CryoPride®

CSSC

Product Catalog

CryoPride PRIDe CRYOGENIC TECHNOLOGY

LEADING NEW CRYOGENICS TECHNOLOGIES

CONTENTS

Pride Cryogenic is a technology oriented company concentrated on the development and manufacturing of cryocoolers and cryogenic engineering application devices. Pride Cryogenics's products include 4K GM cryocoolers, 10K GM cryocoolers, 77K GM cryocoolers, cryostats, helium reliquefiers, gas recovery, purification and liquefaction systems and other customised cryogenic systems.

COMPANY PROFILE

PRIDE Cryogenics brings together many talents in technique, management and marketing areas. PRIDE Cryogenics is specialized in the research and development of cryogenic and electronic devices. PRIDE Cryogenics has independent intellectual property rights for several key technologies, such as Inertance Gap Phase Shift Cryocooler, Nano-Filtration Channel Oil Separation Technology, which improve the performance and reliability of products, and thus enlarge the application area of cryogenic products.

PRIDE Cryogenics takes "Optimizing Management, Pursuing Excellence, Continuous Improvement, Customer Satisfaction" as quality policy. PRIDE Cryogenics has obtained ISO9001, CE, UL certificates. With the series of quality detection means, PRIDE Cryogenics's products have high stability and high reliability.

PRIDE Cryogenics takes"Integrity, Diligence, Adherence" as company spirit to create a world leading business, and aims at boosting the nationalization and industrialization of cryogenic technology. PRIDE Cryogenics focuses on the development of cryogenic industry, works hard to meet the customers' needs in all aspects, provides cost effective products, professional technical support and customer-oriented services, and eventually contributes to the industrial and research development all around.

LEADING NEW CRYOGENICS TECHNOLOGIES

DEVELOPMENT HISTORY

06

2018.9

Has successfully developed Ne-He Refining Units in September, 2018.

2016.8

GM cryocooler completed to provide scale selling through abroad marketing.

05

04

2015.5

GM cryocoolers were supplied towards MRI companies in large volumes.

2013.7

Became a member of CSSC

03

02

2011.3

Has successfully developed Helium Recovery Purification and Liquefaction system.

2010.1

Founded in Jan, 2010 with a registered capital of RMB 30 Million.In August, the first GM cryocooler was developed.

01

INTELLECTUAL PROPERTY RIGHTS AND TECHNOLOGIES

1. Gas phase-shifting cryogenic technology
2. Nanoscale filtration channel oil separation technology
3. Gas purification separation, condensation, liquefaction, recovery technology
4. Ultra-low vibration, ultra-precision temperature control, ultra-low temperature cryostat technology
5. Large-scale cryogenic cold box, valve box integration technology
6. Multi-channel composite pipe technology

CRYOCOOLERS

KDE420SA KDE418S4, KDE415SA, KDE412S4, KDE410SA, KDE401S2, KDE210SA,KDE400SA, KDE300SA KDE400SX, KDC6000V, KDC6000, KDC4000F, KDC2000F, KDC1000A

Gifford-Mcmahon (GM) cryocooler is invented by Gifford and Mcmahon, whose refrigeration principle is Gas Adiabatic Expansion. Its main components include cold head, helium hose and helium compressor.

Due to the property of high reliability, long service life and easy to control, GM cryocooler becomes the only one of cryocoolers which has been industrialized. This kind of cryocooler entirely depended on import until Pride Cryogenics was founded. We break the technology monopolistic of foreign companies.

CRYOCOOLERS APPLICATION SITE

The application site of Cryocoolers. 1

The application site of Cryocoolers. 2

The application site of Cryocoolers. 3

The application site of Cryocoolers. 3

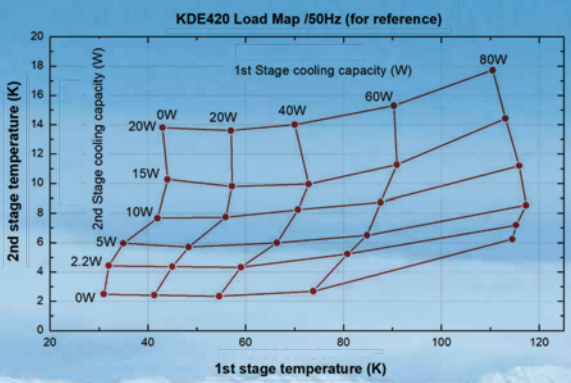
KDE420SA

SPECIFICATION			
		KDE420SA	
	Lowest Temperature	< 3.5K	
	Cooling Capacity (50Hz)	First Stage	Second Stage
		20W @ 50K	2.0W @ 4.2K
	Cooldown Time (2nd stage)	< 60min(4.2K)	
	Weight	Coldhead	Compressor
		19 kg	118 kg
	Compressor Type	KDC6000V	
	Power Consumption(50Hz)	Steady	Cooldown
		6.9kW	7.5kW
	Cooling Type	Water	
	Cooling Water Requirement	> 7 L/min	
	Standard Flexline	20A×20m	
	Warranty Time	Coldhead	
		18 months	

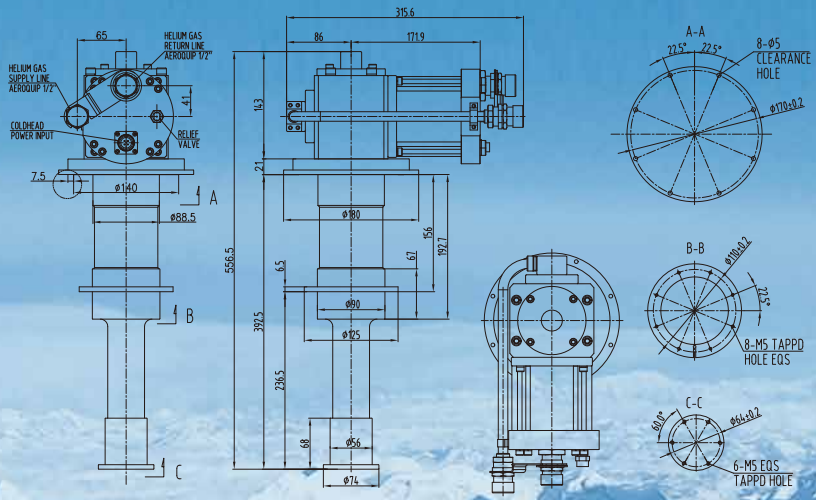
AMBIENT REQUIREMENT

Item	Operating	Storage
Ambient Temperature	4-40 ℃	-20-65 ℃
Relative Humidity	30%-70%	10%-90%(Requiring No-condensing)
Ambient atmospheric pressure	70kPa~110kPa	20kPa~110kPa

TYPICAL LOAD MAP(50HZ)

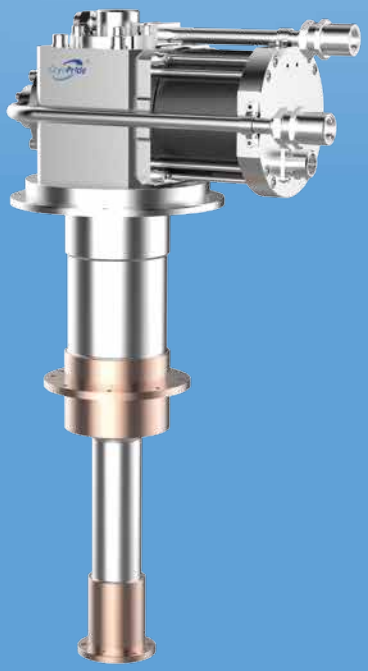


OUTLINE DRAWING



KDE418S4

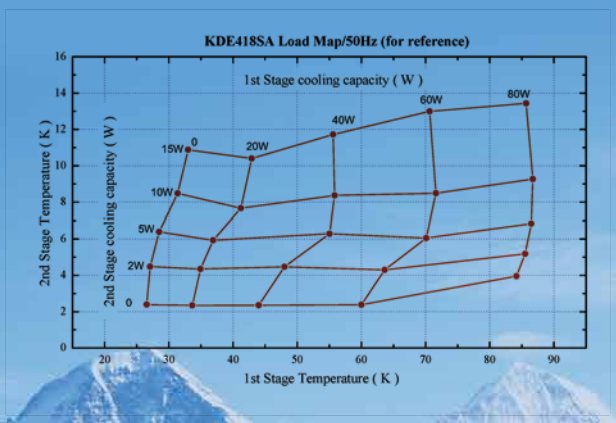
SPECIFICATION			
	KDE418S4		
Lowest Temperature	< 3.5K		
Cooling Capacity (50Hz)	First Stage	Second Stage	
	42W @ 50K	1.9W @ 4.2K	
Cooldown Time (2nd stage)	< 60min(4.2K)		
Weight	Coldhead	Compressor	
	19 kg	118 kg	
Compressor Type	KDC6000V		
Power Consumption(50Hz)	Steady	Cooldown	
	6.5kW	7.2kW	
Cooling Type	Water		
Cooling Water Requirement	> 7 L/min		
Standard Flexline	20A×20m		
Warranty Time	Coldhead		
	18 months		



AMBIENT REQUIREMENT

Item	Operating	Storage
Ambient Temperature	4-40 ℃	-20-65 ℃
Relative Humidity	30%-70%	10%-90%(Requiring No-condensing)
Ambient atmospheric pressure	70kPa~110kPa	20kPa~110kPa

TYPICAL LOAD MAP(50HZ)



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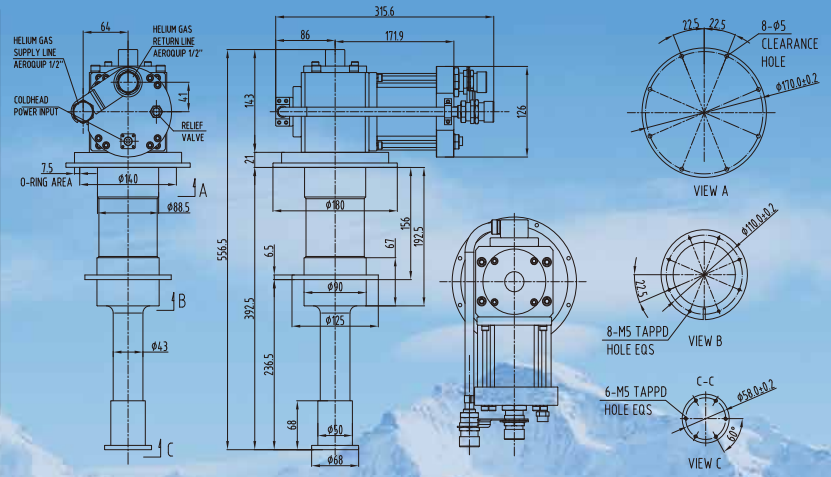


