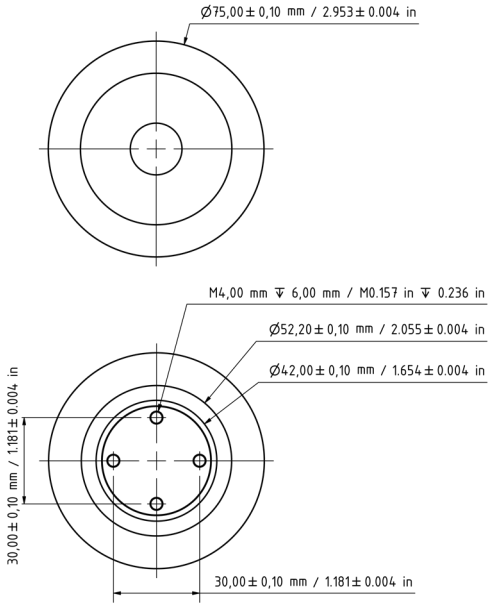
Our standard cold head-units are available with CFF-40 flanges or KF-50 flanges. Both cold head-units can easily be attached to the chamber. Special vacuum chambers are no longer needed. Moreover, the unique design makes it possible to reduce size and costs of the chambers. This fact provides better 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.

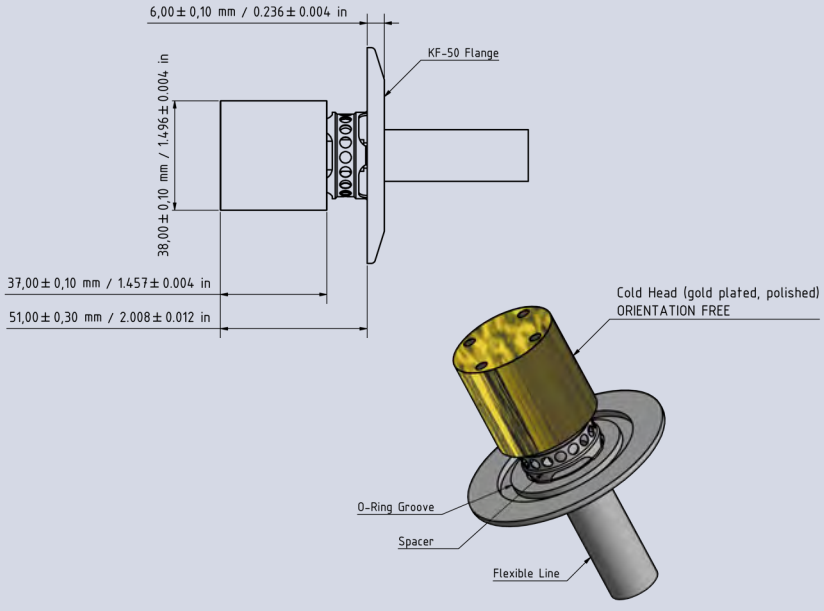
STANDARD CFF-40 COLD HEAD





STANDARD KF-50 COLD HEAD





TECHNICAL DATA

Compressor Unit (water cooled)
Maximum cooling capacity: 75 W @ 130 K [Δ]
Temperature range: 100 K - 130 K
Cool down time: 20 minutes
Weight: 42 kg (92,6 lbs)
Maximum sound level: 56 dB(A) @ 1 m
Size: 0,57 m (22.4 in) (L) x 0,42 m (16.5 in) (W) x 0,40 m (15.7 in) (H)
Power requirement: AC 220 V-240 V 50 Hz single phase, typ. 750 W
or AC 208 V-230 V 60 Hz single phase, typ. 750 W
Cool lines: Standard 2,5 m (98.4 in)
Minimum bend radius: 0,3 m (11.8 in)

[Δ] 12 °C water temperature @ 3 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 ($7.5x10^{-13}$ 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)

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K 130100 W

CRYOREFRIGERATOR

K 130100 W

FEATURES

+ **High cooling capacity 100 W**
+ **Cryogenic temperature 100 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**

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System Description

The K130100W 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 K130100W 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.

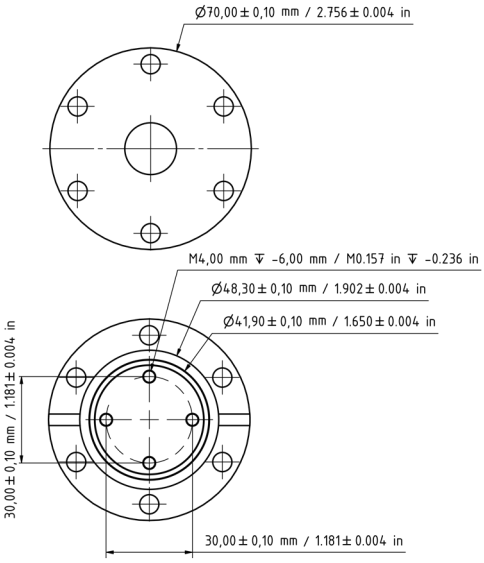
Compressor Unit

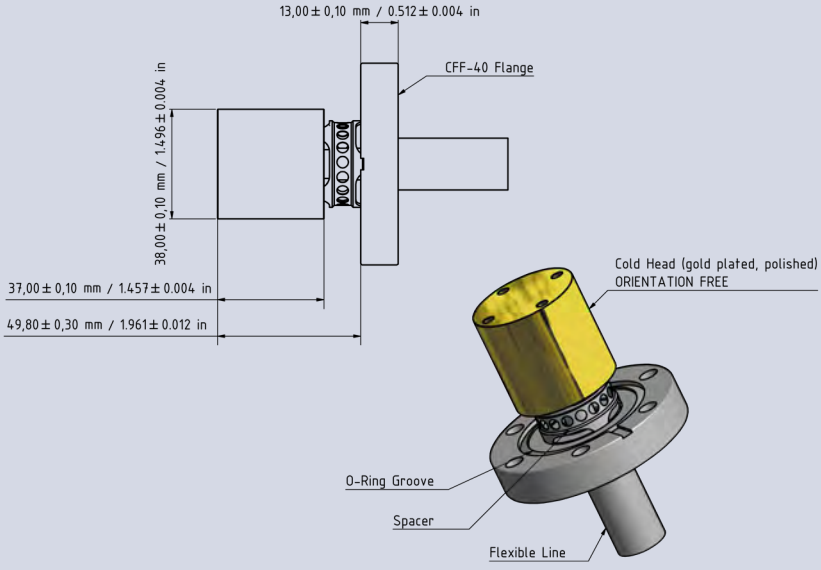
The compact portable water-cooled K130100W can be installed virtually anywhere and cooled down to its operating temperature just within 20 minutes. With the size of 0,57m (L) x 0,42m (W) x 0,40m (H) the compressor unit is suitable for small labs. Due the cryogenic temperatures, new and advanced materials for solid state laser applications can be used. Moreover the K130100W 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

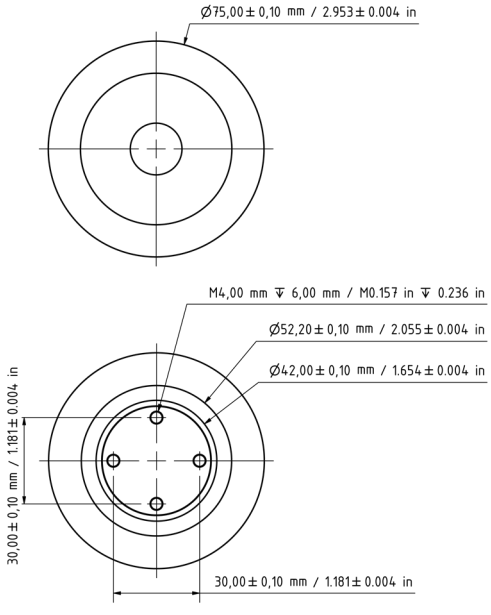
Our standard cold head-units are available with CFF-40 flanges or KF-50 flanges. Both cold head-units can easily be attached to the chamber. Special vacuum chambers are no longer needed. Moreover, the unique design makes it possible to reduce size and costs of the chambers. This fact provides better 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.

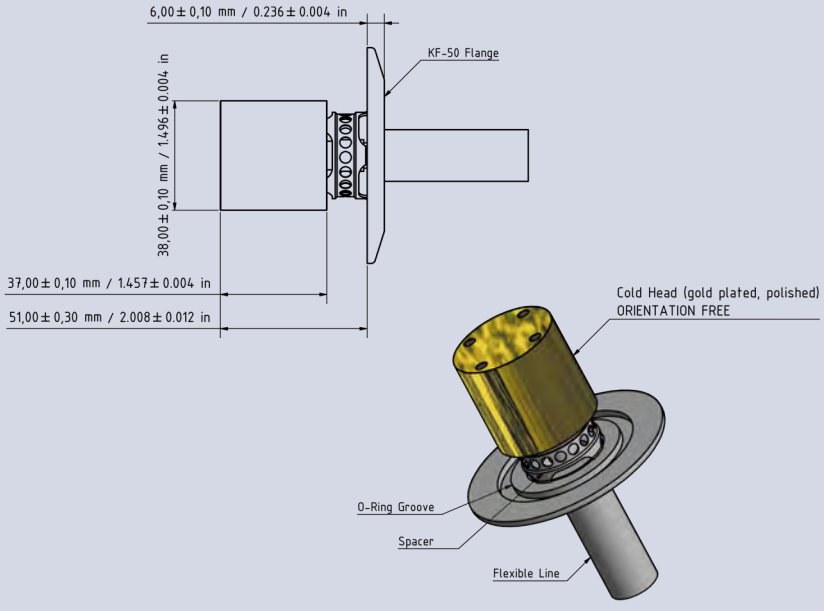
STANDARD CFF-40 COLD HEAD





STANDARD KF-50 COLD HEAD





TECHNICAL DATA

Compressor Unit (water cooled)
Maximum cooling capacity: 100 W @ 130 K [Δ]
Temperature range: 100 K - 130 K
Cool down time: 20 minutes
Weight: 45 kg (99,2 lbs)
Maximum sound level: 57 dB(A) @ 1 m
Size: 0,57 m (22.4 in) (L) x 0,42 m (16.5 in) (W) x 0,40 m (15.7 in) (H)
Power requirement: AC 220 V-240 V 50 Hz single phase, typ. 1000 W
or AC 208 V-230 V 60 Hz single phase, typ. 1000 W
Cool lines: Standard 2,5 m (98.4 in)
Minimum bend radius: 0,3 m (11.8 in)

[Δ] 12 °C water temperature @ 3 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 ($7.5x10^{-13}$ 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)

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K 130150 W

CRYOREFRIGERATOR

K 130150 W

FEATURES

+ **High cooling capacity 150 W**
+ **Cryogenic temperature 100 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**

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System Description

The K130150W 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 K130150W 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

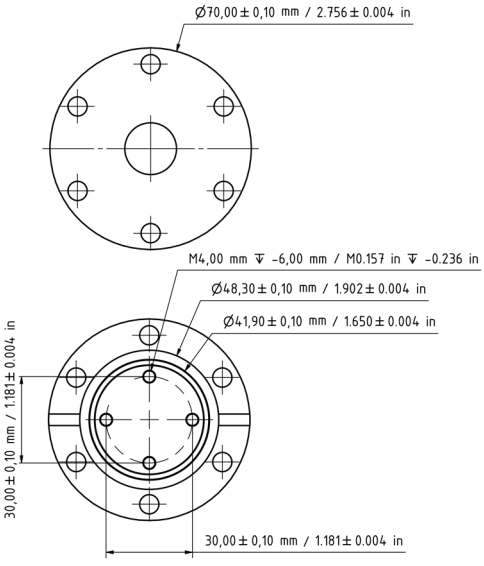
The compact portable water-cooled K130150W can be installed virtually anywhere and cooled down to its operating temperature just within 20 minutes. With the size of 0,57m (L) x 0,42m (W) x 0,40m (H) the compressor unit is suitable for small labs. Due the cryogenic temperatures, new and advanced materials for solid state laser applications can be used. Moreover the K130150W 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.

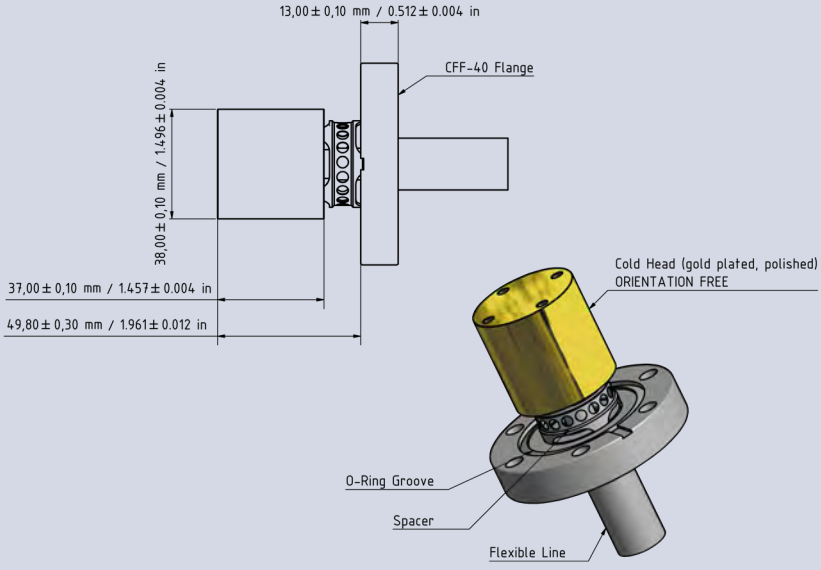
Cold Head Unit

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.

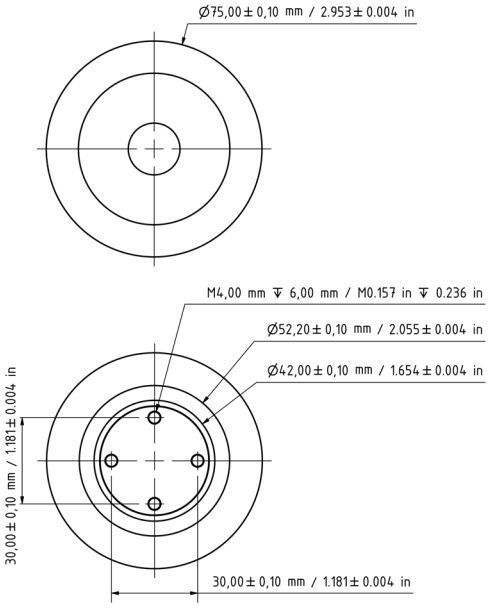
K 130150 W

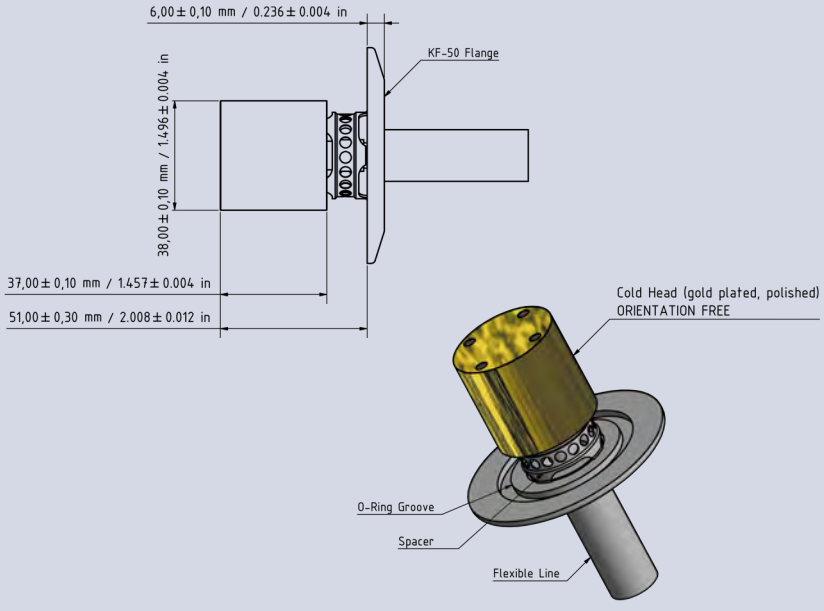
STANDARD CFF-40 COLD HEAD





STANDARD KF-50 COLD HEAD





TECHNICAL DATA

Compressor Unit (water cooled)
Maximum cooling capacity: 150 W @ 130 K [Δ]
Temperature range: 100 K - 130 K
Cool down time: 20 minutes
Weight: 48 kg (105,8 lbs)
Maximum sound level: 59 dB(A) @ 1 m
Size: 0,57 m (22.4 in) (L) x 0,42 m (16.5 in) (W) x 0,40 m (15.7 in) (H)
Power requirement: AC 220 V-240 V 50 Hz single phase, typ. 1600 W
or AC 208 V-230 V 60 Hz single phase, typ. 1600 W
Cool lines: Standard 2,5 m (98.4 in)
Minimum bend radius: 0,3 m (11.8 in)

[Δ] 12 °C water temperature @ 3 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 ($7.5x10^{-13}$ 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)

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K 130250 W

CRYOREFRIGERATOR

K 130250 W

FEATURES

+ **High cooling capacity 250 W**
+ **Cryogenic temperature 100 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**

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System Description

The K130250W 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 K130250W 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

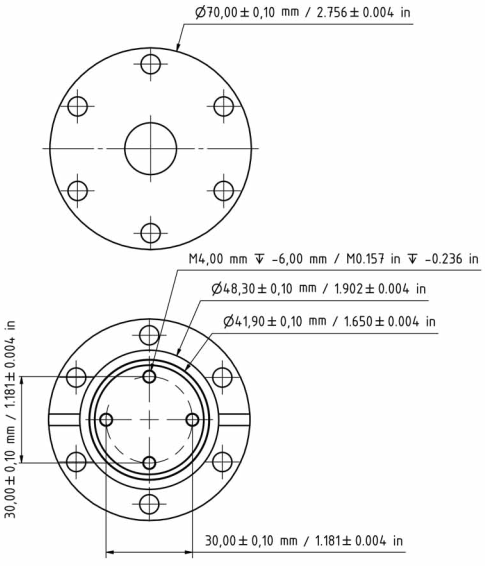
The compact portable water-cooled K130250W can be installed virtually anywhere and cooled down to its operating temperature just within 20 minutes. With the size of 0,59m (L) x 0,46m (W) x 0,48m (H) the compressor unit is suitable for small labs. Due the cryogenic temperatures, new and advanced materials for solid state laser applications can be used. Moreover the K130250W 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.

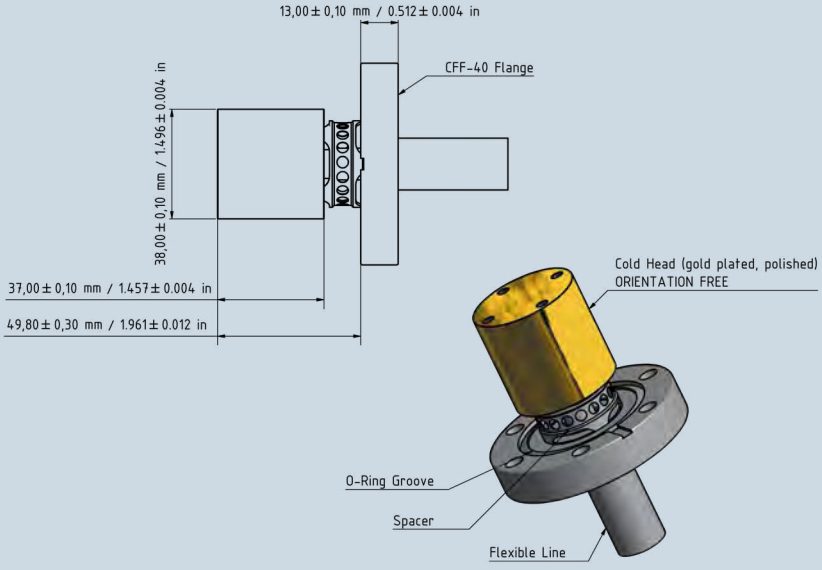
Cold Head Unit

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.

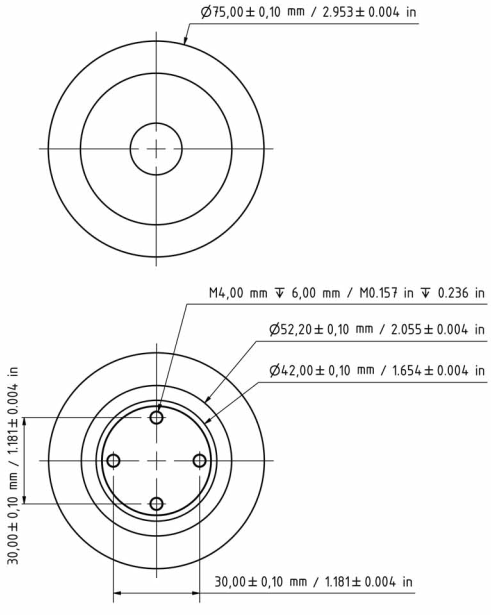
K 130250 W

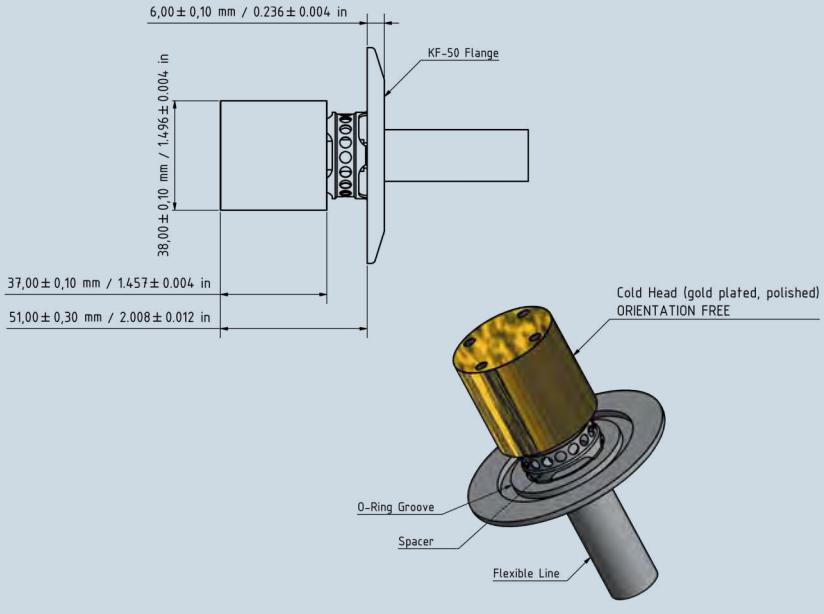
STANDARD CFF-40 COLD HEAD





STANDARD KF-50 COLD HEAD





TECHNICAL DATA - PRELIMINARY

Compressor Unit (water cooled)
Maximum cooling capacity: 250 W @ 130 K [Δ]
Temperature range: 100 K - 130 K
Cool down time: 20 minutes
Weight: 68 kg (149,9 lbs)
Maximum sound level: 62 dB(A) @ 1 m
Size: 0,59 m (23.2 in) (L) x 0,46 m (18.1 in) (W) x 0,48 m (18.9 in) (H)
Power requirement: AC 220 V-240 V 50 Hz single phase, typ. 2900 W
or AC 208 V-230 V 60 Hz single phase, typ. 2900 W
Cool lines: Standard 3,0 m (118.1 in)
Minimum bend radius: 0,4 m (15.7 in)

[Δ] 12 °C water temperature @ 5 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 ($7.5x10^{-13}$ 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)

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K 130500 W

CRYOREFRIGERATOR

K 130500 W

FEATURES

+ **High cooling capacity 500 W**
+ **Cryogenic temperature 100 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**

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System Description

The K130500W 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 K130500W 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

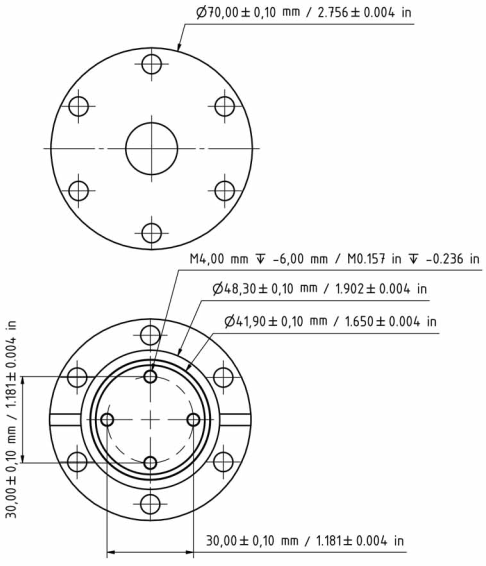
The compact portable water-cooled K130500W can be installed virtually anywhere and cooled down to its operating temperature just within 20 minutes. With the size of 0,80m (L) x 0,44m (W) x 0,48m (H) the compressor unit is suitable for small labs. Due the cryogenic temperatures, new and advanced materials for solid state laser applications can be used. Moreover the K130500W 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.

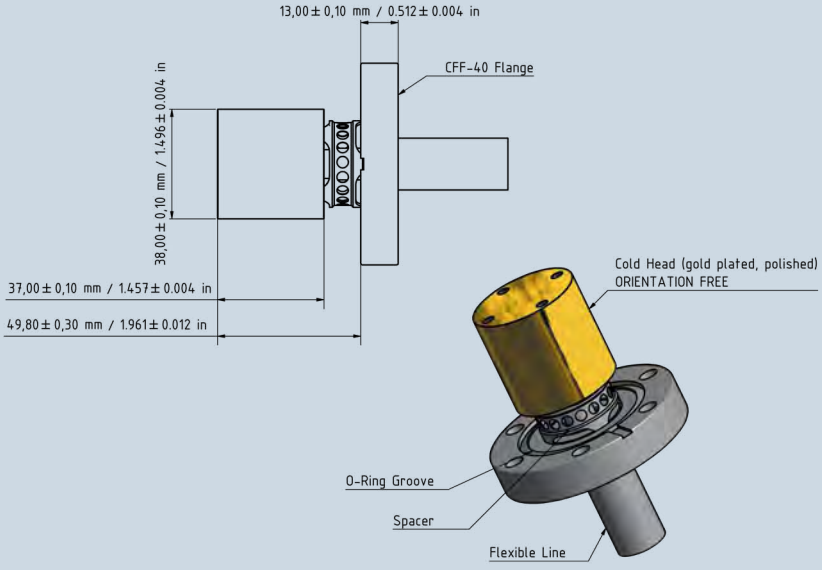
Cold Head Unit

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.

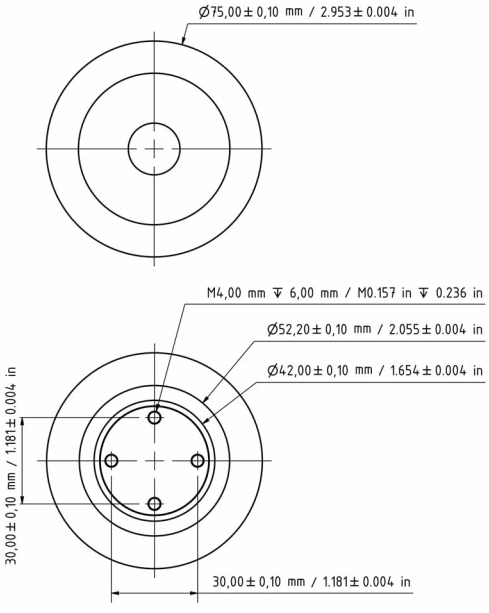
K 130500 W

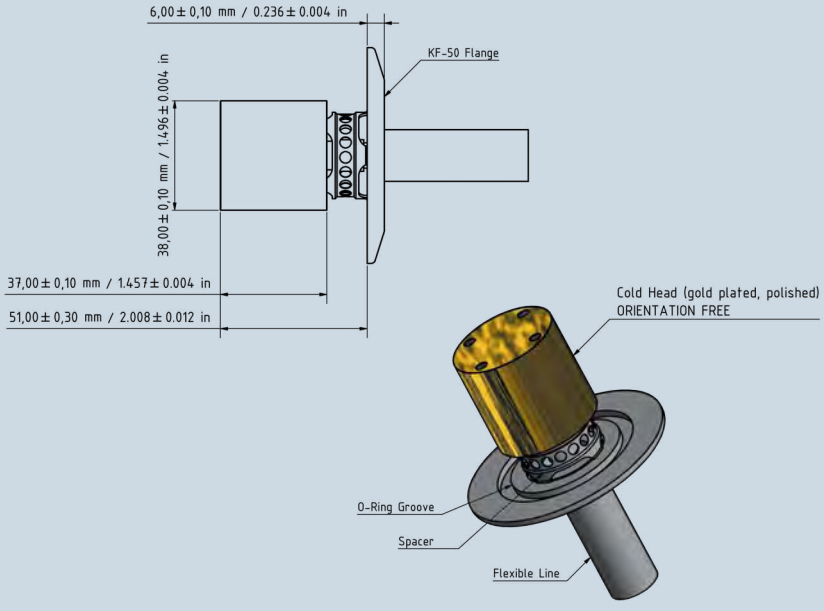
STANDARD CFF-40 COLD HEAD





STANDARD KF-50 COLD HEAD





TECHNICAL DATA - PRELIMINARY

Compressor Unit (water cooled)
Maximum cooling capacity: 500 W @ 130 K [Δ]
Temperature range: 100 K - 130 K
Cool down time: 20 minutes
Weight: 87 kg (191,7 lbs)
Maximum sound level: 64 dB(A) @ 1 m
Size: 0,80 m (31.5 in) (L) x 0,44 m (17.3 in) (W) x 0,48 m (18.9 in) (H)
Power requirement: AC 380 V-420 V 50 Hz three phase, typ. 5800 W
or AC 380 V-420 V 60 Hz three phase, typ. 5800 W
Cool lines: Standard 3,0 m (118.1 in)
Minimum bend radius: 0,4 m (15.7 in)

[Δ] 12 °C water temperature @ 7 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 ($7.5x10^{-13}$ 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)

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K 130750 W

CRYOREFRIGERATOR

K 130750 W

FEATURES

+ **High cooling capacity 750 W**
+ **Cryogenic temperature 100 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**

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System Description

The K130750W 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 K130750W 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

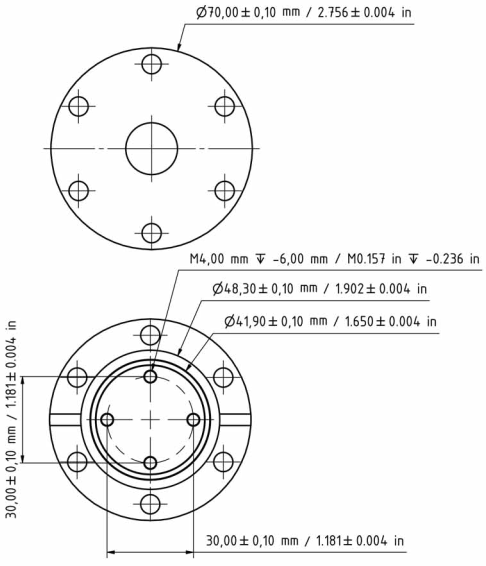
The compact portable water-cooled K130750W can be installed virtually anywhere and cooled down to its operating temperature just within 30 minutes. With the size of 0,82m (L) x 0,90m (W) x 0,58m (H) the compressor unit is suitable for small labs. Due the cryogenic temperatures, new and advanced materials for solid state laser applications can be used. Moreover the K130750W 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.