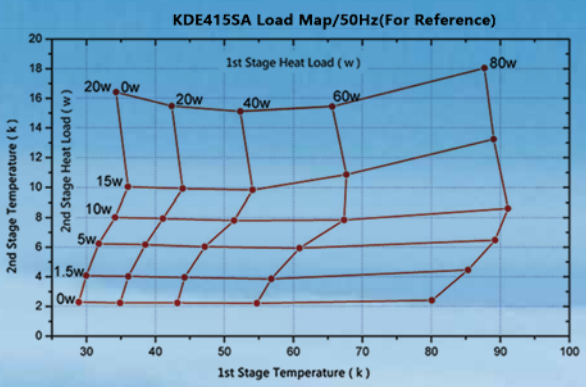
KDE415SA

SPECIFICATION			
		KDE415SA	
	Lowest Temperature	< 3.5K	
	Cooling Capacity (50Hz)	First Stage	Second Stage
		35W @ 50K	1.5W @ 4.2K
	Cooldown Time (2nd stage)	< 60min(4.2K)	
	Weight	Coldhead	Compressor
		19 kg	118 kg
	Compressor Type	KDC6000V	
	Power Consumption(50Hz)	Steady	Cooldown
		6.5kW	7.2kW
	Cooling Type	Water	
	Cooling Water Requirement	> 7 L/min	
	Standard Flexline	20A×20m	
	Warranty Time	Coldhead	
		18 months	

AMBIENT REQUIREMENT

Item	Operating	Storage
Ambient Temperature	4-40 ℃	-20-65 ℃
Relative Humidity	30%-70%	10%-90%(Requiring No-condensing)
Ambient atmospheric pressure	70kPa~110kPa	20kPa~110kPa

TYPICAL LOAD MAP(50HZ)



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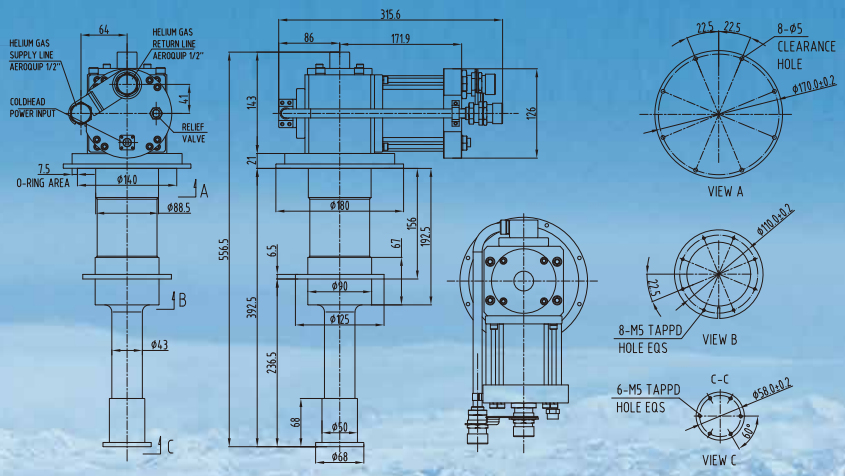
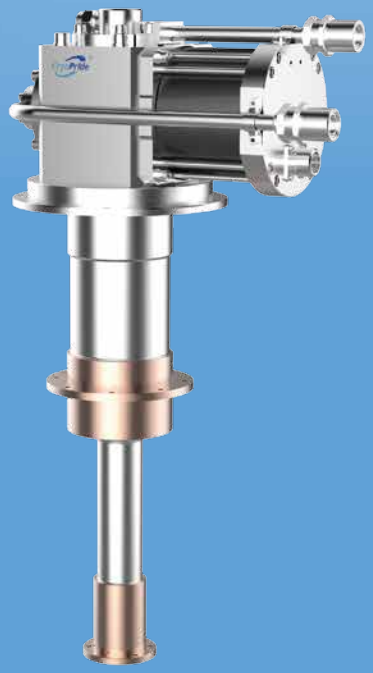


KDE412S4

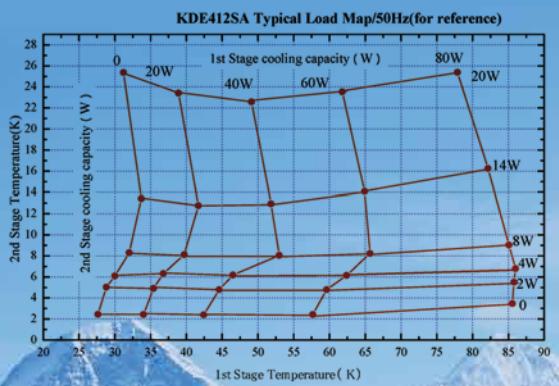
SPECIFICATION			
		KDE412S4	
	Lowest Temperature	< 3.5K	
	Cooling Capacity (50Hz)	First Stage	Second Stage
		53W @ 45K	1.35W @ 4.2K
	Cooldown Time (2nd stage)	< 60min(4.2K)	
	Weight	Coldhead	Compressor
		18.5 kg	118 kg
	Compressor Type	KDC6000V、KDC4000F	
	Power Consumption(50Hz)	Steady	Cooldown
		6.5kW	7.2kW
	Cooling Type	Water	
	Cooling Water Requirement	> 7 L/min	
	Standard Flexline	20A×20m	
	Warranty Time	Coldhead	
		18 months	



AMBIENT REQUIREMENT

Item	Operating	Storage
Ambient Temperature	4-40 ℃	-20-65 ℃
Relative Humidity	30%-70%	10%-90%(Requiring No-condensing)
Ambient atmospheric pressure	70kPa~110kPa	20kPa~110kPa

TYPICAL LOAD MAP(50HZ)



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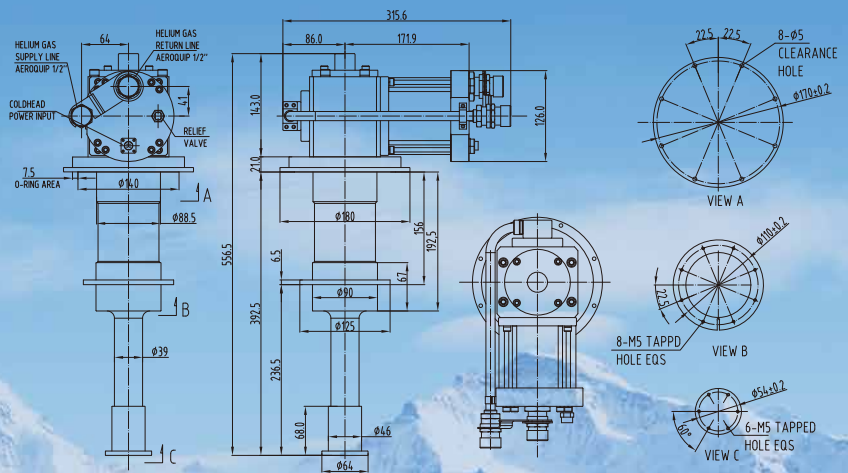


KDE410SA

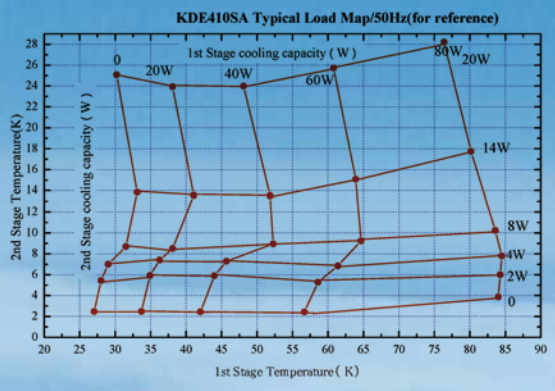
SPECIFICATION

	KDE410SA	
Lowest Temperature	< 3.5K	
Cooling Capacity (50Hz)	First Stage	Second Stage
	40W @ 45K	1.0W @ 4.2K
Cooldown Time (2nd stage)	< 60min(4.2K)	
Weight	Coldhead	Compressor
	18.5 kg	118 kg
Compressor Type	KDC6000V	
Power Consumption(50Hz)	Steady	Cooldown
	6.5kW	7.2kW
Cooling Type	Water	
Cooling Water Requirement	> 7 L/min	
Standard Flexline	20A×20m	
Warranty Time	Coldhead	
	18 months	

AMBIENT REQUIREMENT

Item	Operating	Storage
Ambient Temperature	4-40 ℃	-20-65 ℃
Relative Humidity	30%-70%	10%-90%(Requiring No-condensing)
Ambient atmospheric pressure	70kPa~110kPa	20kPa~110kPa

TYPICAL LOAD MAP(50HZ)



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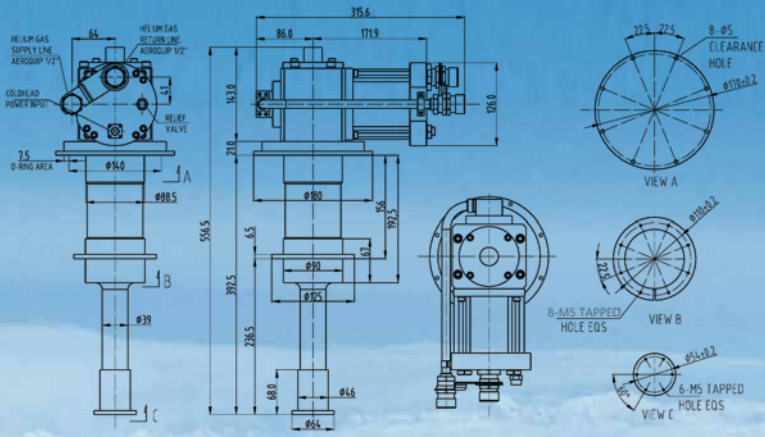
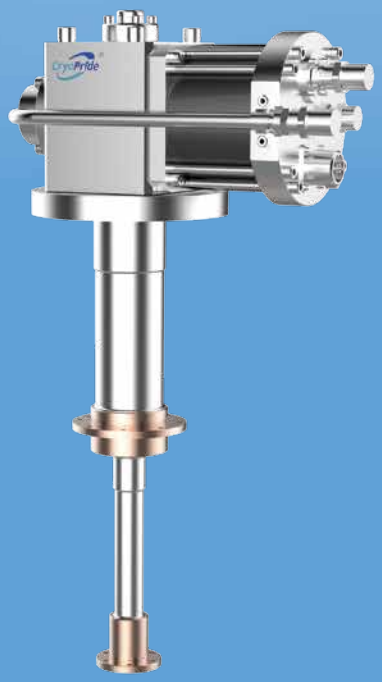


KDE401S2

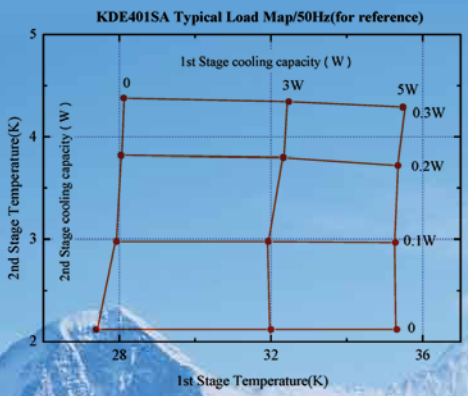
SPECIFICATION			
	KDE401S2		
Lowest Temperature	< 2.5K		
Cooling Capacity (50Hz)	First Stage	Second Stage	
	3W @ 45K/60K	0.2W/0.1W @ 4.2K	
Cooldown Time (2nd stage)	< 120min(4.2K)		
Weight	Coldhead	Compressor	
	8.9 kg	86 kg	
Compressor Type	KDC2000F/KDC1000A		
Power Consumption(50Hz)	Steady	Cooldown	
	3.2kW	3.5kW	
Cooling Type	Air		
Air Flow Rate	600Nm³/hr		
Standard Flexline	15A×10m		
Warranty Time	Coldhead		
	12 months		



AMBIENT REQUIREMENT

Item	Operating	Storage
Ambient Temperature	4-40 ℃	-20-65 ℃
Relative Humidity	30%-70%	10%-90%(Requiring No-condensing)
Ambient atmospheric pressure	70kPa~110kPa	20kPa~110kPa

TYPICAL LOAD MAP(50HZ)



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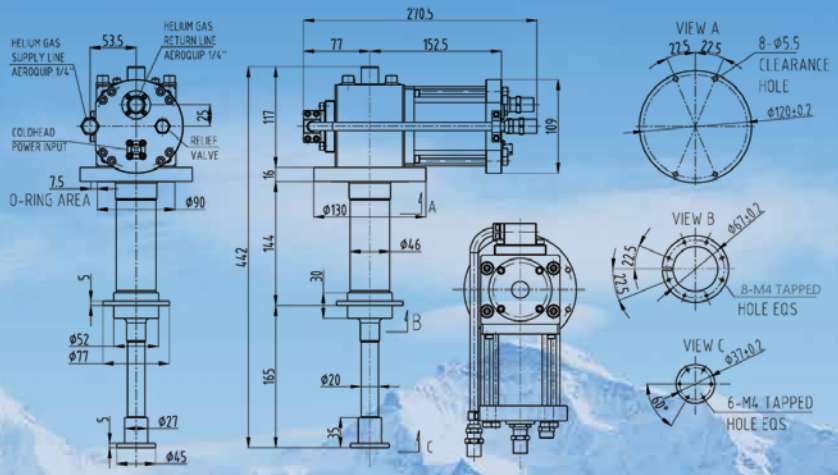
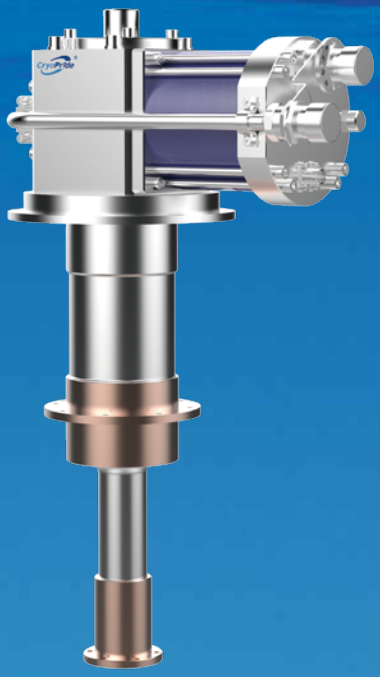


KDE210SA



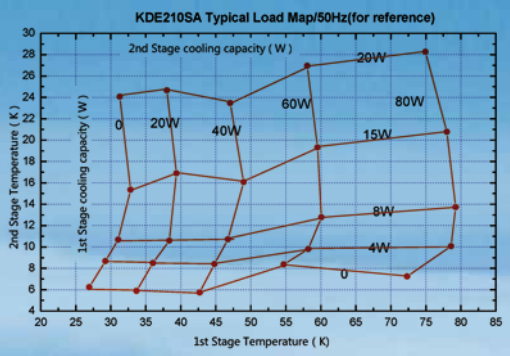
SPECIFICATION

	KDE210SA	
Lowest Temperature	< 10K	
Cooling Capacity (50Hz)	First Stage	Second Stage
	40W @ 45K	5W @ 10K
Cooldown Time (2nd stage)	< 60min(10K)	
Weight	Coldhead	Compressor
	17.8 kg	118 kg
Compressor Type	KDC6000V	
Power Consumption(50Hz)	Steady	Cooldown
	6.5kW	7.2kW
Cooling Type	Water	
Cooling Water Requirement	> 7 L/min	
Standard Flexline	20A×20m	
Warranty Time	Coldhead	
	18 months	

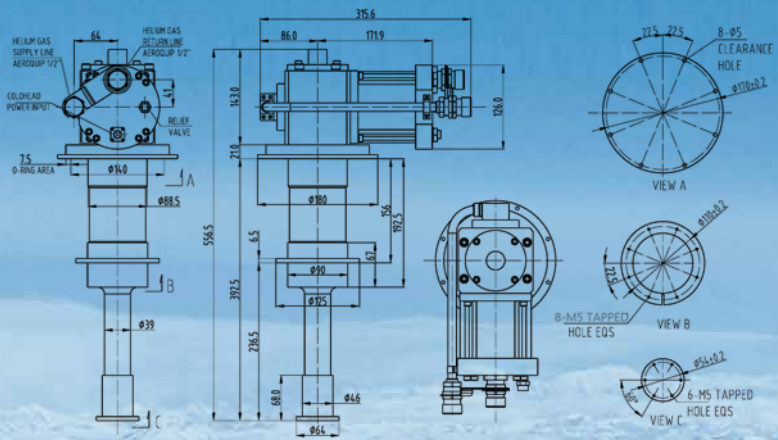
AMBIENT REQUIREMENT

Item	Operating	Storage
Ambient Temperature	4-40 ℃	-20-65 ℃
Relative Humidity	30%-70%	10%-90%(Requiring No-condensing)
Ambient atmospheric pressure	70kPa~110kPa	20kPa~110kPa

TYPICAL LOAD MAP(50HZ)

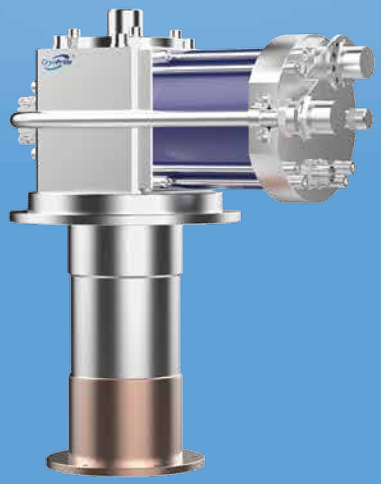


OUTLINE DRAWING



KDE400SA

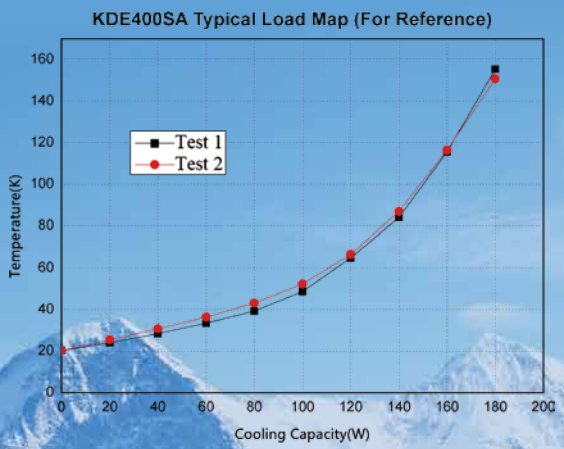
SPECIFICATION			
	KDE400SA		
Lowest Temperature	< 30K		
Cooling Capacity (50Hz)	First Stage	/	
	54W @ 40K	/	
Cooldown Time (2nd stage)	< 40min(30K)		
Weight	Coldhead	Compressor	
	16.8 kg	118 kg	
Compressor Type	KDC6000V		
Power Consumption(50Hz)	Steady	Cooldown	
	6.5kW	7.2kW	
Cooling Type	Water		
Cooling Water Requirement	> 7 L/min		
Standard Flexline	20A×20m		
Warranty Time	Coldhead		
	18 months		



AMBIENT REQUIREMENT

Item	Operating	Storage
Ambient Temperature	4-40 ℃	-20-65 ℃
Relative Humidity	30%-70%	10%-90%(Requiring No-condensing)
Ambient atmospheric pressure	70kPa~110kPa	20kPa~110kPa

TYPICAL LOAD MAP(50HZ)



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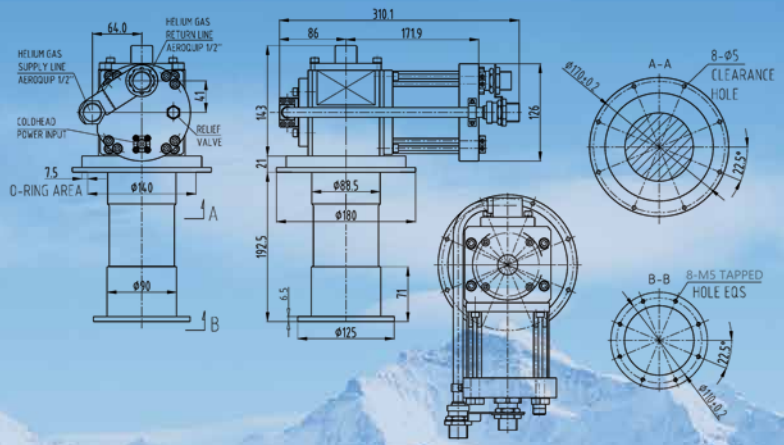


KDE300SA

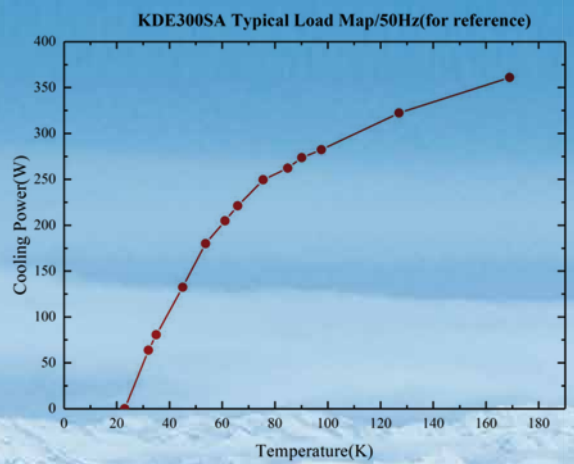
SPECIFICATION

	KDE300SA	
Lowest Temperature	< 25K	
Cooling Capacity (50Hz)	First Stage	/
	250W @ 77K	/
Cooldown Time (2nd stage)	< 20min(70K)	
Weight	Coldhead	Compressor
	18 kg	118 kg
Compressor Type	KDC6000	
Power Consumption(50Hz)	Steady	Cooldown
	6.6~6.9kW	8.5kW
Cooling Type	Water	
Cooling Water Requirement	> 7 L/min	
Standard Flexline	20A×20m	
Warranty Time	Coldhead	
	18 months	

AMBIENT REQUIREMENT

Item	Operating	Storage
Ambient Temperature	4-40 ℃	-20-65 ℃
Relative Humidity	30%-70%	10%-90%(Requiring No-condensing)
Ambient atmospheric pressure	70kPa~110kPa	20kPa~110kPa

TYPICAL LOAD MAP(50HZ)