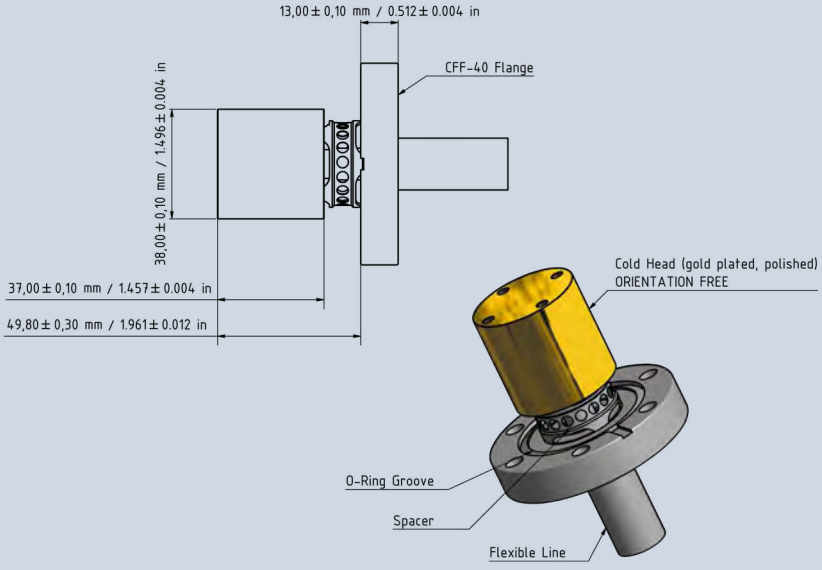
Cold Head Unit

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.

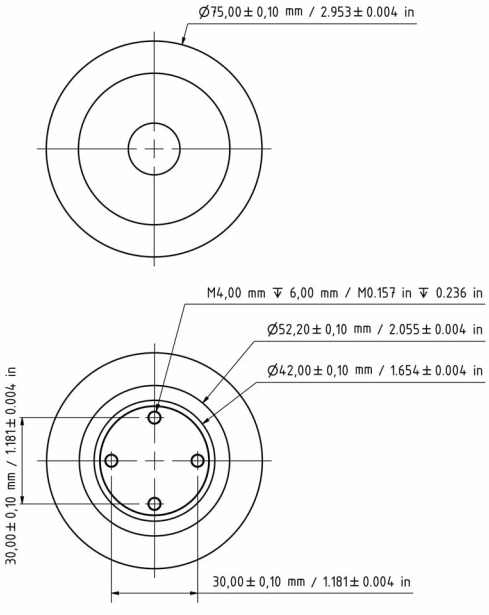
K 130750 W

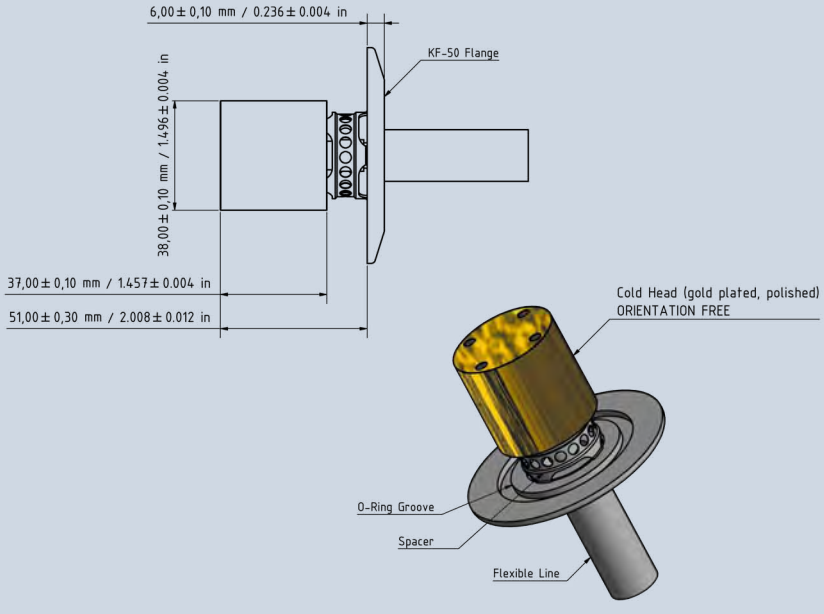
STANDARD CFF-40 COLD HEAD





STANDARD KF-50 COLD HEAD





TECHNICAL DATA

Compressor Unit (water cooled)
Maximum cooling capacity: 750 W @ 130 K [Δ]
Temperature range: 100 K - 130 K
Cool down time: 30 minutes
Weight: 129 kg (284 lbs)
Maximum sound level: 65 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. 7300 W
or AC 380 V-420 V 60 Hz three phase, typ. 7300 W
Cool lines: Standard 3,0 m (118.1 in)
Minimum bend radius: 0,3 m (11.8 in)

[Δ] 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 ($7.5x10^{-13}$ 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)

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K 1301000 W

CRYOREFRIGERATOR

K 1301000 W

FEATURES

+ **High cooling capacity 1000 W**
+ **Cryogenic temperature 100 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**

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System Description

The K1301000W 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 K1301000W 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.

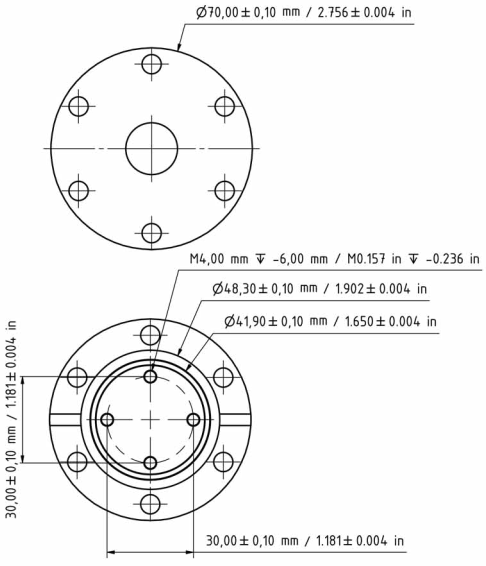
Compressor Unit

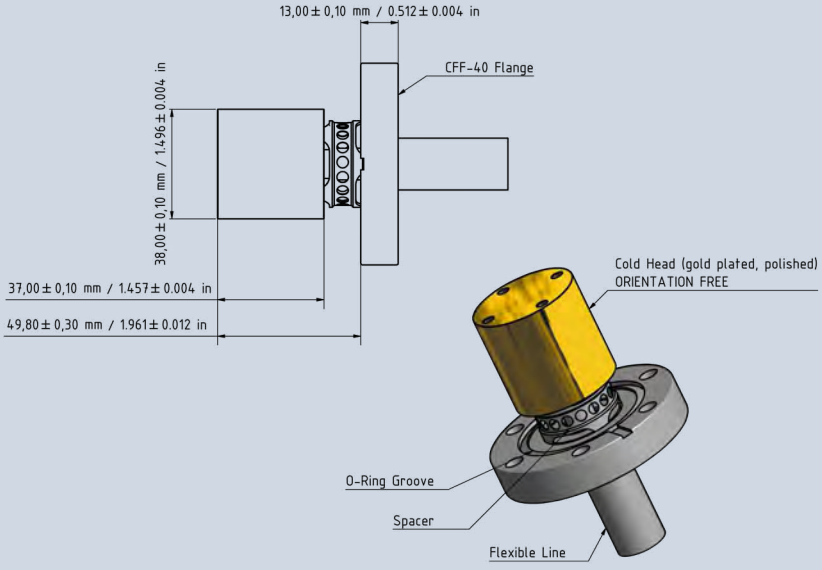
The compact portable water-cooled K1301000W can be installed virtually anywhere and cooled down to its operating temperature just within 30 minutes. With the size of 0,82m (L) x 0,90m (W) x 0,58m (H) the compressor unit is suitable for small labs. Due the cryogenic temperatures, new and advanced materials for solid state laser applications can be used. Moreover the K1301000W 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

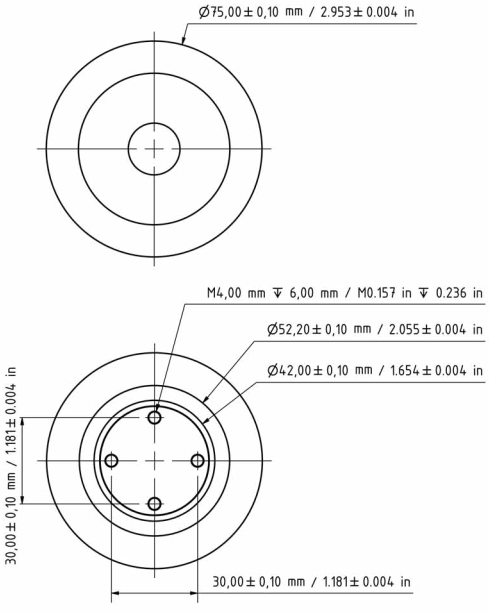
Our standard cold head-units are available with CFF-40 flanges or KF-50 flanges. Both cold head-units can easily be attached to the chamber. Special vacuum chambers are no longer needed. Moreover, the unique design makes it possible to reduce size and costs of the chambers. This fact provides better 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.

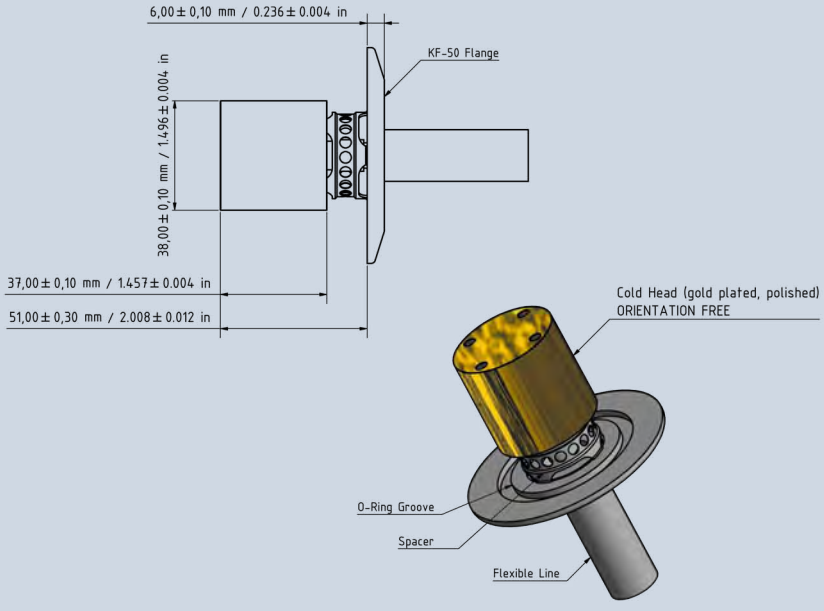
STANDARD CFF-40 COLD HEAD





STANDARD KF-50 COLD HEAD





TECHNICAL DATA

Compressor Unit (water cooled)
Maximum cooling capacity: 1000 W @ 130 K [Δ]
Temperature range: 100 K - 130 K
Cool down time: 30 minutes
Weight: 134 kg (295 lbs)
Maximum sound level: 65 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. 7300 W
or AC 380 V-420 V 60 Hz three phase, typ. 7300 W
Cool lines: Standard 3,0 m (118.1 in)
Minimum bend radius: 0,3 m (11.8 in)

[Δ] 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 ($7.5x10^{-13}$ 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)

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K 110075 W

CRYOREFRIGERATOR

K 110075 W

FEATURES

+ **High cooling capacity 75 W**
+ **Cryogenic temperature 90 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**

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System Description

The K110075W 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 K110075W 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

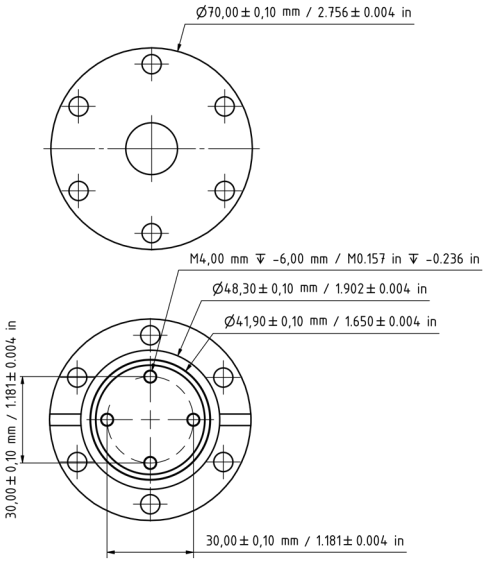
The compact portable water-cooled K110075W can be installed virtually anywhere and cooled down to its operating temperature just within 20 minutes. With the size of 0,57m (L) x 0,42m (W) x 0,40m (H) the compressor unit is suitable for small labs. Due the cryogenic temperatures, new and advanced materials for solid state laser applications can be used. Moreover the K110075W 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.

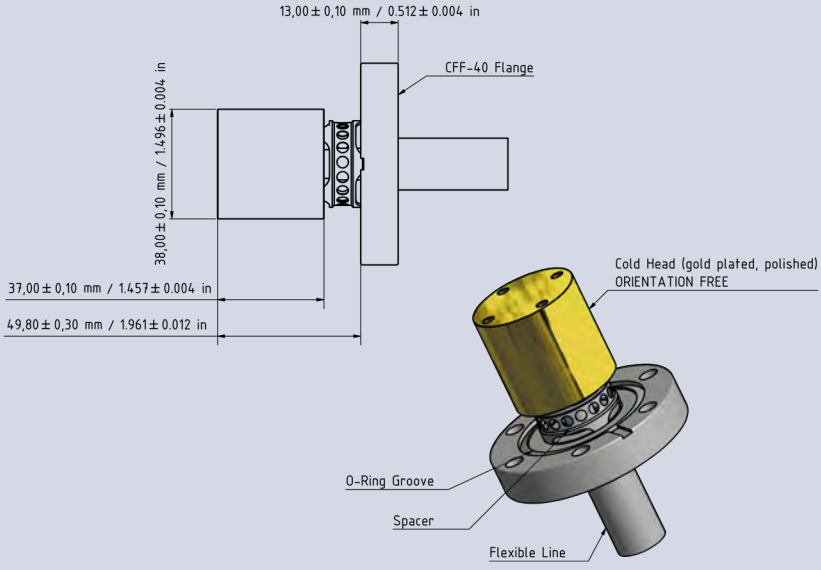
Cold Head Unit

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.