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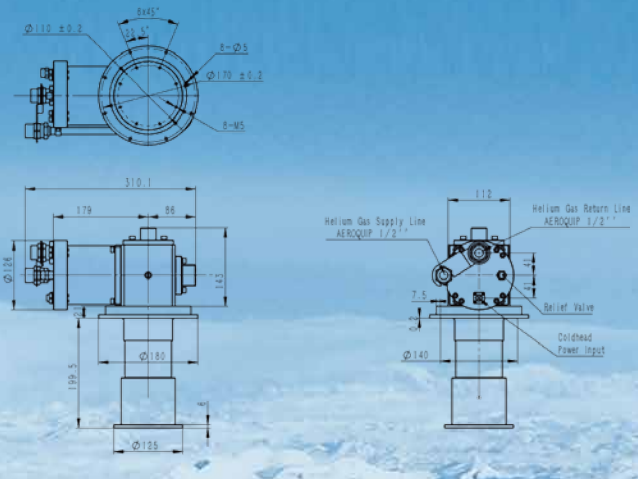
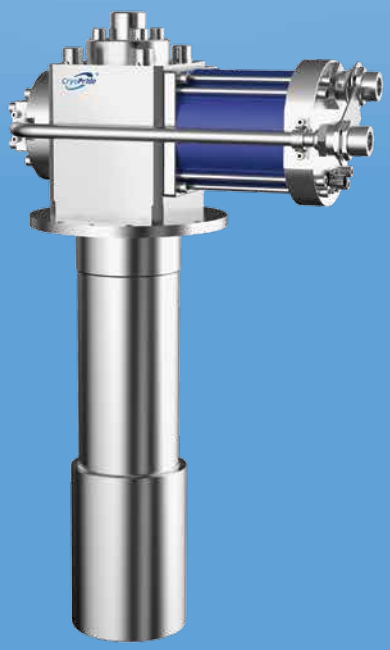


KDE300SA OUTLINE DRAWING

KDE400SX

SPECIFICATION			
	KDE400SX		
Lowest Temperature	< 14K		
Cooling Capacity (50Hz)	First Stage	/	
	40W @ 20K	/	
Cooldown Time (2nd stage)	< 60min(20K)		
Weight	Coldhead	Compressor	
	25 kg	118 kg	
Compressor Type	KDC6000		
Power Consumption(50Hz)	Steady	Cooldown	
	6.6~6.9kW	8.5kW	
Cooling Type	Water		
Cooling Water Requirement	> 7 L/min		
Standard Flexline	20A×20m		
Warranty Time	Coldhead		
	18 months		

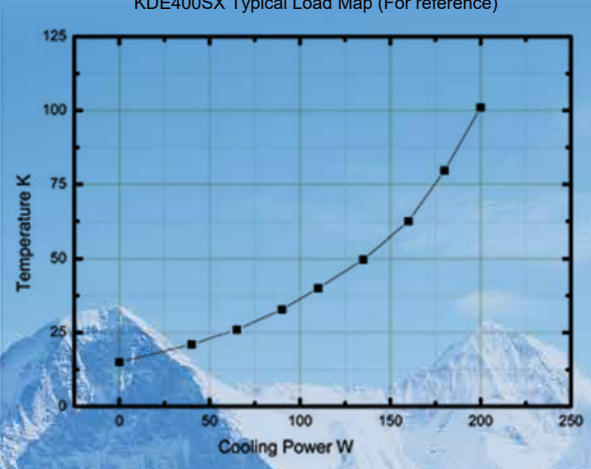


AMBIENT REQUIREMENT

Item	Operating	Storage
Ambient Temperature	4-40 ℃	-20-65 ℃
Relative Humidity	30%-70%	10%-90%(Requiring No-condensing)
Ambient atmospheric pressure	70kPa~110kPa	20kPa~110kPa

TYPICAL LOAD MAP(50HZ)

KDE400SX Typical Load Map (For reference)



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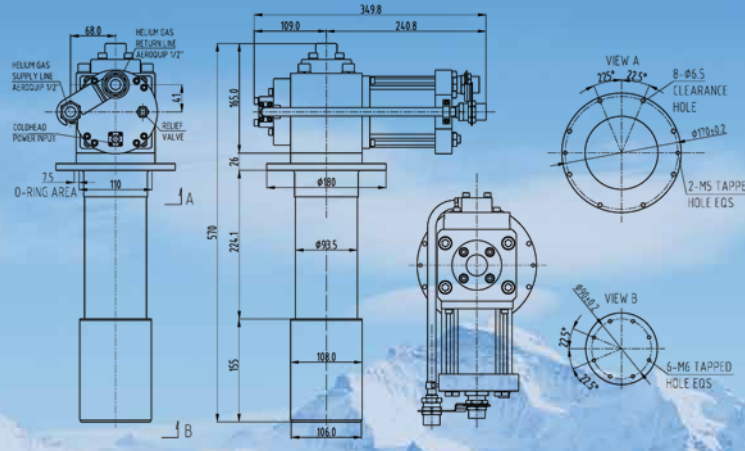


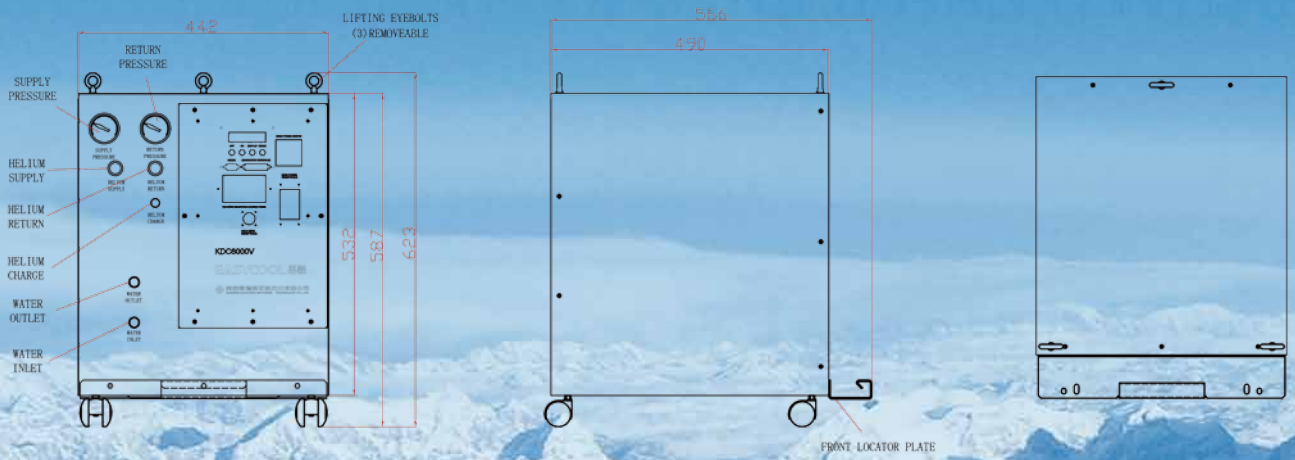
KDC6000V

SPECIFICATION			
	Compressor Type	KDC6000V	
	Electrical Power	380,400V@50Hz 3P 480V@60Hz 3P	
	Helium Purity Requirement	>99.999%	
	Cooling Type	Water	
	Water Flow	7L~10L/min (28℃)	
	Cooling Water Temperature	Inlet	Out
		5~25℃	< 44℃
	Power Consumption(50Hz)	Steady	Cooldown
		6.5kW	7.2kW
	Pressure Range(Operating)	Supply	Return
		16.6~23bar	2.8~6.9bar
	Ambient Temperature	Operating	Storage
		4~40℃	-20~65℃
	Standard Flexline	20A×20m	
	Warranty Time	36 months	
	Weight	118kg	

AMBIENT REQUIREMENT

Item	Operating	Storage
Ambient Temperature	4-40 ℃	-20-65 ℃
Relative Humidity	30%-70%	10%-90%(Requiring No-condensing)
Ambient atmospheric pressure	70kPa~110kPa	20kPa~110kPa

OUTLINE DRAWING



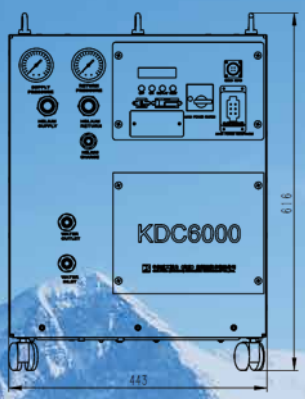
KDC6000

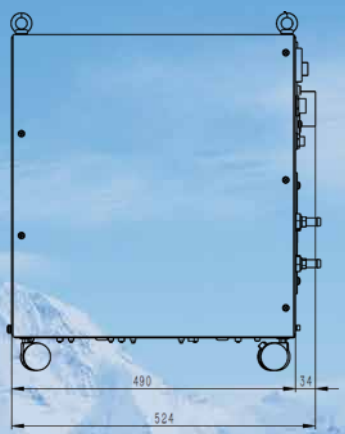
SPECIFICATION			
	Compressor Type	KDC6000	
	Electrical Power	380,400V@50Hz 3P 480V@60Hz 3P	
	Helium Purity Requirement	>99.999%	
	Cooling Type	Water	
	Water Flow	7L~10L/min (28℃)	
	Cooling Water Temperature	Inlet	Out
		5~35℃	<44℃
	Power Consumption(50Hz)	Steady	Cooldown
		6.6~6.9kW	8.5kW
	Pressure Range(Operating)	Supply	Return
		15.6~23bar	2.8~6.9bar
	Ambient Temperature	Operating	Storage
		4~40℃	-20~65℃
	Standard Flexline	20A×20m	
	Warranty Time	36 months	
	Weight	118kg	

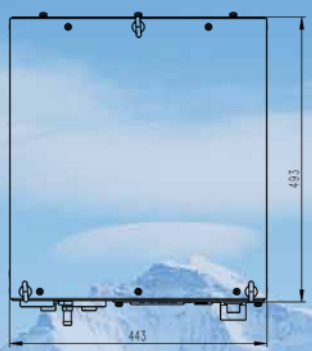
AMBIENT REQUIREMENT

Item	Operating	Storage
Ambient Temperature	4-40 ℃	-20-65 ℃
Relative Humidity	30%-70%	10%-90%(Requiring No-condensing)
Ambient atmospheric pressure	70kPa~110kPa	20kPa~110kPa

OUTLINE DRAWING







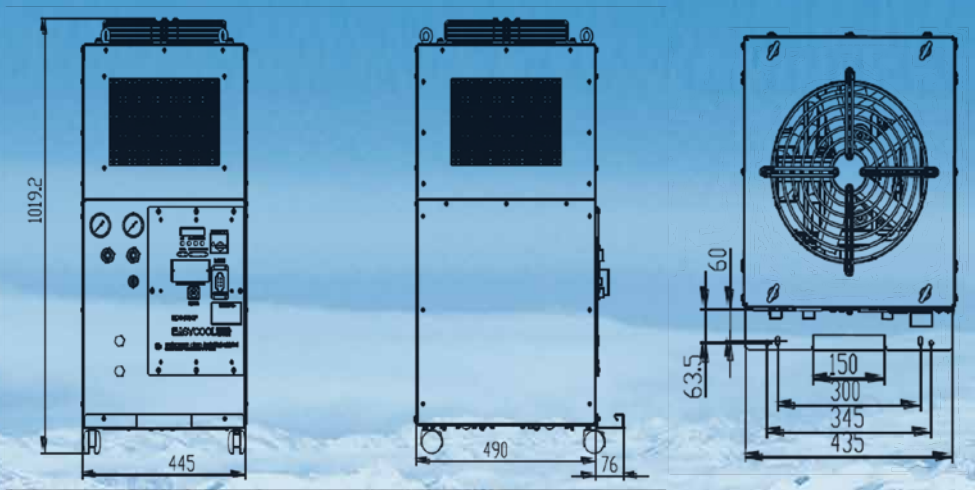
KDC4000F

SPECIFICATION			
	Compressor Type	KDC4000F	
	Electrical Power	380V@50Hz 3P	
	Helium Purity Requirement	>99.999%	
	Gas Pressure	Exhaust	Return
		2.0MPa	0.7MPa
	Power Consumption(50Hz)	5.0kW	
	Cooling Type	Air cooling	
	Air Flow Rate	1300Nm³/h	
	Ambient Temperature	Operating	Storage
		4℃~38℃	-20℃~65℃
	Relative Humidity	Operating	Storage
		30%~70%	10%~90%
	Weight	130kg	
	Dimension(L*W*H)	445*490*1019(mm)	
	Normal Warranty Time	24months	

KDE412SA-KDC4000F PARAMETERS

1st stage cooling power	35W@50K
2nd stage cooling power	0.85W@4.2K
cool down time (to 4.2K)	60min

OUTLINE DRAWING

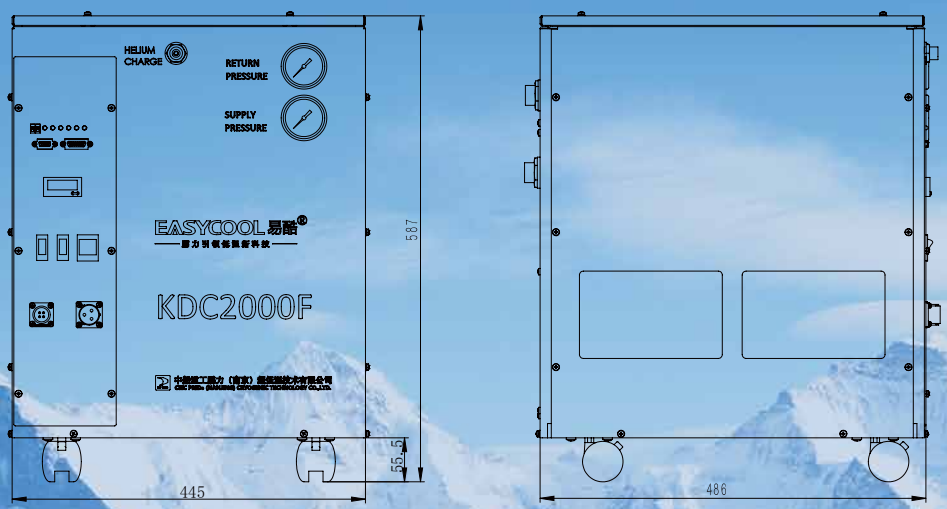


SPECIFICATION			
	Compressor Type	KDC2000F	
	Electrical Power	220V@50Hz 1P	
	Helium Purity Requirement	>99.999%	
	Cooling Type	Air	
	Air Flow Rate	1800Nm³/h	
	Power Consumption(50Hz)	Steady	Cooldown
		3.2kW	3.5kW
	Pressure Range(Operating)	Supply	Return
		16~23bar	2.5~8bar
	Ambient Temperature	Operating	Storage
		4℃~30℃	-20℃~65℃
	Standard Flexline	15A×10m	
	Warranty Time	24months	
	Weight	86kg	

AMBIENT REQUIREMENT

Item	Operating	Storage
Ambient Temperature	4-40 ℃	-20-65 ℃
Relative Humidity	30%-70%	10%-90%(Requiring No-condensing)
Ambient atmospheric pressure	70kPa~110kPa	20kPa~110kPa

OUTLINE DRAWING



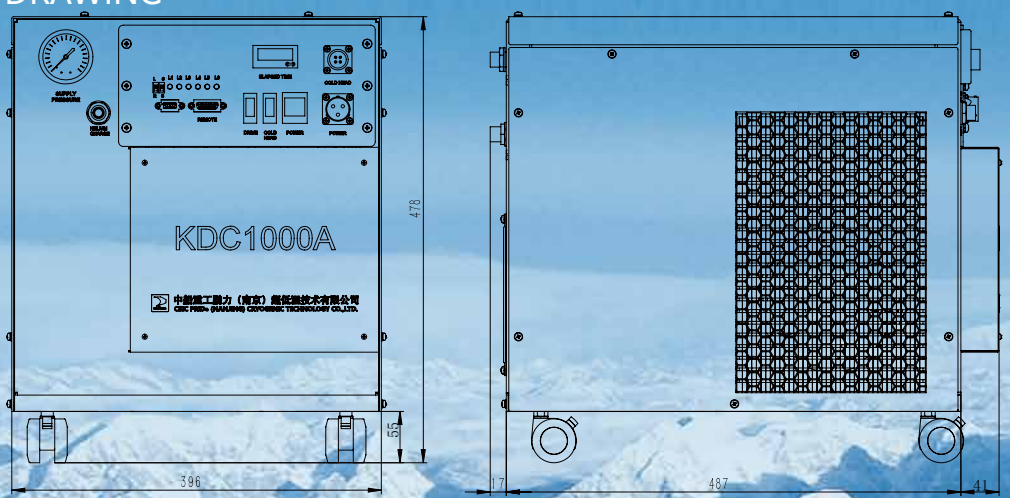
KDC1000A

SPECIFICATION			
	Compressor Type	KDC1000A	
	Electrical Power	220V@50Hz 1P	
	Helium Purity Requirement	>99.999%	
	Cooling Type	Air	
	Air Flow Rate	180Nm³/h	
	Power Consumption(50Hz)	Steady	Cooldown
		1.3kW	1.5kW
	Pressure Range(Operating)	Supply	Return
		21~25bar	8~10bar
	Ambient Temperature	Operating	Storage
		4℃~30℃	-20℃~65℃
	Standard Flexline	10A×3m	
	Warranty Time	24months	
	Weight	68kg	

AMBIENT REQUIREMENT

Item	Operating	Storage
Ambient Temperature	4-40 ℃	-20-65 ℃
Relative Humidity	30%-70%	10%-90%(Requiring No-condensing)
Ambient atmospheric pressure	70kPa~110kPa	20kPa~110kPa

OUTLINE DRAWING



Helium Recovery、Purification and Liquefaction System

The chemical reaction of noble gas is very difficult and it is colorless and odorless. Due to the special nature, noble gas is indispensable in some application areas, especially the high purity noble gas is needed by more and more industries nowadays. Because of this, the price of this kind of gas is going higher continuously, so its recovery and re-purification is very meaningful. However, most of equipment for the noble gas recovery and re-purification depend on import. PRIDE Cryogenics uses the purification principle of low-temperature condensation, curing and adsorption to get high purity gas (purity＞99.999%) according to the difference condensation point, freezing point of different gas and the nature of the adsorption agent's ability will be greatly enhanced, can also be liquefied storage. This kind of system also can be customized and auto-control designed by our company, and it is no need for personnel on duty and easy to use.

Purification capacity	Liquefaction rate
5-20Nm³/h	15~100L/d

CAN BE CUSTOMIZED ACCORDING TO CUSTOMERS' REQUIREMENTS

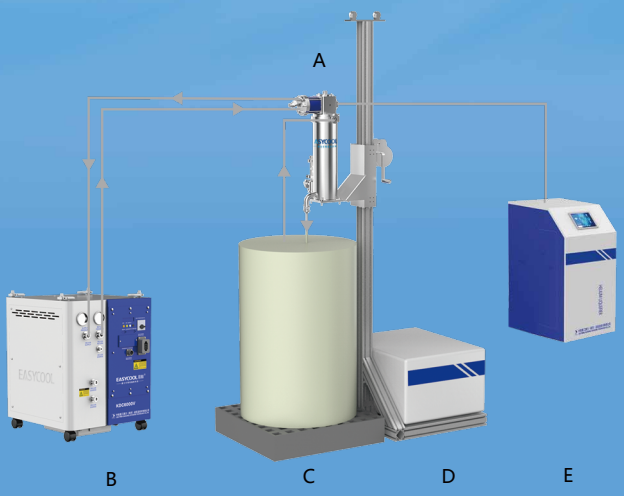
Helium Purifier - Cold Source is GM Cryocooler

SPECIFICATION		
	Dimension	0.8 ×1 .1×2.1m
	Purity Requirements for Inlet Helium	＞90% [Water concentration: ≤2PPM CO_2 concentration: ≤2PPM]
	Purification Rate	≤10Nm³/h
	Working Pressure	2.5~5MPa
	Purity of Outlet Helium	＞99.999%
	Purification Time	≥6h
	Regeneration Time	≤6h
	Power Consumption	3P, AC380V, 50Hz; 1P, AC220V, 60Hz (Power consumption＜9kW)
	Power supply of control unit	Single PH AC110V—240V 50~60Hz
	Number of GM Coolers	1
	Features	Automatic Control

Helium Purifier - Cold Source is liquid Nitrogen

SPECIFICATION			
	Single treatment capacity		≥1000Nm³
	Purification Pressure		2-3MPa
	Purification flow		60-1000 SLM
	Feed gas concentration		≥98%
	Purification Temp.		77K
	Purity of outlet helium		＞99.999%
	Regenerated Nitrogen consumption		≈120Nm³/h
	Liquid Nitrogen consumption		≈15L/h
	Dimension (mm:L*W*H)		760*760*2700
	Weight		≈3000kg
	Power supply	Power electricity	4kW@380V
		Instrument electricity	1kW@220V

KDHR15 Helium Reliquefier



A : Liquefier Coldbox

B: KDC6000V Compressor

C: Customer's Device(PPMS)

D: Lifting Frame

E: Control Unit

SPECIFICATION

Liquefy rate	15L/d@1psi
Reliquefy rate	20L/d@1psi (Inlet is boiled-off cryo He)
Vibration index	±2 μm
Compressor power supply	3 phase 380V (50Hz) ; 3 phase 480V (60Hz)
Control unit power supply	Single phase 110~240V (50~60Hz)
Cooling water	Inlet temperature 5~25℃; Flow rate 7~10L/min; Pressure＜8bar
Helium purity requirement	＞99.999%
Cool down time（to full load liquefaction）	＜3.5h
Liquid helium infusion line	Material: SUS304, O.D: 9.5 mm, Length: 550mm (can be customized)
Dimension(Cold box)	φ400×685mm（not include infusion tube）
Dimension(Control unit)	＜600×600×1500mm
Features	The whole system is non-magnetic and has good electrical insulation from the customer equipment.
Components	One KDE418SA-KDC6000V GM Cryocooler, one cold box, lifting frame , two sets 20A*20M helium lines , Control unit, pipes, valves and parts kit

Application site

Reference

- Tsinghua University
- Peking University
- Institute of Physics, Chinese Academy of Sciences

KDHR30 Helium Reliquefier

KDHR30 Helium Reliquefier integrates 2 sets of GM Cryocoolers, which is external hanging and vibration damping type. The boil off high purity helium gas from the customer's cryogenics cryostat get into the Helium reliquefier directly and be condensed to be liquid helium and get back to cryostat again through helium infusion tube.