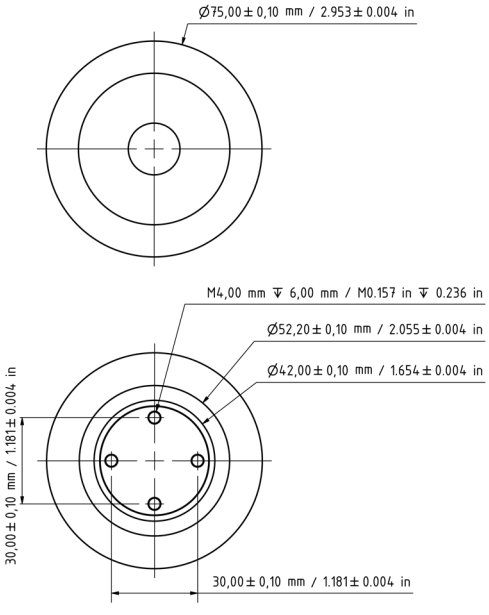
K 110075 W

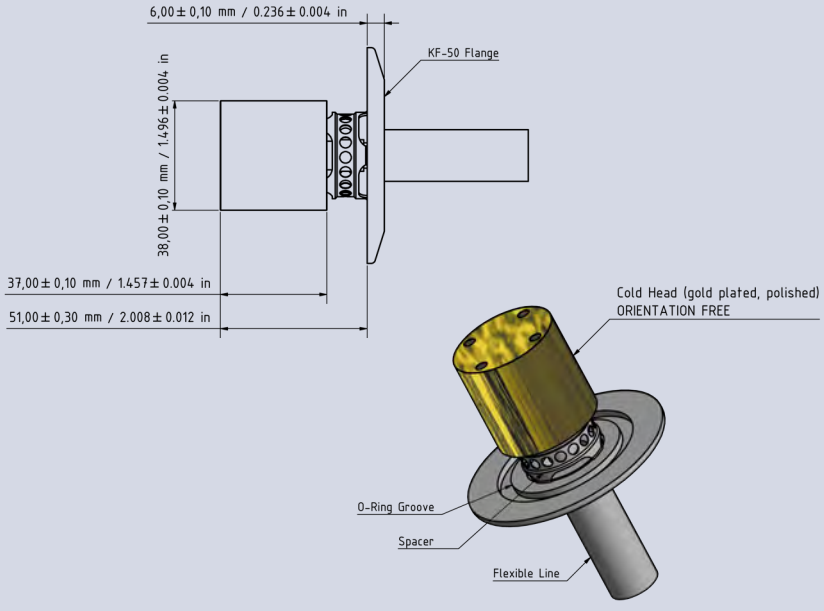
STANDARD CFF-40 COLD HEAD





STANDARD KF-50 COLD HEAD





TECHNICAL DATA

Compressor Unit (water cooled)
Maximum cooling capacity: 75 W @ 110 K [Δ]
Temperature range: 90 K - 110 K
Cool down time: 20 minutes
Weight: 47 kg (103,6 lbs)
Maximum sound level: 59 dB(A) @ 1 m
Size: 0,57 m (22.4 in) (L) x 0,42 m (16.5 in) (W) x 0,40 m (15.7 in) (H)
Power requirement: AC 220 V-240 V 50 Hz single phase, typ. 1600 W
or AC 208 V-230 V 60 Hz single phase, typ. 1600 W
Cool lines: Standard 2,5 m (98.4 in)
Minimum bend radius: 0,3 m (11.8 in)

[Δ] 12 °C water temperature @ 3 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 ($7.5x10^{-13}$ 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)

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K 110150 W

CRYOREFRIGERATOR

K 110150 W

FEATURES

+ **High cooling capacity 150 W**
+ **Cryogenic temperature 90 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**

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System Description

The K110150W 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 K110150W 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

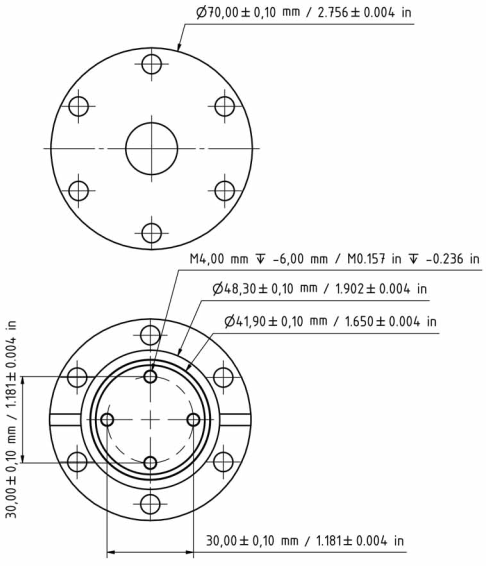
The compact portable water-cooled K110150W can be installed virtually anywhere and cooled down to its operating temperature just within 20 minutes. With the size of 0,59m (L) x 0,46m (W) x 0,48m (H) the compressor unit is suitable for small labs. Due the cryogenic temperatures, new and advanced materials for solid state laser applications can be used. Moreover the K110150W 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.

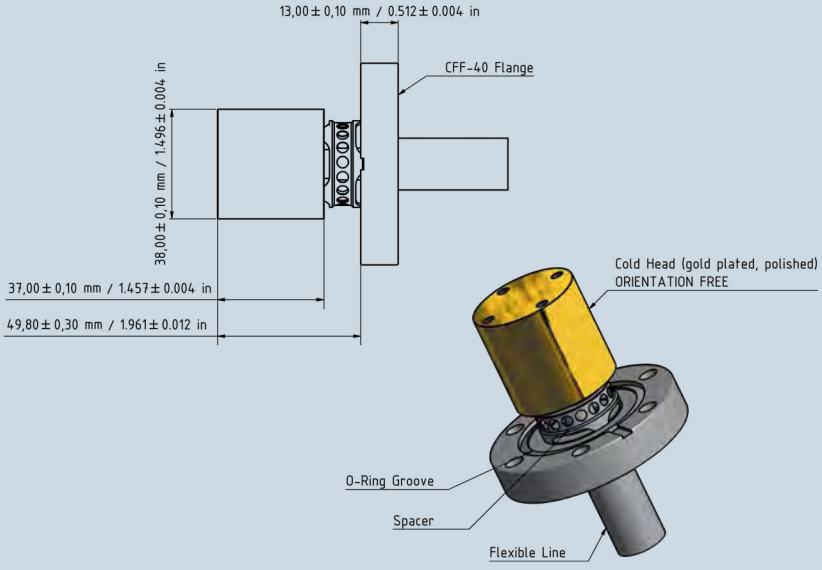
Cold Head Unit

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.

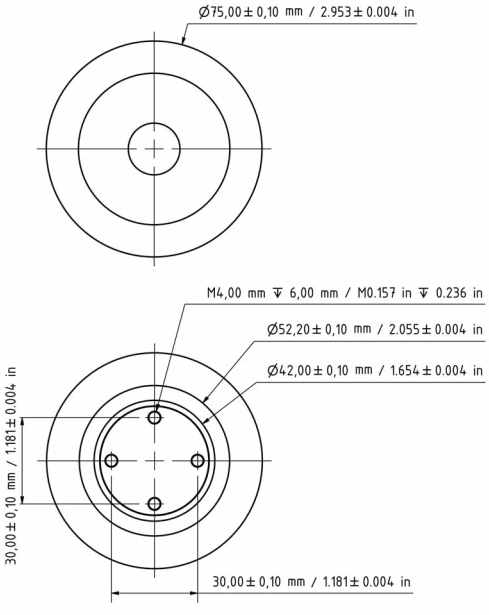
K 110150 W

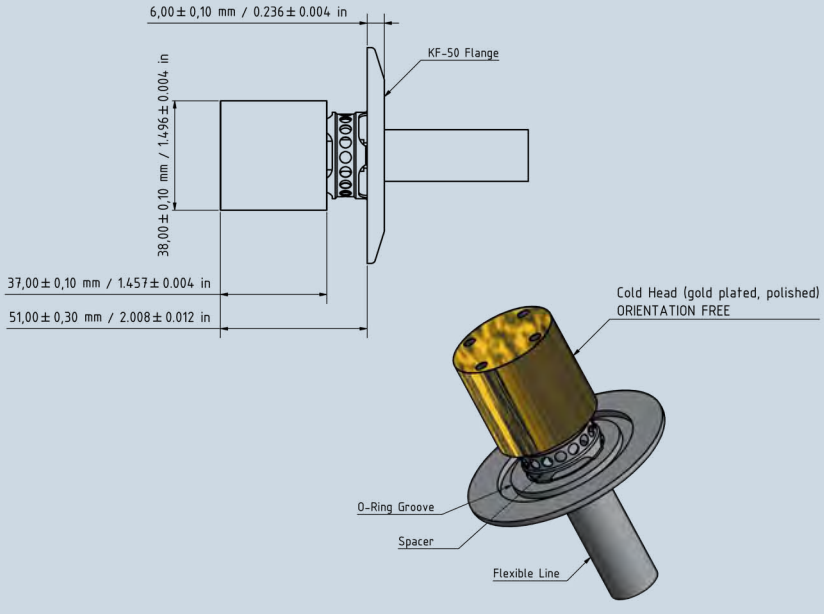
STANDARD CFF-40 COLD HEAD





STANDARD KF-50 COLD HEAD





TECHNICAL DATA - PRELIMINARY

Compressor Unit (water cooled)
Maximum cooling capacity: 150 W @ 110 K [Δ]
Temperature range: 90 K - 110 K
Cool down time: 20 minutes
Weight: 67 kg (147,7 lbs)
Maximum sound level: 62 dB(A) @ 1 m
Size: 0,59 m (23.2 in) (L) x 0,46 m (18.1 in) (W) x 0,48 m (18.9 in) (H)
Power requirement: AC 220 V-240 V 50 Hz single phase, typ. 2900 W
or AC 208 V-230 V 60 Hz single phase, typ. 2900 W
Cool lines: Standard 3,0 m (118.1 in)
Minimum bend radius: 0,4 m (15.7 in)

[Δ] 12 °C water temperature @ 5 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 ($7.5x10^{-13}$ 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)

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K 110300 W

CRYOREFRIGERATOR

K 110300 W

FEATURES

+ **High cooling capacity 300 W**
+ **Cryogenic temperature 90 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**

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System Description

The K110300W 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 K110300W 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

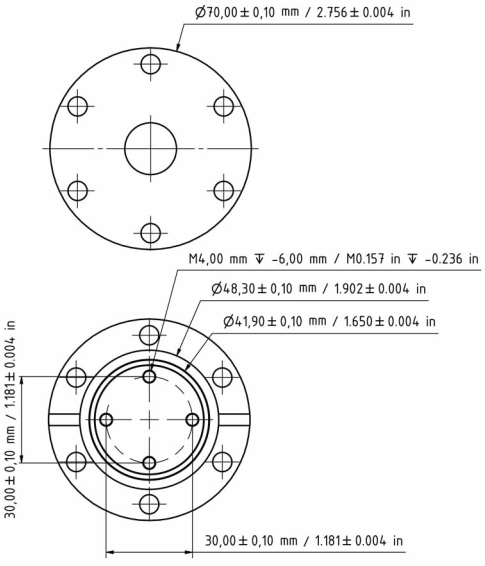
The compact portable water-cooled K110300W can be installed virtually anywhere and cooled down to its operating temperature just within 20 minutes. With the size of 0,66m (L) x 0,69m (W) x 0,58m (H) the compressor unit is suitable for small labs. Due the cryogenic temperatures, new and advanced materials for solid state laser applications can be used. Moreover the K110300W 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.

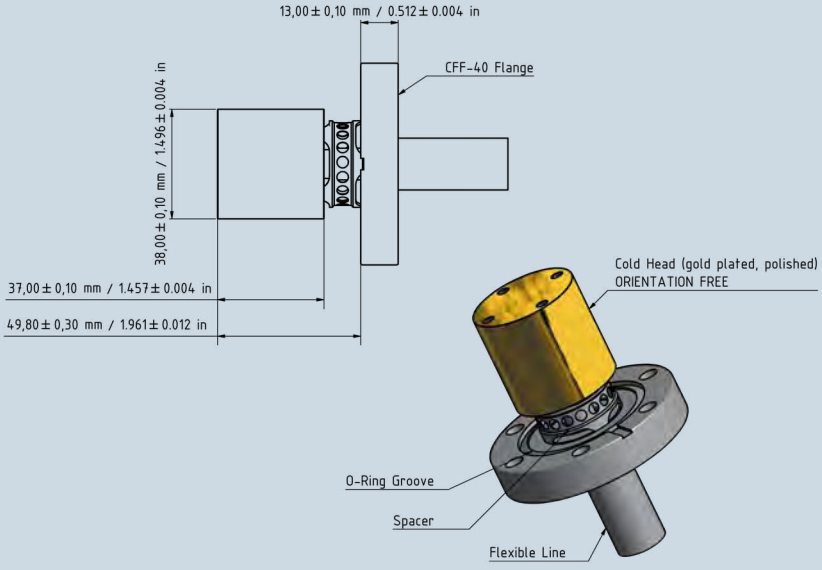
Cold Head Unit

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.

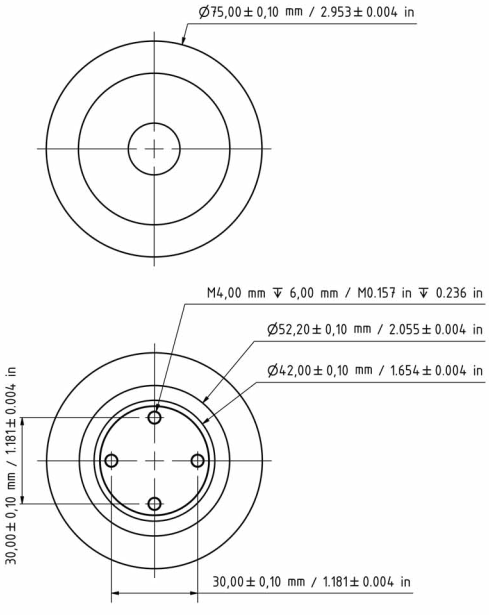
K 110300 W

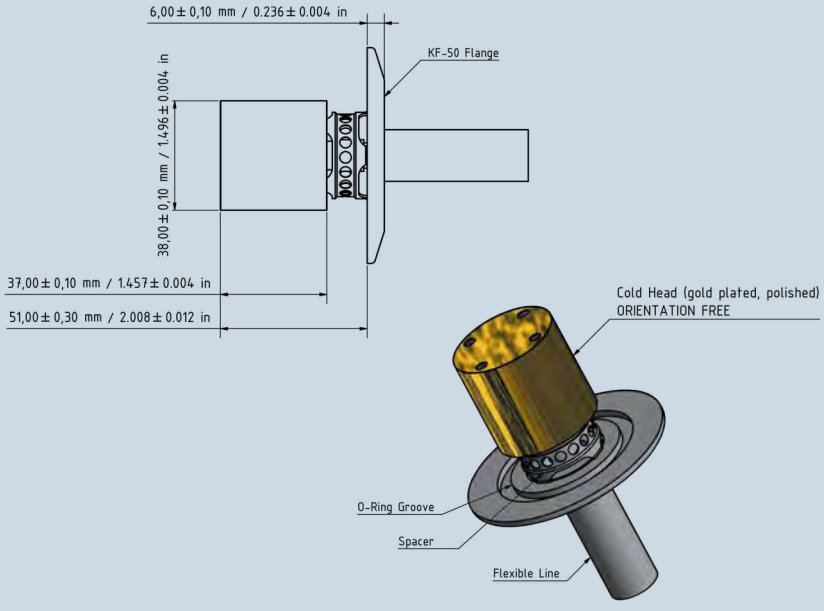
STANDARD CFF-40 COLD HEAD





STANDARD KF-50 COLD HEAD





TECHNICAL DATA - PRELIMINARY

Compressor Unit (water cooled)
Maximum cooling capacity: 300 W @ 110 K [Δ]
Temperature range: 90 K - 110 K
Cool down time: 20 minutes
Weight: 85 kg (187,3 lbs)
Maximum sound level: 64 dB(A) @ 1 m
Size: 0,66 m (26.0 in) (L) x 0,69 m (27.2 in) (W) x 0,58 m (22.8 in) (H)
Power requirement: AC 380 V-420 V 50 Hz three phase, typ. 5800 W
or AC 380 V-420 V 60 Hz three phase, typ. 5800 W
Cool lines: Standard 3,0 m (118.1 in)
Minimum bend radius: 0,4 m (15.7 in)

[Δ] 12 °C water temperature @ 7 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 ($7.5x10^{-13}$ 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)

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K 110600 W

CRYOREFRIGERATOR

K 110600 W

FEATURES

+ **High cooling capacity 600 W**
+ **Cryogenic temperature 90 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**

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System Description

The K110600W 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 K110600W 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

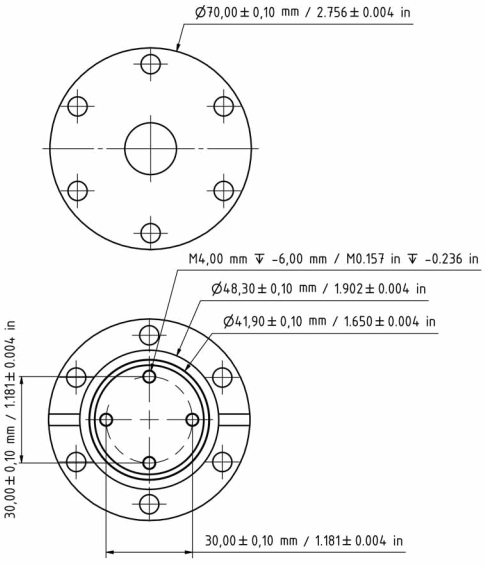
The compact portable water-cooled K110600W can be installed virtually anywhere and cooled down to its operating temperature just within 20 minutes. With the size of 0,82m (L) x 0,90m (W) x 0,58m (H) the compressor unit is suitable for small labs. Due the cryogenic temperatures, new and advanced materials for solid state laser applications can be used. Moreover the K110600W 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.

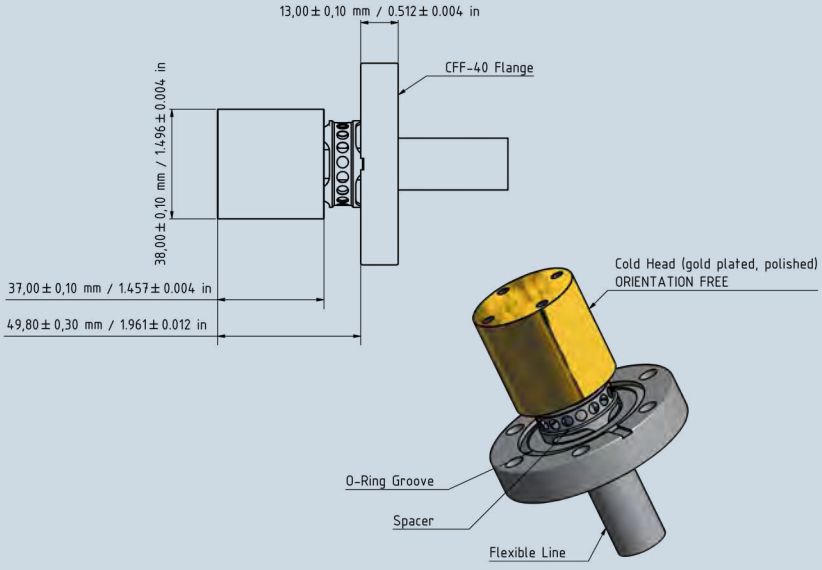
Cold Head Unit

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.

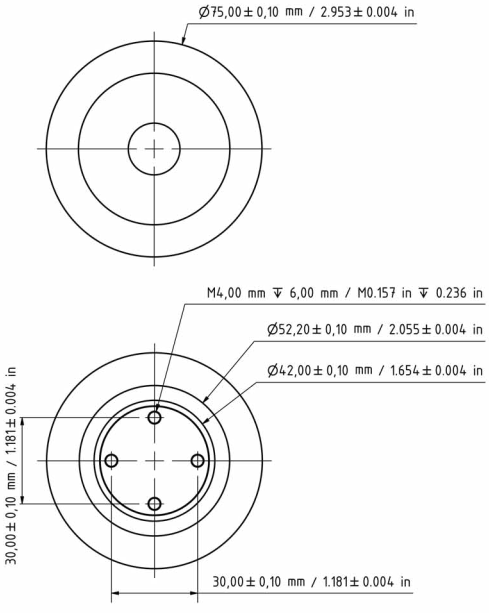
K 110600 W

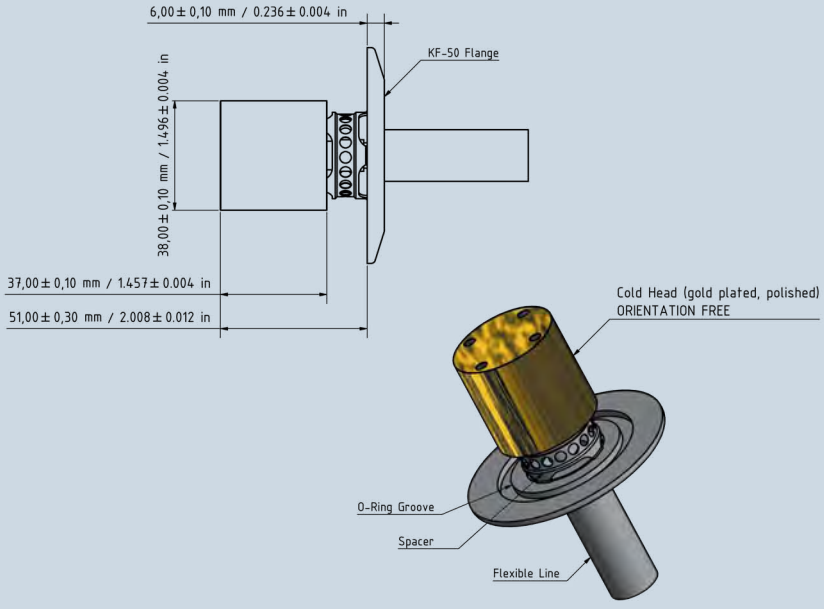
STANDARD CFF-40 COLD HEAD





STANDARD KF-50 COLD HEAD





TECHNICAL DATA - PRELIMINARY

Compressor Unit (water cooled)
Maximum cooling capacity: 600 W @ 110 K [Δ]
Temperature range: 90 K - 110 K
Cool down time: 20 minutes
Weight: 136 kg (299,8 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. 5800 W
or AC 380 V-420 V 60 Hz three phase, typ. 5800 W
Cool lines: Standard 3,0 m (118.1 in)
Minimum bend radius: 0,4 m (15.7 in)

[Δ] 12 °C water temperature @ 9 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 ($7.5x10^{-13}$ 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)

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K 100075 W

CRYOREFRIGERATOR

K 100075 W

FEATURES

+ **High cooling capacity 75 W**
+ **Cryogenic temperature 90 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**

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System Description

The K100075W 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 K100075W 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

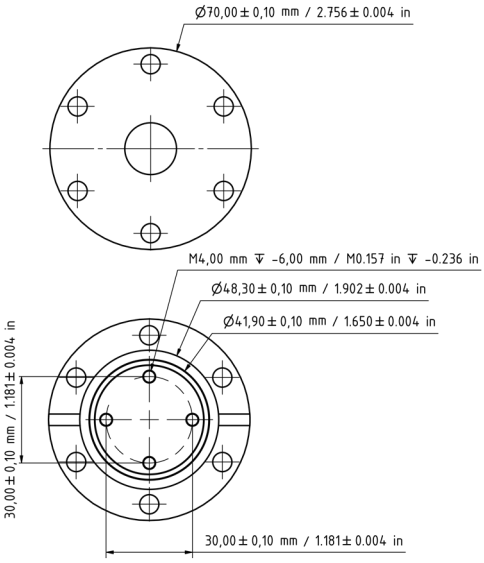
The compact portable water-cooled K100075W can be installed virtually anywhere and cooled down to its operating temperature just within 20 minutes. With the size of 0,66m (L) x 0,51m (W) x 0,48m (H) the compressor unit is suitable for small labs. Due the cryogenic temperatures, new and advanced materials for solid state laser applications can be used. Moreover the K100075W 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.

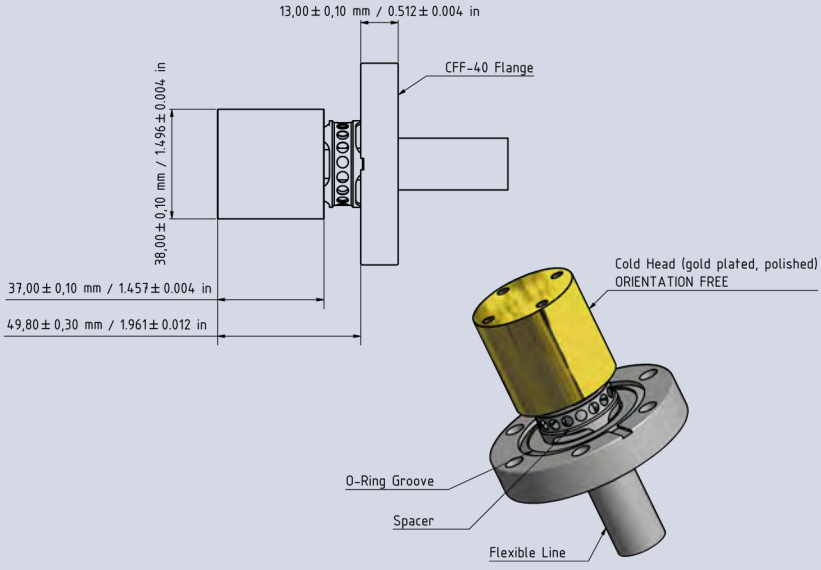
Cold Head Unit

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.

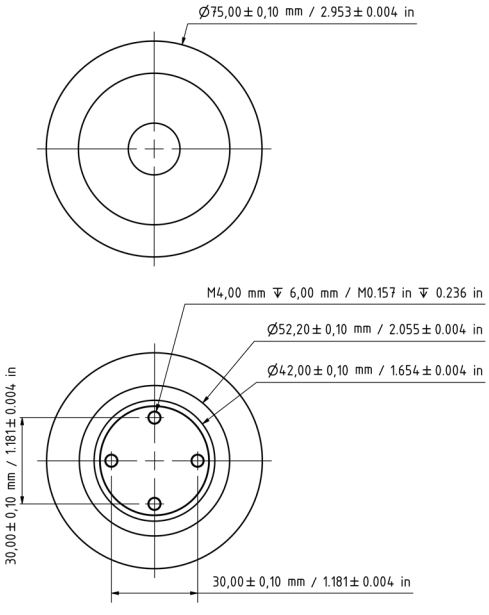
K 100075 W

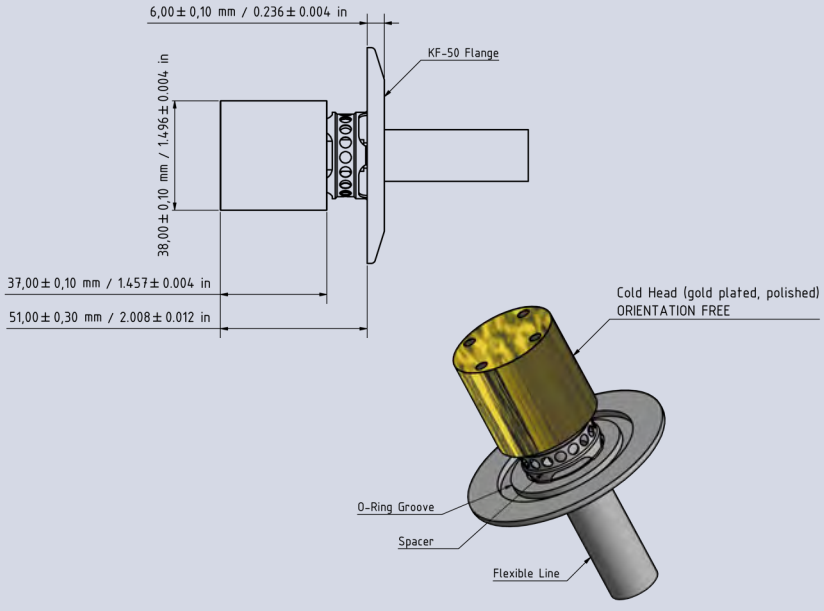
STANDARD CFF-40 COLD HEAD





STANDARD KF-50 COLD HEAD





TECHNICAL DATA

Compressor Unit (water cooled)
Maximum cooling capacity: 75 W @ 100 K [Δ]
Temperature range: 90 K - 100 K
Cool down time: 20 minutes
Weight: 49 kg (108,0 lbs)
Maximum sound level: 59 dB(A) @ 1 m
Size: 0,66 m (25.9 in) (L) x 0,51 m (20.0 in) (W) x 0,48 m (18.9 in) (H)
Power requirement: AC 220 V-240 V 50 Hz single phase, typ. 1700 W
or AC 208 V-230 V 60 Hz single phase, typ. 1700 W
Cool lines: Standard 2,5 m (98.4 in)
Minimum bend radius: 0,3 m (11.8 in)

[Δ] 12 °C water temperature @ 4 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 ($7.5x10^{-13}$ 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)

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K 100100 W

CRYOREFRIGERATOR

K 100100 W

FEATURES

+ **High cooling capacity 100 W**
+ **Cryogenic temperature 90 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**

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System Description

The K100100W 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 K100100W 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.

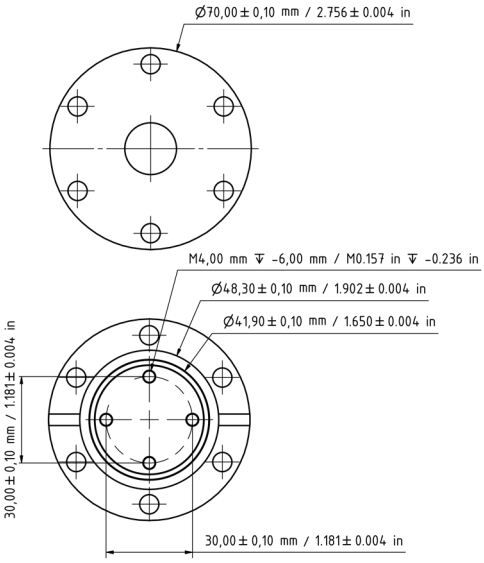
Compressor Unit

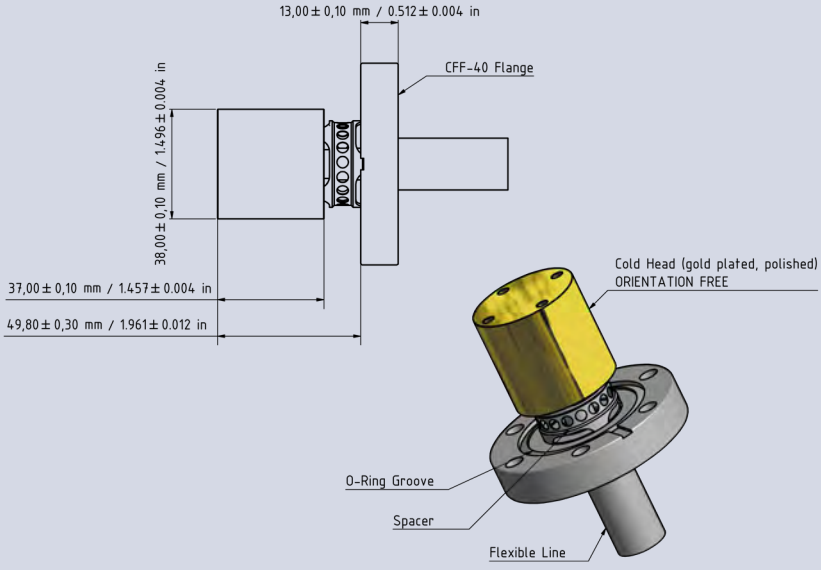
The compact portable water-cooled K100100W can be installed virtually anywhere and cooled down to its operating temperature just within 20 minutes. With the size of 0,66m (L) x 0,51m (W) x 0,48m (H) the compressor unit is suitable for small labs. Due the cryogenic temperatures, new and advanced materials for solid state laser applications can be used. Moreover the K100100W 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

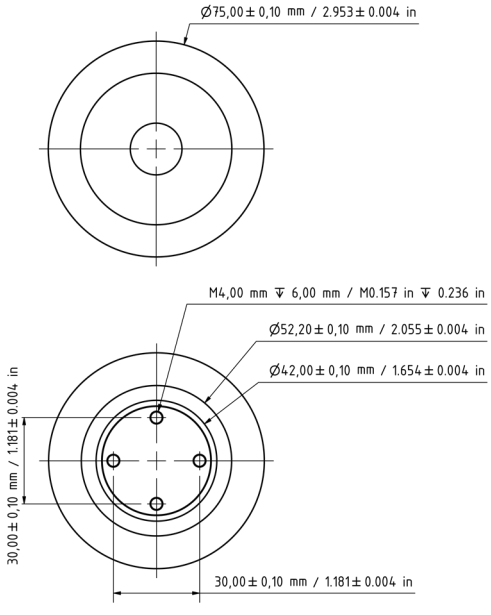
Our standard cold head-units are available with CFF-40 flanges or KF-50 flanges. Both cold head-units can easily be attached to the chamber. Special vacuum chambers are no longer needed. Moreover, the unique design makes it possible to reduce size and costs of the chambers. This fact provides better 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.