SPECIFICATION		
	Liquefy rate	30L/Day@1Psi
	Reliquefy rate	40L/Day@1Psi
	Vibration index	±2um
	Dimension	450×220×666mm Cold box（without infusion tube)
	Weight	72kg (cold box)
	Cold head Model type	KDE418HL
	Compressor Model type	KDC6000V
	GM Cryocooler quantity	2 sets
	Cool down time	4h
	Cryocooler Power Consumption	3P, AC380V,50HZ: Cool down:14.4kW Steady operation: 13.0kW
	Control unit Power consumption	Single phase,AC110V-240V, 50-60HZ: 1Kw
	Cooling water	Inlet temperature:5-25℃ Flow rate:14-18L/min, pressure＜8bar
	Helium gas	Purity:＞99.999% Temperature:-20-40℃

I-Liquefier20 Compact Movable Helium Liquefier

I-Liquefier20 Compact Movable Helium Liquefier integrates 1 set GM Cryocooler as cold source, which has a typical feature that the cold head inserts into the Dewar directly. The Helium compressor and the liquefier cold box is installed together and skid-mounted into a small dimension. Such design allows that the liquid helium can be transferred into the customer's device directly and easy, no need a transportation Dewar so as to avoid liquid helium consumption.

SPECIFICATION		
	Helium liquefy rate	20L/d
	Dimension	1600x700x1500mm (compressor included)
	Weight	420kg(excluding compressor weight)
	Cold head	KDE418HL
	compressor	KDC6000V
	Quantity of cryocooler	1 set
	Dewar	150L
	Cooling time	＜4h
	Power supply of GM cryocooler	3PH AC380V 50Hz Cooling down: 7.2Kw Steady Operation: 6.5Kw
	Power supply of control unit	Single PH AC110V—240V 50~60Hz (Power consumption＜1KW)
	Cooling water	Inlet temperature 5~25℃, flow rate7-9L/min, pressure＜8bar
	Helium requirement	Purity: ＞99.999% Inlet Temp.: -20℃~40℃

I-Liquefier40 Compact Movable Helium Liquefier

I-Liquefier40 Compact Movable Helium Liquefier integrates 2 set GM Cryocooler as cold source, which has a typical feature that the cold head inserts into the Dewar directly. The Helium compressor and the liquefier cold box is installed together and skid-mounted into a small dimension. Such design allows that the liquid helium can be transferred into the customer's device directly and easy, no need a transportation Dewar so as to avoid liquid helium consumption.

SPECIFICATION		
	Helium liquefy rate	40L/d
	Dimension	1650x760x1735mm (compressor included)
	Weight	570kg(excluding compressor weight)
	Cold head	KDE418HL
	compressor	KDC6000V
	Quantity of cryocooler	2 sets
	Dewar	200L
	Cooling time	＜4h
	Power supply of GM cryocooler	3PH AC380V 50Hz Cooling down: 14.4Kw Steady Operation:13Kw
	Power supply of control unit	Single PH AC110V—240V 50~60Hz (Power consumption＜1KW)
	Cooling water	Inlet temperature 5~25℃, flow rate14-18L/min, pressure＜8bar
	Helium requirement	Purity: ＞99.999%
		Inlet Temp.: -20℃~40℃

Movable Helium Liquefier KDHRR40

SPECIFICATION		
	Liquefy rate	36L/day(5PSI)、40L/day(10PSI)
	Dimension	1850*1150*2300
	Weight	≈1000kg
	Coldhead	KDE418HL
	Compressor	KDC6000V
	Quantity of cryocooler	2 sets
	Dewar	250L(can be selected according to customer requirements)
	Cool down time to liquid generation	＜4h
	Power supply of GM cryocooler	3P, AC380V, 50Hz; 3P, AC480V, 60Hz Cooling down: 15kW Steady: 14kW
	Power supply of control unit	Single PH AC110V—240V 50~60Hz (Power consumption＜1kW)
	Cooling water	Inlet temperature 5~25℃, flow rate14~18 L/min, pressure＜8bar; Pure water
	Helium gas	Gas supply from high-pressure cylinder(Pressure: 2~40bar) Gas supply from helium recovery equipment(Pressure: 0~10PSI)
		Gas purity: ＞99.999%
		Inlet temperature: -20℃~40℃

I-Liquefier60 Compact Movable Helium Liquefier

I-Liquefier20~100 Compact Movable Helium Liquefier adopts a structure where the GM cold head is inserted into the liquid helium Dewar. The helium compressor and liquefier are integrated into a single skid-mounted module, resulting in a compact system that can be relocated while operational. During liquid helium transfer, liquid helium is directly transferred from the liquefier's Dewar to the end-user's equipment, No need transportation Dewar and reduce liquid helium loss during LHe transfer.

SPECIFICATION		
	Helium liquefy rate	60L/day(5PSI)
	Dimension	406x730mm(Main unit, excluding infusion tubes) 1050x850x2000mm (with cabinet)
	Weight	140kg (Main unit) 280kg (Cabinet)
	Coldhead	KDE418HL
	Compressor	KDC6000V
	Quantity of cryocooler	3 sets
	Dewar	250-350L
	Cooling time	<4h (cryocooler cooling) <72h (Dewar 10k)
	Power supply of GM cryocooler	3P, AC380V, 50Hz; Cooling down: 21.6kW; Steady: 19.5kW
	Power supply of control unit	Single PH AC110V—240V 50~60Hz (Power consumption < 1kW)
	Cooling water	Inlet temperature 5-25°C, flow rate: 21-27L/min, pressure <4 bar.
	Helium requirement	Gas purity: > 99.999% Inlet temperature: -20℃~40℃

I-Liquefier80 Compact Movable Helium Liquefier

I-Liquefier20~100 Compact Movable Helium Liquefier adopts a structure where the GM cold head is inserted into the liquid helium Dewar. The helium compressor and liquefier are integrated into a single skid-mounted module, resulting in a compact system that can be relocated while operational. During liquid helium transfer, liquid helium is directly transferred from the liquefier's Dewar to the end-user's equipment, No need transportation Dewar and reduce liquid helium loss during LHe transfer.

SPECIFICATION		
	Helium liquefy rate	80L/day(5PSI)
	Dimension	1250x1230x2500 mm(with Dewar) 750x1050x1600 mm (cabinet)
	Weight	240kg (cold box) 300kg (cabinet) 75kg (frame)
	Coldhead	KDE418HL
	Compressor	KDC6000V
	Quantity of cryocooler	4 sets
	Dewar	500-1000L
	Cooling time	<4h (cryocooler cooling) <70h (Dewar cooling)
	Power supply of GM cryocooler	3P, AC380V, 50Hz; Cooling down: 28.8kW; Steady: 26kW
	Power supply of control unit	Single PH AC110V—240V 50~60Hz (Power consumption < 1kW)
	Cooling water	Inlet temperature 5-25°C, flow rate: 28-36L/min, pressure <4 bar.
	Helium requirement	Gas purity: > 99.999% Inlet temperature: -20℃~40℃

I-Liquefier100 Compact Movable Helium Liquefier

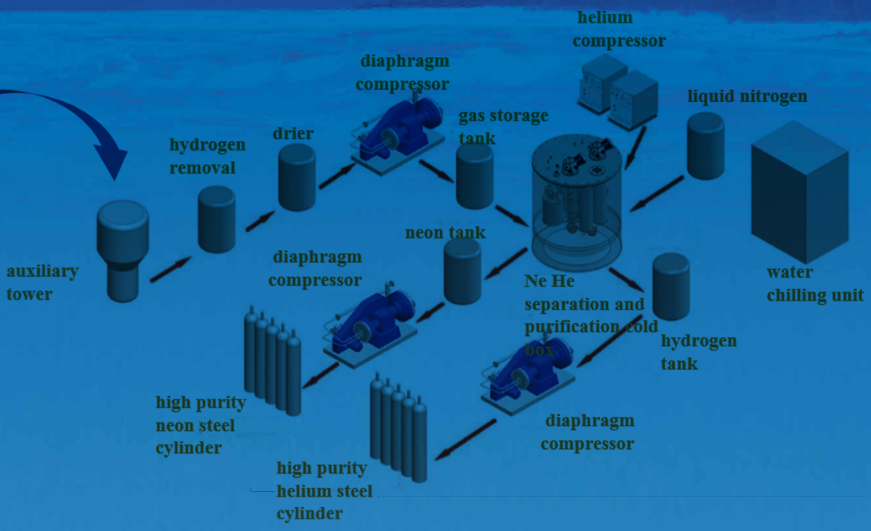
I-Liquefier20~100 Compact Movable Helium Liquefier adopts a structure where the GM cold head is inserted into the liquid helium Dewar. The helium compressor and liquefier are integrated into a single skid-mounted module, resulting in a compact system that can be relocated while operational. During liquid helium transfer, liquid helium is directly transferred from the liquefier's Dewar to the end-user's equipment, No need transportation Dewar and reduce liquid helium loss during LHe transfer.

SPECIFICATION		
	Helium liquefy rate	100L/day(5PSI)
	Dimension	1250x1230x2500 mm(with Dewar) 750x1050x1600 mm (cabinet)
	Weight	260kg (cold box) 300kg (cabinet) 75kg (frame)
	Coldhead	KDE418HL
	Compressor	KDC6000V
	Quantity of cryocooler	5 sets
	Dewar	500-1000L
	Cooling time	<4h (cryocooler cooling) <72h (Dewar cooling)
	Power supply of GM cryocooler	3P, AC380V, 50Hz; Cooling down: 26kW; Steady: 32.5kW
	Power supply of control unit	Single PH AC110V-240V 50~60Hz (Power consumption < 1kW)
	Cooling water	Inlet temperature 5-25°C, flow rate: 35-45L/min, pressure <4 bar.
	Helium requirement	Gas purity: > 99.999% Inlet temperature: -20℃~40℃

Helium Liquefier KDHRR200

SPECIFICATION		
	Helium Liquefy rate	200L/day
	Dimension(mm)	Electric control cabinet: 684*1180*1702
		Helium Liquefier: 1720*1607*2739
	Weight	Electric control cabinet: ≈333kg
		Cold box: ≈594kg
		Frame: ≈312kg
	Coldhead	KDE418HL
	Compressor	KDC6000V
	Quantity of cryocooler	10 sets
	Dewar	1000L
	Cool down time to liquid generation	＜4h
	Power supply of GM cryocooler	3P, AC380V, 50Hz; 3P, AC480V, 60Hz Cooling down:72kW Steady: 65kW
	Power supply of control unit	Single PH AC110V—240V 50~60Hz (Power consumption＜1kW)
	Cooling water	Inlet temperature 5~25℃, flow rate14~18L/min, pressure＜8bar;
	Helium requirement	purity: ＞99.999%
		Inlet temperature: -20℃~40℃

Neon - Helium Refining Unit



Item	Raw gas Content	Product Gas Parameter
N2(V/V%)	12	——
Ne(V/V%)	56	＞99.999
He(V/V%)	29	＞99.999
H2(V/V%)	3	——
Pressure(bar)	5	——
Flow(Nm3/h)	20	——

Cryogenic Helium Cycling System

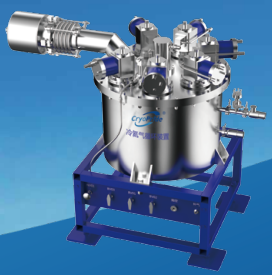
The cold source of Cryogenic Helium Cycling System is KDE400SX-KDC6000 or KDE300A-KDC6000 cryocooler, one or multiple KDE400SX/KDE300A cold heads are paralleled inside the cold box. Helium gas is cooled by each cold head and equally distributed into helium cycling pump or room temperature helium compressor for pressurization and flow to cool down the customer's equipment. The main components of Cryogenic Cycling System is GM cryocooler, heat exchanger, control unit, tank, cycling compressor/cryogenic pump. This product can be used in the fast cool down process of magnet, superconducting motor cooling and other applications.