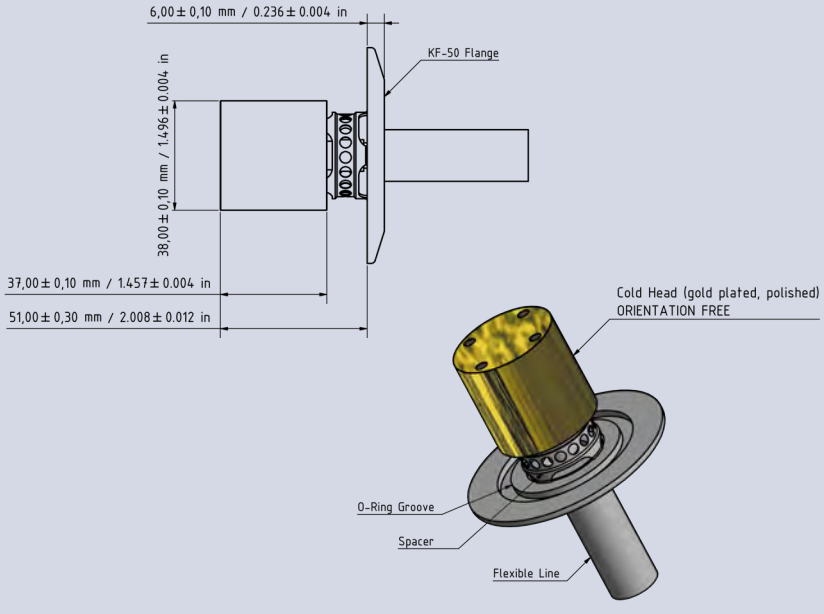
STANDARD CFF-40 COLD HEAD





STANDARD KF-50 COLD HEAD





TECHNICAL DATA

Compressor Unit (water cooled)
Maximum cooling capacity: 100 W @ 100 K [Δ]
Temperature range: 90 K - 100 K
Cool down time: 20 minutes
Weight: 55 kg (121,3 lbs)
Maximum sound level: 59 dB(A) @ 1 m
Size: 0,66 m (25.9 in) (L) x 0,51 m (20.0 in) (W) x 0,48 m (18.9 in) (H)
Power requirement: AC 220 V-240 V 50 Hz single phase, typ. 2200 W
or AC 208 V-230 V 60 Hz single phase, typ. 2200 W
Cool lines: Standard 2,5 m (98.4 in)
Minimum bend radius: 0,3 m (11.8 in)

[Δ] 12 °C water temperature @ 5 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 ($7.5x10^{-13}$ 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)

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K 100150 W

CRYOREFRIGERATOR

K 100150 W

FEATURES

+ **High cooling capacity 150 W**
+ **Cryogenic temperature 90 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**

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System Description

The K100150W 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 K100150W 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.

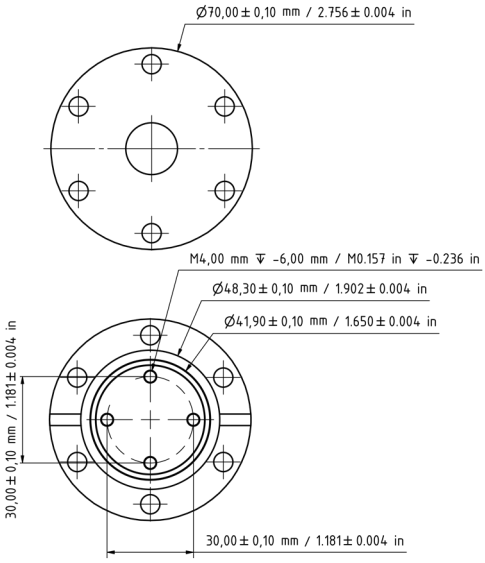
Compressor Unit

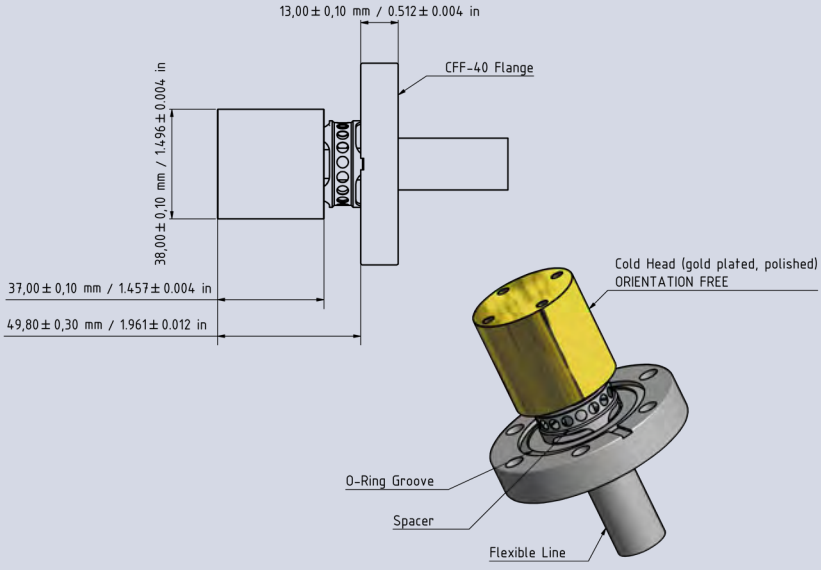
The compact portable water-cooled K100150W can be installed virtually anywhere and cooled down to its operating temperature just within 20 minutes. With the size of 0,66m (L) x 0,51m (W) x 0,48m (H) the compressor unit is suitable for small labs. Due the cryogenic temperatures, new and advanced materials for solid state laser applications can be used. Moreover the K100150W 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

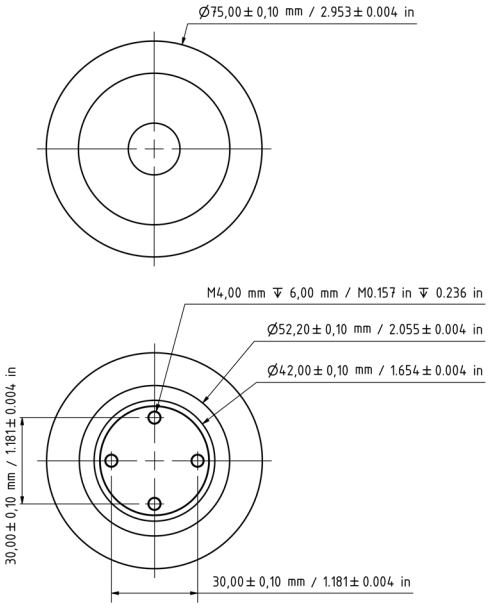
Our standard cold head-units are available with CFF-40 flanges or KF-50 flanges. Both cold head-units can easily be attached to the chamber. Special vacuum chambers are no longer needed. Moreover, the unique design makes it possible to reduce size and costs of the chambers. This fact provides better 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.

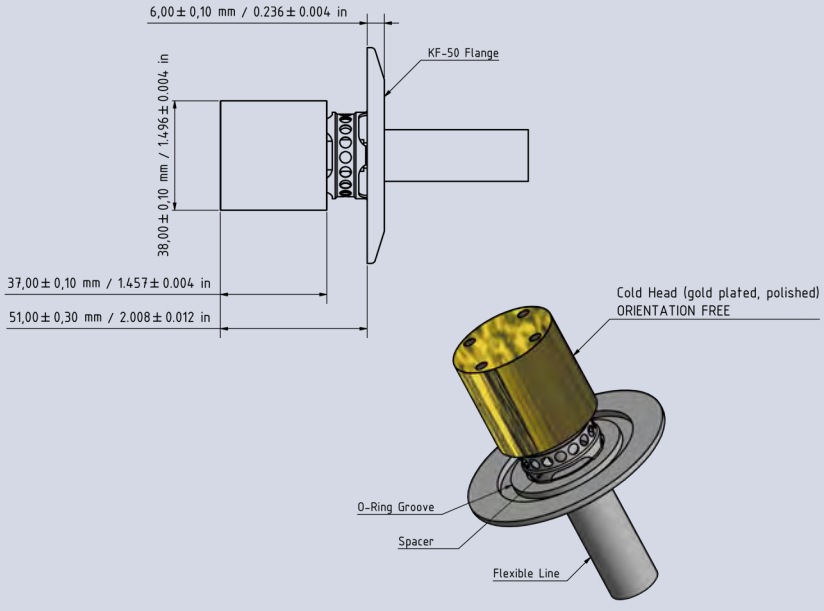
STANDARD CFF-40 COLD HEAD





STANDARD KF-50 COLD HEAD





TECHNICAL DATA

Compressor Unit (water cooled)
Maximum cooling capacity: 150 W @ 100 K [Δ]
Temperature range: 90 K - 100 K
Cool down time: 20 minutes
Weight: 69 kg (152,1 lbs)
Maximum sound level: 59 dB(A) @ 1 m
Size: 0,66 m (25.9 in) (L) x 0,51 m (20.0 in) (W) x 0,48 m (18.9 in) (H)
Power requirement: AC 220 V-240 V 50 Hz single phase, typ. 2500 W
or AC 208 V-230 V 60 Hz single phase, typ. 2500 W
Cool lines: Standard 2,5 m (98.4 in)
Minimum bend radius: 0,3 m (11.8 in)

[Δ] 12 °C water temperature @ 6 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 ($7.5x10^{-13}$ 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)

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K 100300 W

CRYOREFRIGERATOR

K 100300 W

FEATURES

+ **High cooling capacity 300 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**

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System Description

The K100300W 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 K100300W 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.

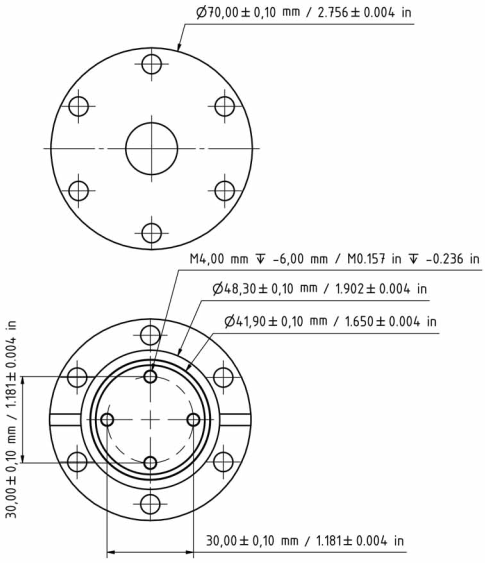
Compressor Unit

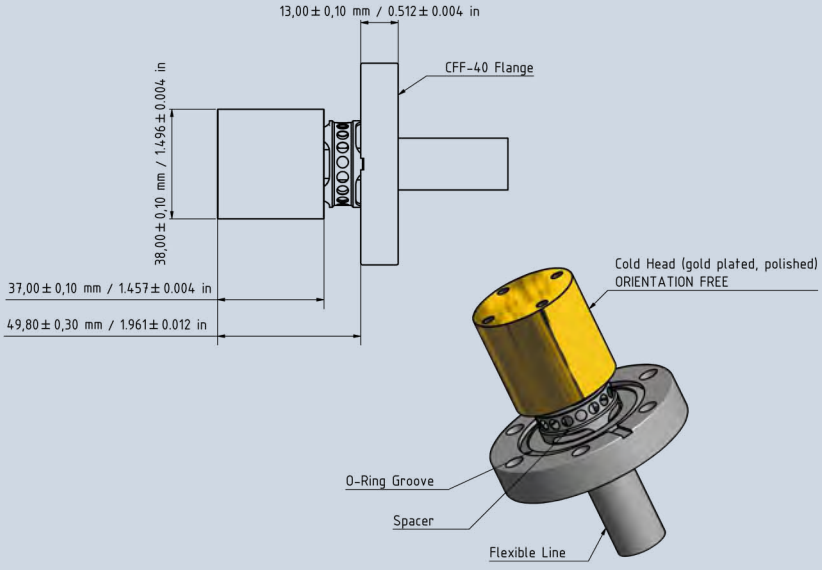
The compact portable water-cooled K100300W can be installed virtually anywhere and cooled down to its operating temperature just within 30 minutes. With the size of 0,82m (L) x 0,90m (W) x 0,58m (H) the compressor unit is suitable for small labs. Due the cryogenic temperatures, new and advanced materials for solid state laser applications can be used. Moreover the K100300W 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

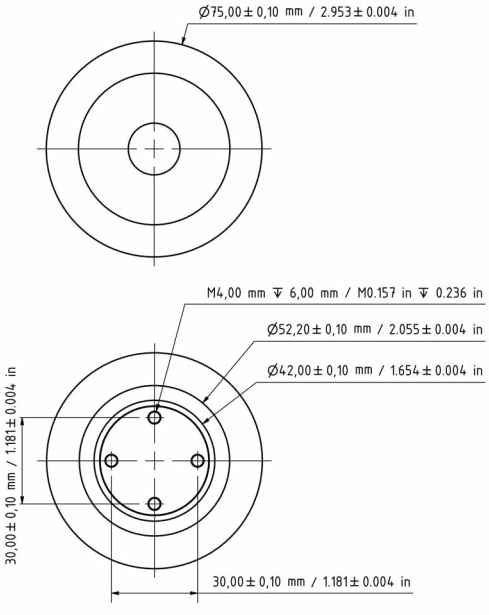
Our standard cold head-units are available with CFF-40 flanges or KF-50 flanges. Both cold head-units can easily be attached to the chamber. Special vacuum chambers are no longer needed. Moreover, the unique design makes it possible to reduce size and costs of the chambers. This fact provides better 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.

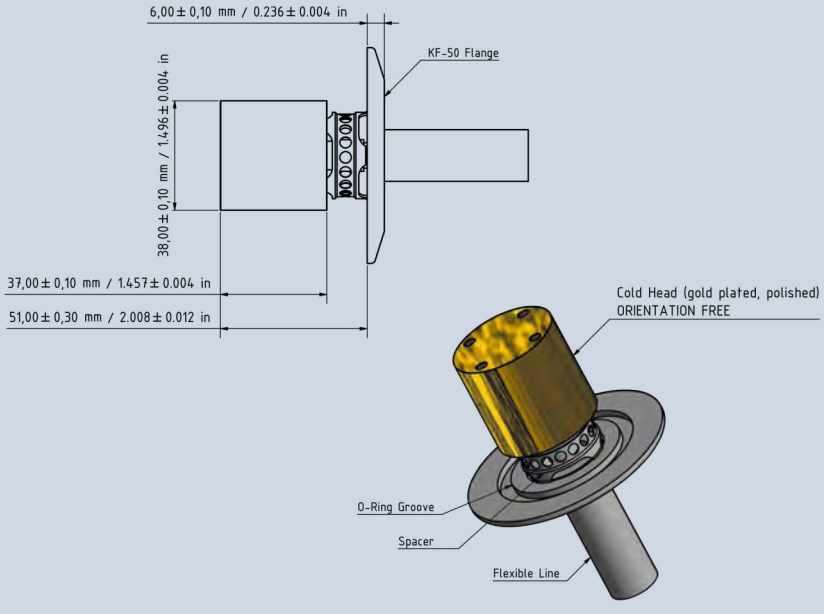
STANDARD CFF-40 COLD HEAD





STANDARD KF-50 COLD HEAD





TECHNICAL DATA

Compressor Unit (water cooled)
Maximum cooling capacity: 300 W @ 100 K [Δ]
Temperature range: 90 K - 100 K
Cool down time: 30 minutes
Weight: 133 kg (293 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. 5300 W
or AC 380 V-420 V 60 Hz three phase, typ. 5300 W
Cool lines: Standard 3,0 m (118.1 in)
Minimum bend radius: 0,3 m (11.8 in)

[Δ] 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 ($7.5x10^{-13}$ 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)

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K 100500 W

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**

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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.

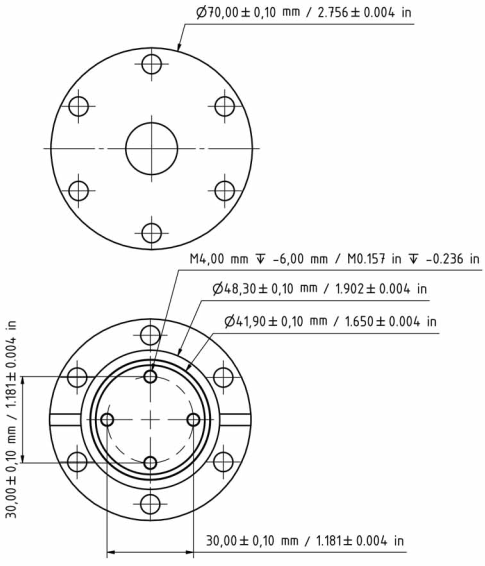
Compressor Unit

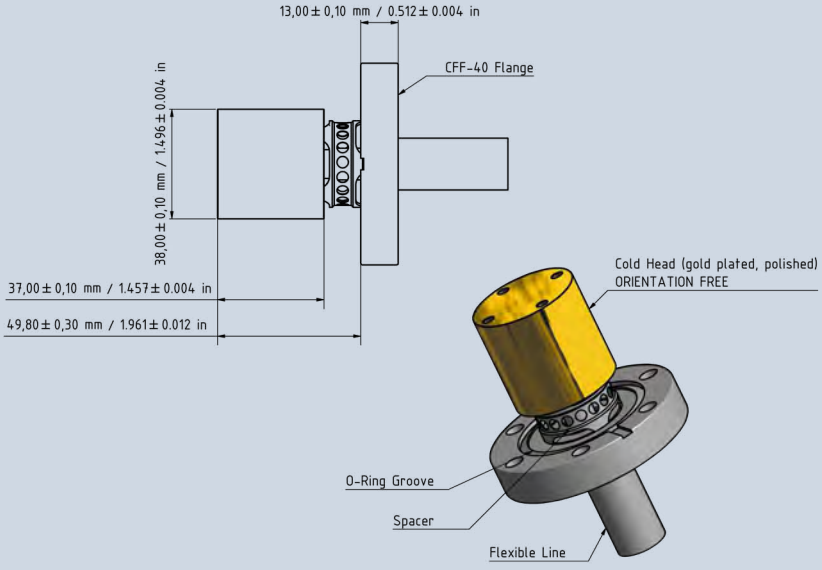
The compact portable water-cooled K100500W can be installed virtually anywhere and cooled down to its operating temperature just within 30 minutes. With the size of 0,82m (L) x 0,90m (W) x 0,58m (H) the compressor unit is suitable for small labs. Due the cryogenic temperatures, new and advanced materials 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

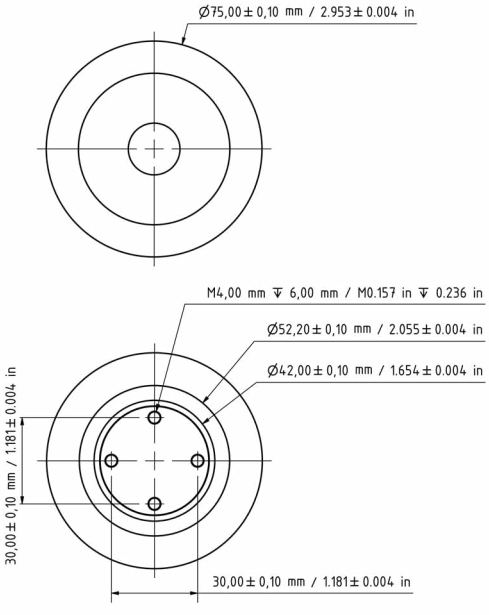
Our standard cold head-units are available with CFF-40 flanges or KF-50 flanges. Both cold head-units can easily be attached to the chamber. Special vacuum chambers are no longer needed. Moreover, the unique design makes it possible to reduce size and costs of the chambers. This fact provides better 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.

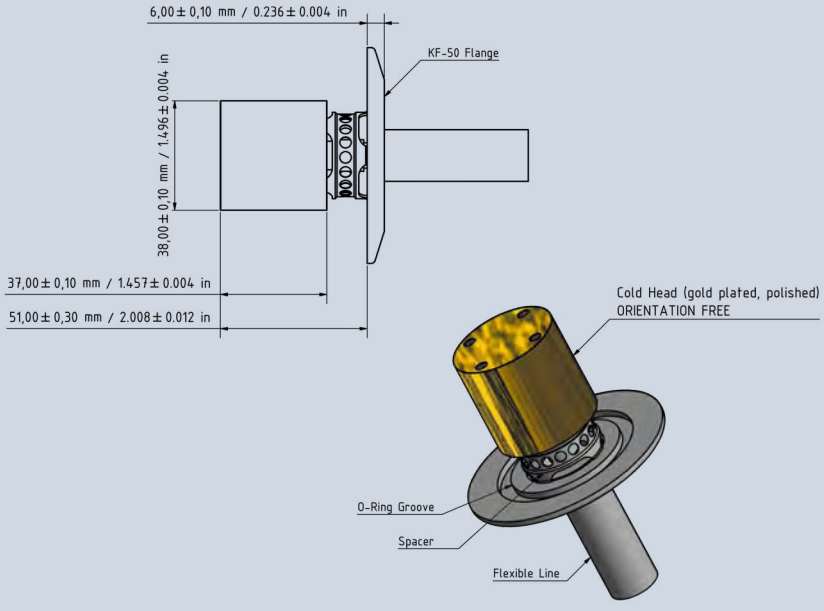
STANDARD CFF-40 COLD HEAD





STANDARD KF-50 COLD HEAD





TECHNICAL DATA

Compressor Unit (water cooled)
Maximum cooling capacity: 500 W @ 100 K [Δ]
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)

[Δ] 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 ($7.5x10^{-13}$ 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)

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K 90100 W

CRYOREFRIGERATOR

K 90100 W

FEATURES

+ **High cooling capacity 100 W**
+ **Cryogenic temperature 75 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**

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System Description

The K90100W 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 K90100W 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

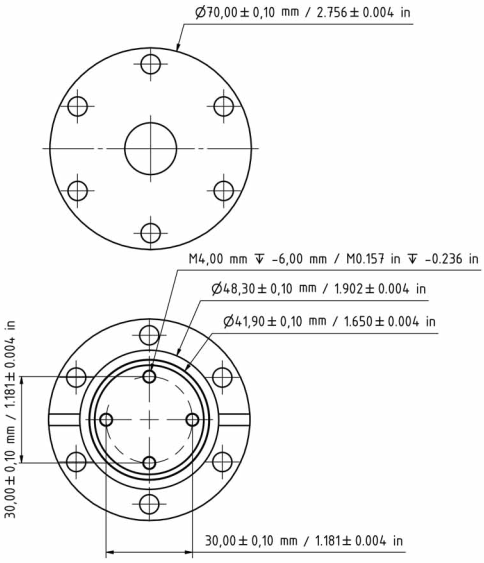
The compact portable water-cooled K90100W can be installed virtually anywhere and cooled down to its operating temperature just within 30 minutes. With the size of 0,78m (L) x 0,68m (W) x 0,58m (H) the compressor unit is suitable for small labs. Due the cryogenic temperatures, new and advanced materials for solid state laser applications can be used. Moreover the K90100W 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.

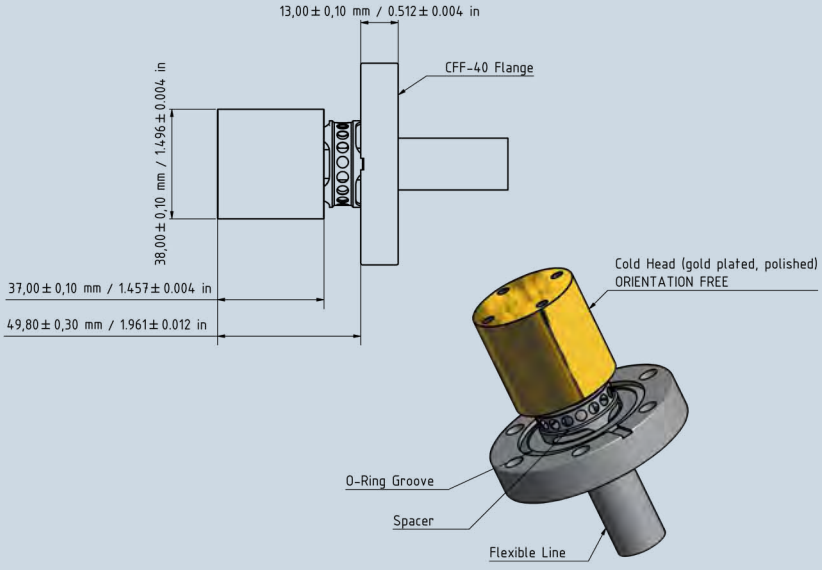
Cold Head Unit

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.

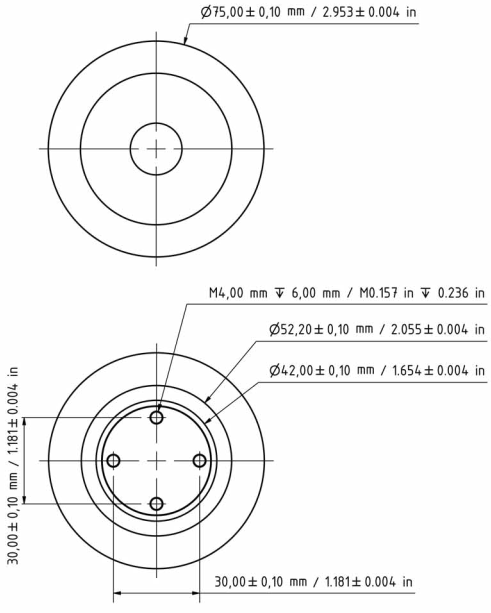
K 90100 W

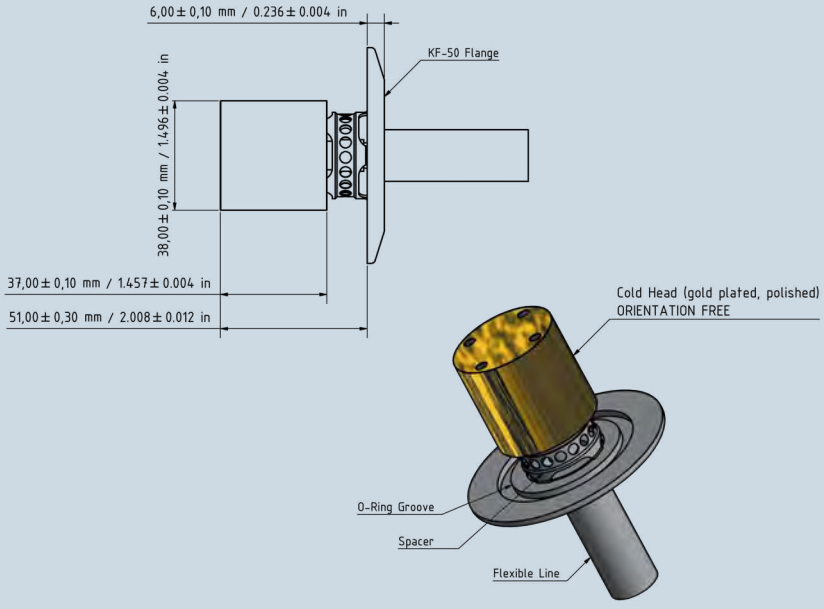
STANDARD CFF-40 COLD HEAD





STANDARD KF-50 COLD HEAD





TECHNICAL DATA

Compressor Unit (water cooled)
Maximum cooling capacity: 100 W @ 90 K [Δ]
Temperature range: 75 K - 90 K
Cool down time: 30 minutes
Weight: 91 kg (200,6 lbs)
Maximum sound level: 60 dB(A) @ 1 m
Size: 0,78 m (30.6 in) (L) x 0,68 m (26.7 in) (W) x 0,58 m (22.7 in) (H)
Power requirement: AC 380 V-420 V 50 Hz three phase, typ. 3600 W
or AC 380 V-420 V 60 Hz three phase, typ. 3600 W
Cool lines: Standard 3,0 m (118.1 in)
Minimum bend radius: 0,3 m (11.8 in)

[Δ] 12 °C water temperature @ 5 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 ($7.5x10^{-13}$ 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)

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K 90150 W

CRYOREFRIGERATOR

K 90150 W

FEATURES

+ **High cooling capacity 150 W**
+ **Cryogenic temperature 75 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**

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System Description

The K90150W 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 K90150W 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.

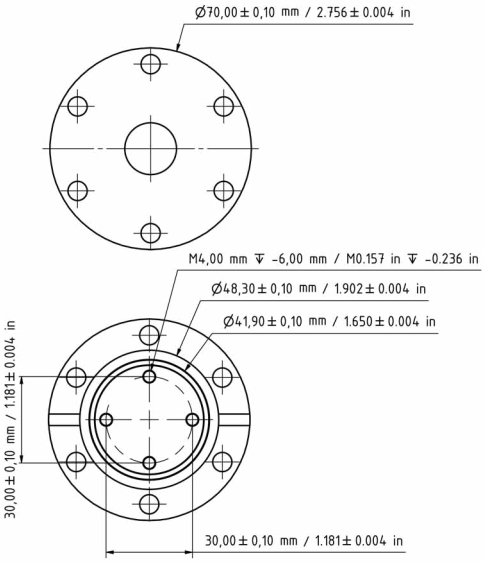
Compressor Unit

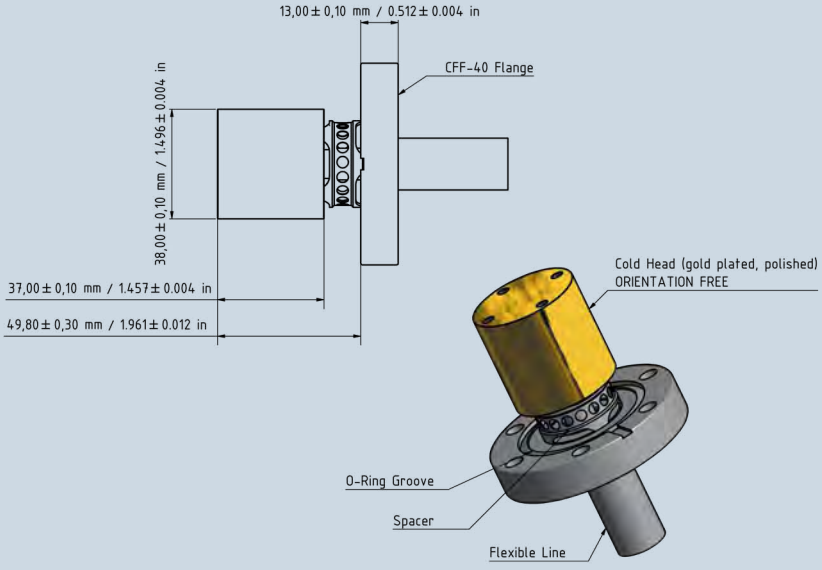
The compact portable water-cooled K90150W can be installed virtually anywhere and cooled down to its operating temperature just within 30 minutes. With the size of 0,78m (L) x 0,68m (W) x 0,58m (H) the compressor unit is suitable for small labs. Due the cryogenic temperatures, new and advanced materials for solid state laser applications can be used. Moreover the K90150W 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

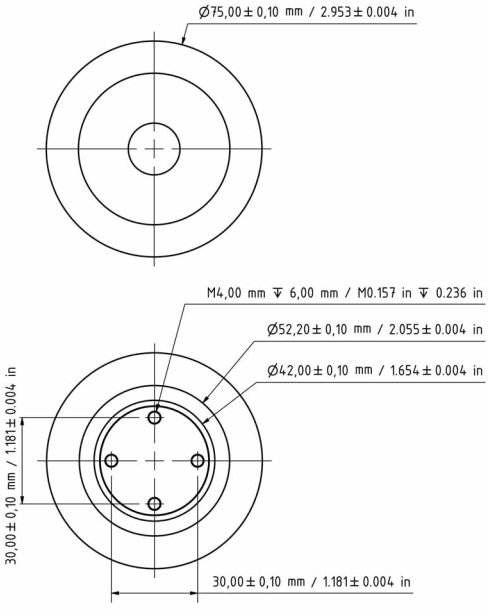
Our standard cold head-units are available with CFF-40 flanges or KF-50 flanges. Both cold head-units can easily be attached to the chamber. Special vacuum chambers are no longer needed. Moreover, the unique design makes it possible to reduce size and costs of the chambers. This fact provides better 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.