Main features

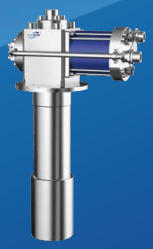
- The system can output one way or multiple ways cryogenic helium gas to cool down customer's equipment
- The cooling power range provided by the system can be 80~800W@70K, 50~800W@30K
- This system can provide different cooling power at different temperature according to customer's requirement
- The outlet and inlet port of cryogenic helium gas can be either or VCR
- The Circulating power of the system can be either room temperature cycling compressor or cryogenic cycling pump.

Room temperature cycling: The Circulating power of the system is room temperature cycling compressor, the lift is big, complex structure, and helium flow rate is small, mostly used in small cooling power and small temperature difference equipment

Cryogenic cycling: The Circulating power of the system is cryogenic cycling pump, the lift is small, simple structure, and helium flow rate is big, mostly used in big cooling power and big temperature difference equipment.



Cryogenic Helium Cycling System (6 Cold Heads)



← KDE400SX →

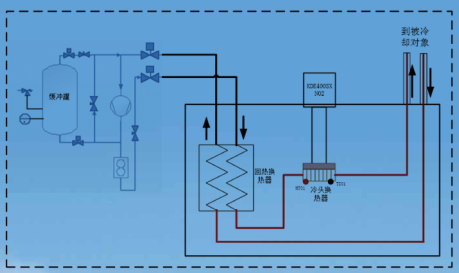
Cryogenic Helium Cycling System (10 Cold Heads)

HCS-1 Cryogenic Cycling Helium System

HCS-1 Cryogenic Cycling Helium System uses room temperature helium compressor as circulating power, the cycling pressure is 3-5 bar, cold source is one set of GM Cryocooler and provide cooling power at 20K-80K.

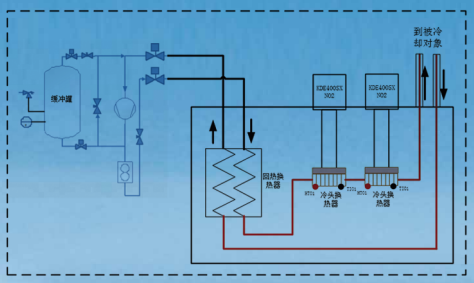
SPECIFICATION			
	Flow rate	0~20Nm³/h	0~80Nm³/h
	Outlet cooling power	30W@30K（KDE400SX）	160W@70K（KDE300SA）
	Cycling type	Room temperature cycling	
	Cycling pressure	3~5bar	
	Quantity of GM Cryocooler	1	
	Temperature range	20~300K	
	Temperature control precision	±1K	

Typical configuration	
Necessary components	Optional components (can be bought by customer)
KDE400SX or KDE300SA cold head, 1 set	Vacuum pump
KDC6000 compressor, 2 sets	Water chiller
Vacuum chamber, 1 set	/
Control unit, 1 set	/
Heat exchanger, 1 set	/
Tank, 1 set	/



HCS-2 Cryogenic Cycling Helium System

HCS-2 Cryogenic Cycling Helium System uses room temperature helium compressor as circulating power, the cycling pressure is 3-5 bar, cold source is two sets of GM Cryocooler and provide cooling power at 20K-80K.



SPECIFICATION			
	Flow rate	0~20Nm³/h	0~80Nm³/h
	Outlet cooling power	90W@30K（KDE400SX）	400W@70K（KDE300SA）
	Cycling type	Room temperature cycling	
	Cycling pressure	3~5bar	
	Quantity of GM Cryocooler	1	
	Temperature range	20~300K	
	Temperature control precision	±1K	

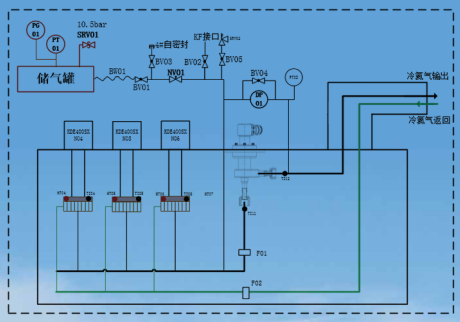
Typical configuration	
Necessary components	Optional components (can be bought by customer)
KDE400SX or KDE300SA cold head, 2 sets	Vacuum pump
KDC6000 compressor, .3 sets	Water chiller
Vacuum chamber, 1 set	/
Control unit, 1 set	/
Heat exchanger, 1 set	/
Tank, 1 set	/

HCS-3 Cryogenic Cycling Helium System

HCS-3 Cryogenic Cycling Helium System uses cryogenic cycling pump as circulating power, the cycling pressure is 1-10 bar, cold source is three sets of GM Cryocooler and provide cooling power at 20K-80K.

SPECIFICATION		
	Cycling type	cryogenic cycling
	Cycling pressure	1~10bar
	Flow rate	500~1000Nm³/h
	Quantity of GM Cryocooler	3
	Temperature range	20~300K
	Temperature control precision	±1K
	Outlet cooling power	90W@30K （KDE400SX） 600W@70K（KDE300SA）

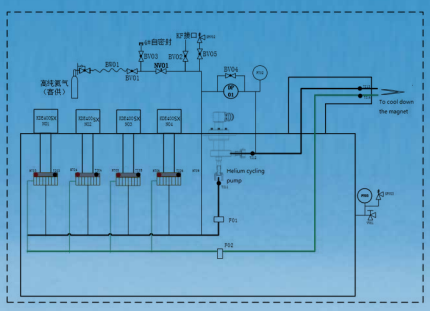
Typical configuration	
Necessary components	Optional components (can be bought by customer)
KDE400SX or KDE300SA cold head, 3 sets	Vacuum pump
KDC6000 compressor, .3 sets	Water chiller
Vacuum chamber, 1 set	/
Control unit, 1 set	/
Heat exchanger, 1 set	/
cryogenic cycling pump, 1 set	/



HCS-4 Cryogenic Cycling Helium System

HCS-4 Cryogenic Cycling Helium System uses cryogenic cycling pump as circulating power, the cycling pressure is 1-10 bar, cold source is four sets of GM Cryocooler and provide cooling power at 20K-80K.

SPECIFICATION		
	Cycling type	cryogenic cycling
	Cycling pressure	1~10bar
	Flow rate	500~1000Nm³/h
	Quantity of GM Cryocooler	4
	Temperature range	20~300K
	Temperature control precision	±1K
	Outlet cooling power	140W@30K（KDE400SX） 840W@70K（KDE300SA）



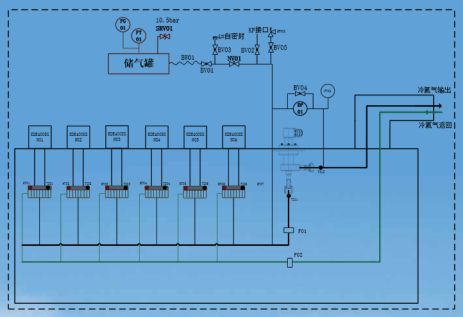
Typical configuration	
Necessary components	Optional components (can be bought by customer)
KDE400SX or KDE300SA cold head, 4 sets	Vacuum pump
KDC6000 compressor, .4 sets	Water chiller
Vacuum chamber, 1 set	/
Control unit, 1 set	/
Heat exchanger, 1 set	/
cryogenic cycling pump, 1 set	/

HCS-6 Cryogenic Cycling Helium System

HCS-6 Cryogenic Cycling Helium System uses cryogenic cycling pump as circulating power, the cycling pressure is 1-10 bar, cold source is six sets of GM Cryocooler and provide cooling power at 20K-80K.

SPECIFICATION		
	Cycling type	cryogenic cycling
	Cycling pressure	1~10bar
	Flow rate	500~1000Nm^3/h
	Quantity of GM Cryocooler	6
	Temperature range	20~300K
	Temperature control precision	±1K
	Outlet cooling power	300W@30K （KDE400SX） 1300W@70K（KDE300SA）

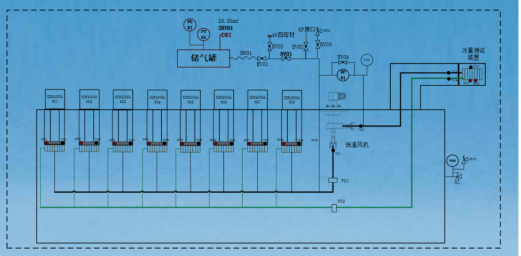
Typical configuration	
Necessary components	Optional components (can be bought by customer)
KDE400SX or KDE300SA cold head, 6 sets	Vacuum pump
KDC6000 compressor, .6 sets	Water chiller
Vacuum chamber, 1 set	/
Control unit, 1 set	/
Heat exchanger, 1 set	/
cryogenic cycling pump, 1 set	/



HCS-8 Cryogenic Cycling Helium System

HCS-8 Cryogenic Cycling Helium System uses cryogenic cycling pump as circulating power, the cycling pressure is 1-10 bar, cold source is six sets of GM Cryocooler and provide cooling power at 20K-80K.

SPECIFICATION		
	Cycling type	cryogenic cycling
	Cycling pressure	1~10bar
	Flow rate	500~1000Nm^3/h
	Quantity of GM Cryocooler	8
	Temperature range	20~300K
	Temperature control precision	±1K
	Outlet cooling power	400W@30K （KDE400SX） 1780W@70K（KDE300SA）



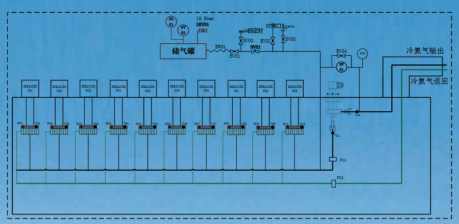
Typical configuration	
Necessary components	Optional components (can be bought by customer)
KDE400SX or KDE300SA cold head, 8 sets	Vacuum pump
KDC6000 compressor, 8 sets	Water chiller
Vacuum chamber, 1 set	/
Control unit, 1 set	/
Heat exchanger, 1 set	/
cryogenic cycling pump, 1 set	/

HCS-10 Cryogenic Cycling Helium System

HCS-10 Cryogenic Cycling Helium System uses cryogenic cycling pump as circulating power, the cycling pressure is 1-10 bar, cold source is ten sets of GM Cryocooler and provide cooling power at 20K-80K.