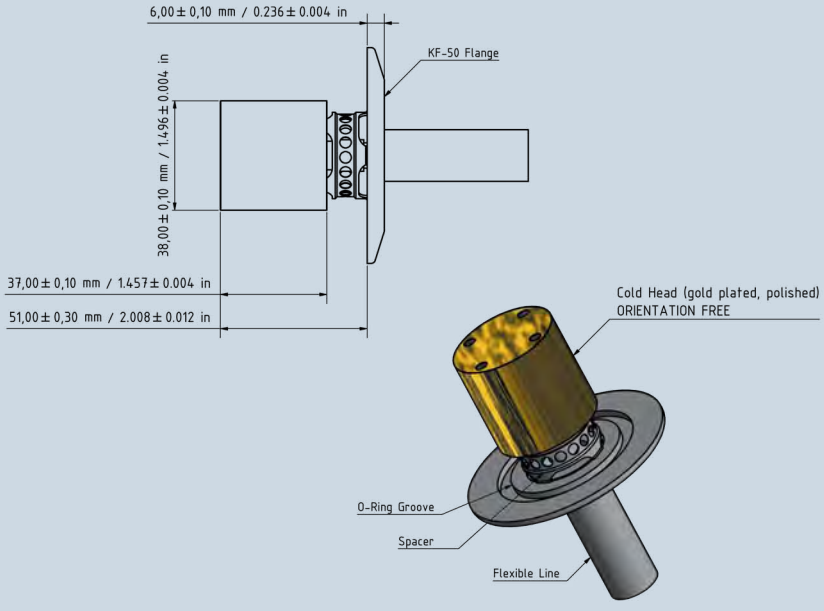
STANDARD CFF-40 COLD HEAD





STANDARD KF-50 COLD HEAD





TECHNICAL DATA

Compressor Unit (water cooled)
Maximum cooling capacity: 150 W @ 90 K [Δ]
Temperature range: 75 K - 90 K
Cool down time: 30 minutes
Weight: 96 kg (212 lbs)
Maximum sound level: 61 dB(A) @ 1 m
Size: 0,78 m (30.6 in) (L) x 0,68 m (26.7 in) (W) x 0,58 m (22.7 in) (H)
Power requirement: AAC 380 V-420 V 50 Hz three phase, typ. 4500 W
or AC 380 V-420 V 60 Hz three phase, typ. 4500 W
Cool lines: Standard 3,0 m (118.1 in)
Minimum bend radius: 0,3 m (11.8 in)

[Δ] 12 °C water temperature @ 6 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 ($7.5x10^{-13}$ 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)

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K 90200 W

CRYOREFRIGERATOR

K 90200 W

FEATURES

+ **High cooling capacity 200 W**
+ **Cryogenic temperature 75 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**

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System Description

The K90200W 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 K90200W 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

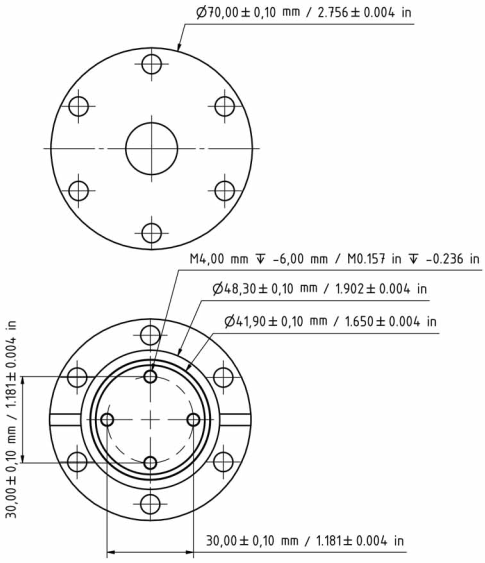
The compact portable water-cooled K90200W can be installed virtually anywhere and cooled down to its operating temperature just within 30 minutes. With the size of 0,82m (L) x 0,90m (W) x 0,58m (H) the compressor unit is suitable for small labs. Due the cryogenic temperatures, new and advanced materials for solid state laser applications can be used. Moreover the K90200W 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.

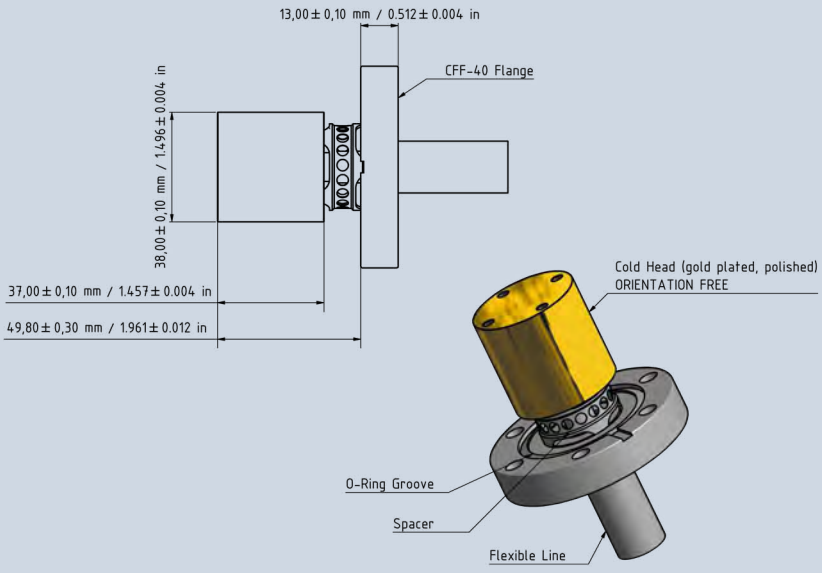
Cold Head Unit

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.

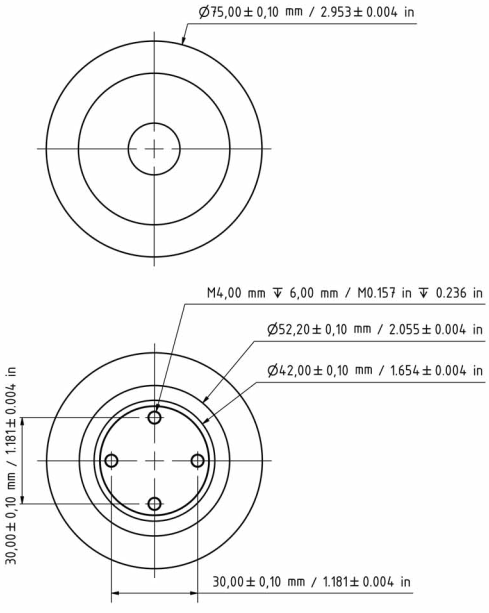
K 90200 W

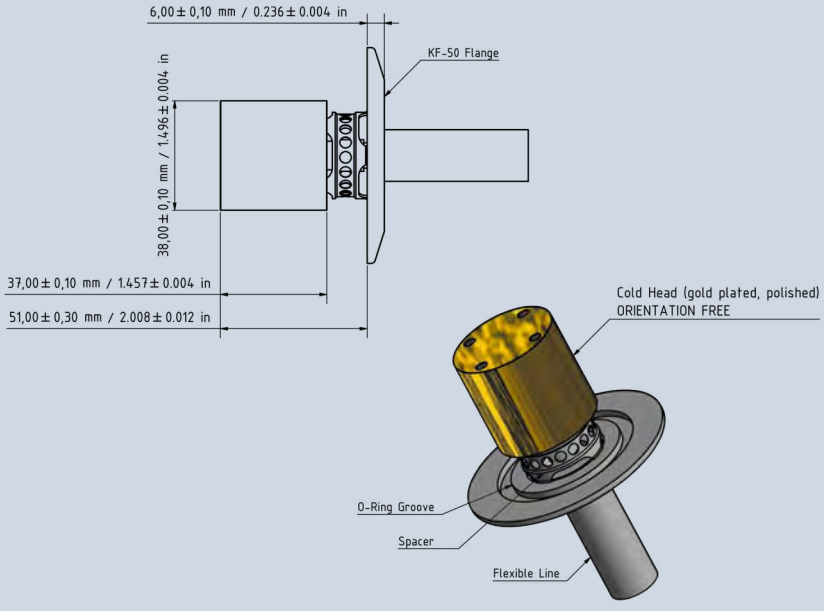
STANDARD CFF-40 COLD HEAD





STANDARD KF-50 COLD HEAD





TECHNICAL DATA

Compressor Unit (water cooled)
Maximum cooling capacity: 200 W @ 90 K [Δ]
Temperature range: 75 K - 90 K
Cool down time: 30 minutes
Weight: 132 kg (291 lbs)
Maximum sound level: 63 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. 5500 W
or AC 380 V-420 V 60 Hz three phase, typ. 5500 W
Cool lines: Standard 3,0 m (118.1 in)
Minimum bend radius: 0,3 m (11.8 in)

[Δ] 12 °C water temperature @ 7 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 ($7.5x10^{-13}$ 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)

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Cryogenics is our passion.

K 90300 W

CRYOREFRIGERATOR

K 90300 W

FEATURES

+ **High cooling capacity 300 W**
+ **Cryogenic temperature 75 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**

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System Description

The K90300W 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 K90300W 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

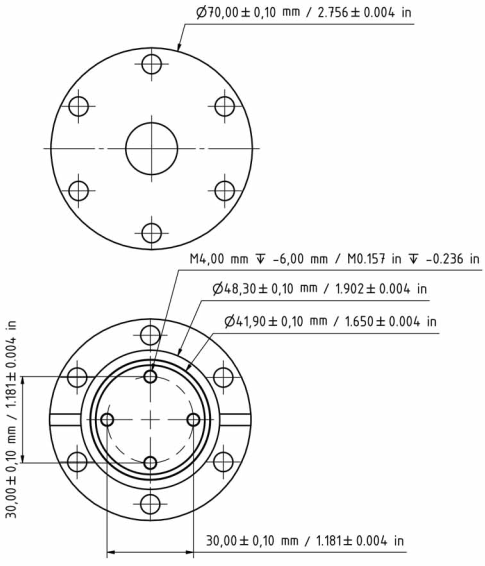
The compact portable water-cooled K90300W can be installed virtually anywhere and cooled down to its operating temperature just within 30 minutes. With the size of 0,82m (L) x 0,90m (W) x 0,58m (H) the compressor unit is suitable for small labs. Due the cryogenic temperatures, new and advanced materials for solid state laser applications can be used. Moreover the K90300W 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.

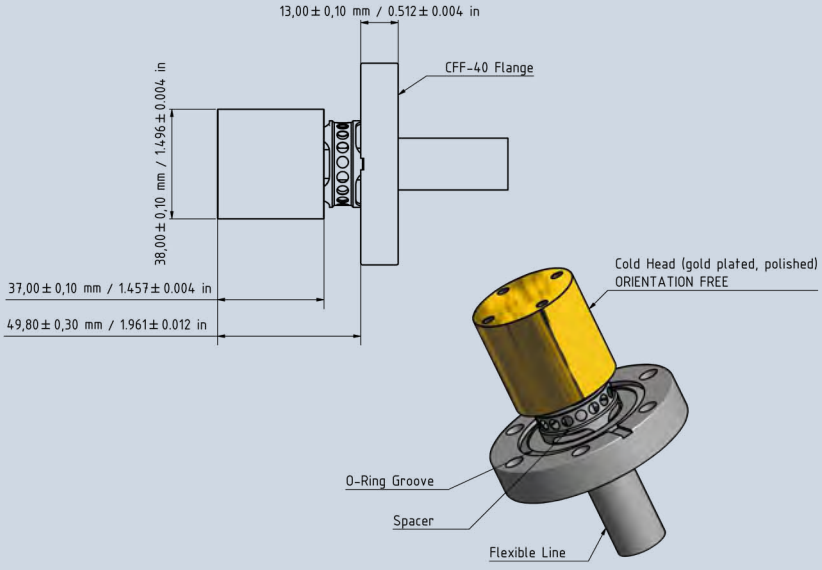
Cold Head Unit

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.

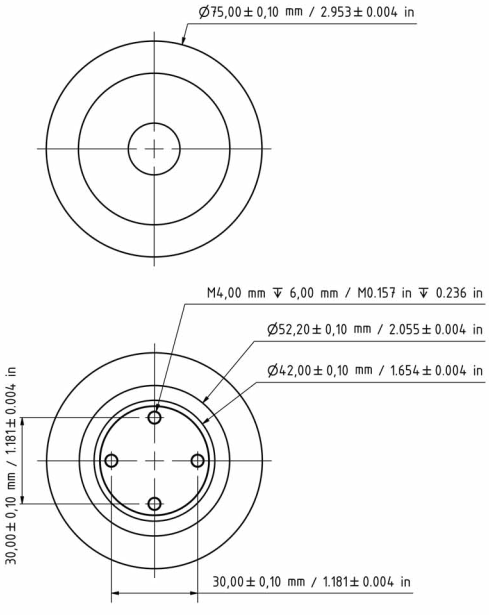
K 90300 W

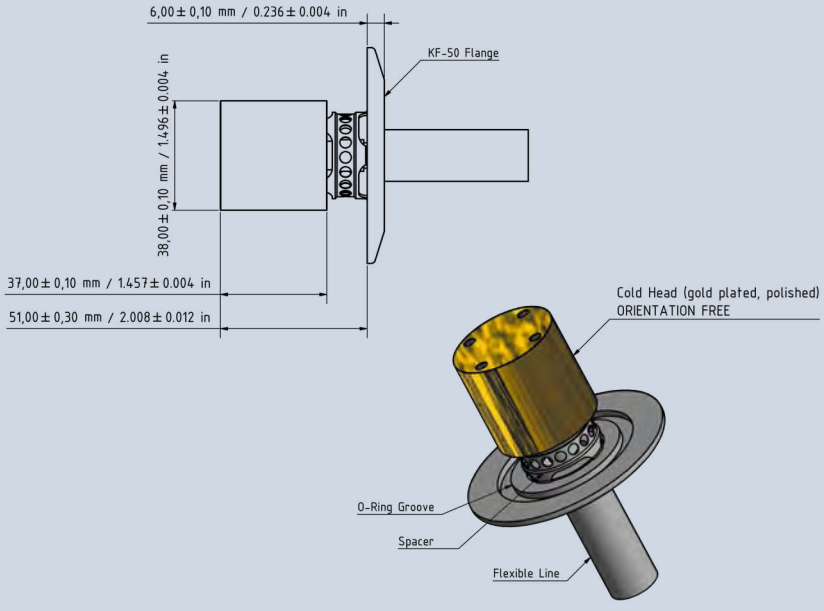
STANDARD CFF-40 COLD HEAD





STANDARD KF-50 COLD HEAD





TECHNICAL DATA

Compressor Unit (water cooled)
Maximum cooling capacity: 300 W @ 90 K [Δ]
Temperature range: 75 K - 90 K
Cool down time: 30 minutes
Weight: 139 kg (306 lbs)
Maximum sound level: 63 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. 6300 W
or AC 380 V-420 V 60 Hz three phase, typ. 6300 W
Cool lines: Standard 3,0 m (118.1 in)
Minimum bend radius: 0,3 m (11.8 in)

[Δ] 12 °C water temperature @ 9 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 ($7.5x10^{-13}$ 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
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10^{-7} mbar ($7.5x10^{-8}$ torr)

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