SPECIFICATION		
	Cycling type	cryogenic cycling
	Cycling pressure	1~10bar
	Flow rate	500~1000Nm³/h
	Quantity of GM Cryocooler	10
	Temperature range	20~300K
	Temperature control precision	±1K
	Outlet cooling power	500W@30K （KDE400SX） 2260W@70K（KDE300SA）

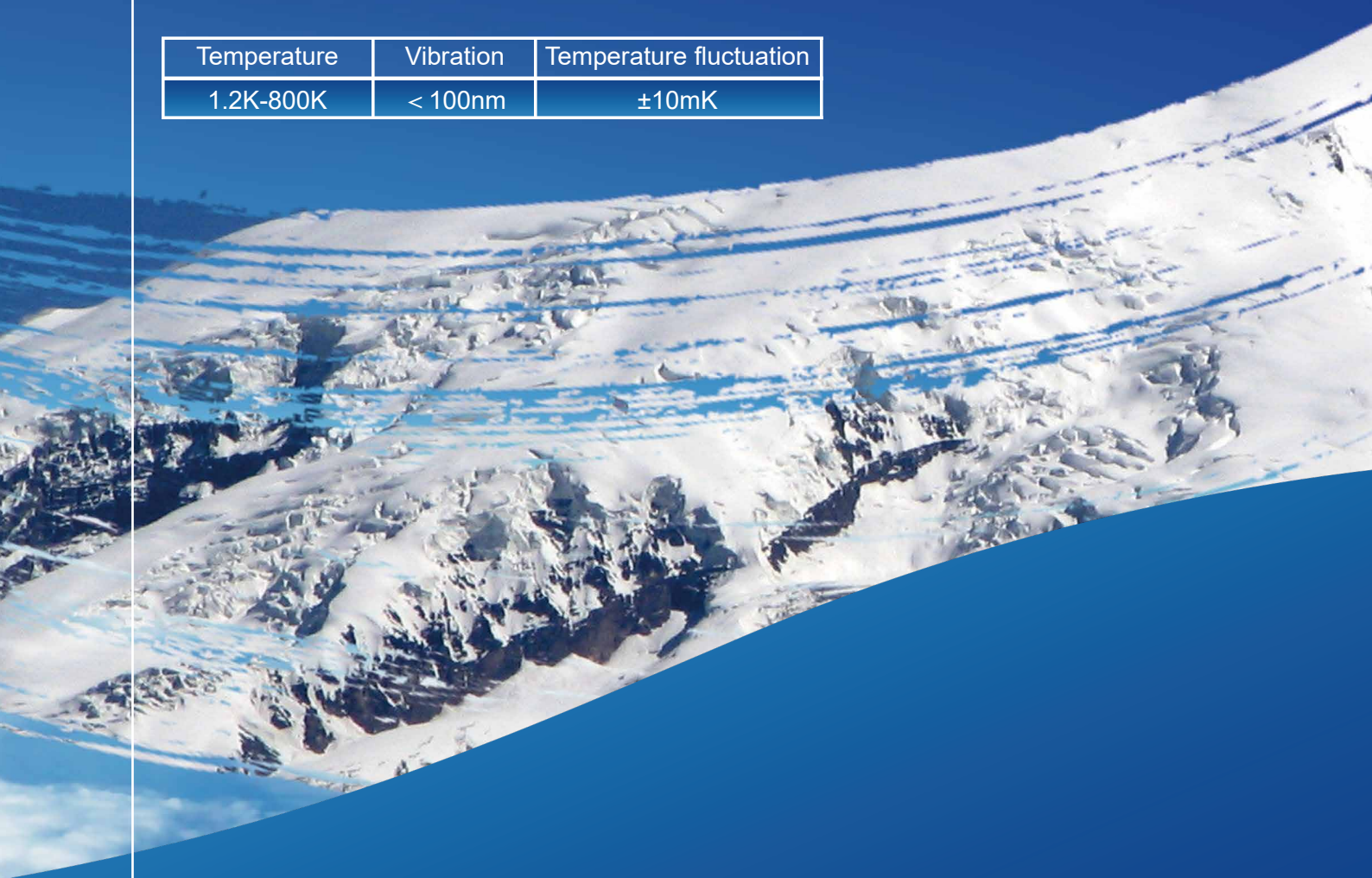
Typical configuration	
Necessary components	Optional components (can be bought by customer)
KDE400SX or KDE300SA cold head, 10 sets	Vacuum pump
KDC6000 compressor, 10 sets	Water chiller
Vacuum chamber, 1 set	/
Control unit, 1 set	/
Heat exchanger, 1 set	/
cryogenic cycling pump, 1 set	/



Cryostats

CSSC Pride (Nanjing) Cryogenic Technology Co., Ltd will spare no efforts to provide our customers with various customized cryogenic solutions, such as cryogenic systems which take cryocoolers, liquid nitrogen or liquid helium as cold source. We can meet our customers' kinds of requirements, including 300K to 1.2K temperature demand, vibration requirements less than 10nm, temperature fluctuation less than ±1mk, etc. We also can provide solutions to meet the demand of special shape structure, bigger work space, observation window andfilter.

Temperature	Vibration	Temperature fluctuation
1.2K-800K	< 100nm	±10mK



CAN BE CUSTOMIZED ACCORDING TO CUSTOMERS' REQUIREMENTS

KDSSPD-4/6/9

Cryostat used in Superconducting Single Photon Detection System

The ultra-low temperature cryostat (Limit temperature＜2.3K) used in superconducting single photon detection system(SNSPD) is a standard and technically mature product of our company, which has been applied in quantum communication successfully. The SNSPD system using this cryostat has an apparent advantage over traditional semiconductor (APD, PMT) detection technology in detection performance (Including detection efficiency and dark count, etc.).

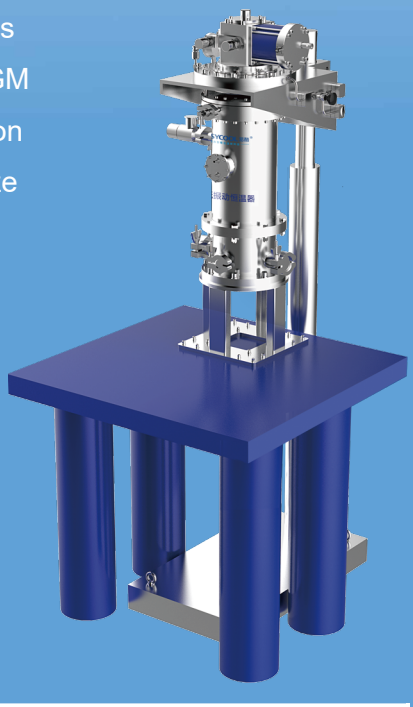
SPECIFICATION		
	Limit Temperature	＜2.3K
	Temperature stability	±5 mK
	Number of SMA channels	4/6/9
	Fiber-optic interface	FC / PC multi-mode fiber
	Signal interface	SMA
	Leakage rate	＜5 × 10^{-9}Pa·m^3 / s @ 300K

TYPICAL APPLICATIONS

- Shanghai Institute of Microsystem And Information Technology, Chinese Academy of Sciences
- Nanjing University
- University of Science and Technology of China
- Changchun University of Science and Technology、
- Tsinghua University,etc.

PDCS04-ULV / PDCS10-ULV
Ultra-low Vibration Cryostat

To creat an ultra-low vibration environment,Pride Cryogenic uses the helium gas as heat transfer medium,make the KDE415SA GM Cryocooler completely isolated from the sample to avoid vibration transfer to the sample holder,By using this technology, we realize the nanoscale ultra-low vibration control.



CONFIGURATION	
KDE415SA Coldhead	1set
KDC6000V Helium Compressor	1set
20A*20m Flexible Gas Line	2sets
Temperature control unit	1set
Stainless steel vacuum hood	1set
Oxygen-free radiation shield	1set
High purity quartz glass	2 pieces or more
Sample connection plug	1set of 16-pin lead

SPECIFICATION	PDCS04-ULV	PDCS10-ULV
Temperature Range	4K~373K	10K~373K
Vibration of sample position	±100nm	±100nm
Limited temperature	4.2K	4.2K
Temperature fluctuation	±10mK	±10mK
Helium consumption	0	0
Sample position	Under the cryostat	Under the Cryostat
Sample test	Through the observation window	Through the pbservation window
Number of sample lead	16pin(optional)	16 pin(optional)
Number of optical window	2(Can be increased)	2(Can be increased)
Shape of vacuum hood	Cylindrical(or customized)	Cylindrical(or customized)

TYPICAL APPLICATIONS

- Micro-photoluminescence
- Micro-Raman
- Micro-spectroscopy
- Micro-FTIR
- Quantum dots
- Low vibration optical experiment
- Magneto-optic Kerr

1.5K GM+JT Cryostat

This cryostal takes GM Cryocooler as its cold source and uses JT Throttling technology and Evacuation decompression technique. It can realize<1.5K ultra-low temperature and have a little helium consumption and short cooling down time features.

FEATURES	
	Quickly cool down to 1.5K
	Quickly sample changed
	Optional superconducting magnet field
	Low vibration
	Customized
	Application in optical/superconducting/cryogenic material

CONFIGURATION	
Standard Configuration	Optional Configuration
4K GM Cryocooler System	Vacuum System
JT System	Control System
Vacuum Chamber	Chiller
Radiation-proof Screen	Interface
16-pin Sample Lead	Number of optical windows
Temp. Control System	and materials
Vacuum Valve Block	Supporting Structure
16-pin Sample Lead	Vacuum Pump
Cooling Component, Sample Holder	Sample Holder
Helium Circulation System, Liquid Helium Pool	/

TYPICAL APPLICATIONS

- Cryogenic optical test
- Cryogenic materials property test
- Cryogenic detector
- MRI magnet

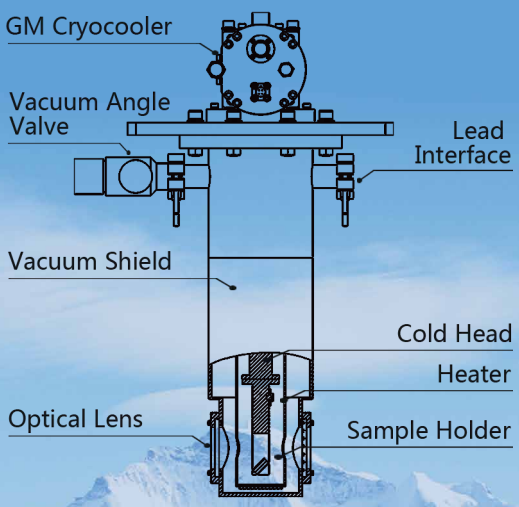
Cryostat - Optical Type

Using GM Cryocooler as cold resource to cool down the sample, The main components of the cryostat include GM Cryocooler, vacuum can, radiation shield and sample holder. By configuring different types of vacuum cover and related equipment, the cooling requirements of many samples for cryogenic test can be realized. At the same time, the cryostat of this type optical can cooperate with precision displacement platform to carry out three-dimensional high precision and large quantity of the whole structure. The positioning accuracy of the process can reach up to 0.01mm by measuring the location of different positions of the sample.

SPECIFICATION	Model type	PDCS04	PDCS10	PDCS77
	Temperature range	4-373K	8-373K	30-373K
	Temp Accuracy	±0.05K	±0.05K	±0.05K
	Vacuum degree	5×10^{-4} Pa	5×10^{-4} Pa	5×10^{-4} Pa

TYPICAL APPLICATIONS

- Ultraviolet / IR spectroscopic low temperature experiment
  Raman spectroscopy experiment electroluminescence
- photoluminescence
- Conductivity Holzer test
- Neutron scattering neutron diffraction
- Terahertz



CRYOPUMPS

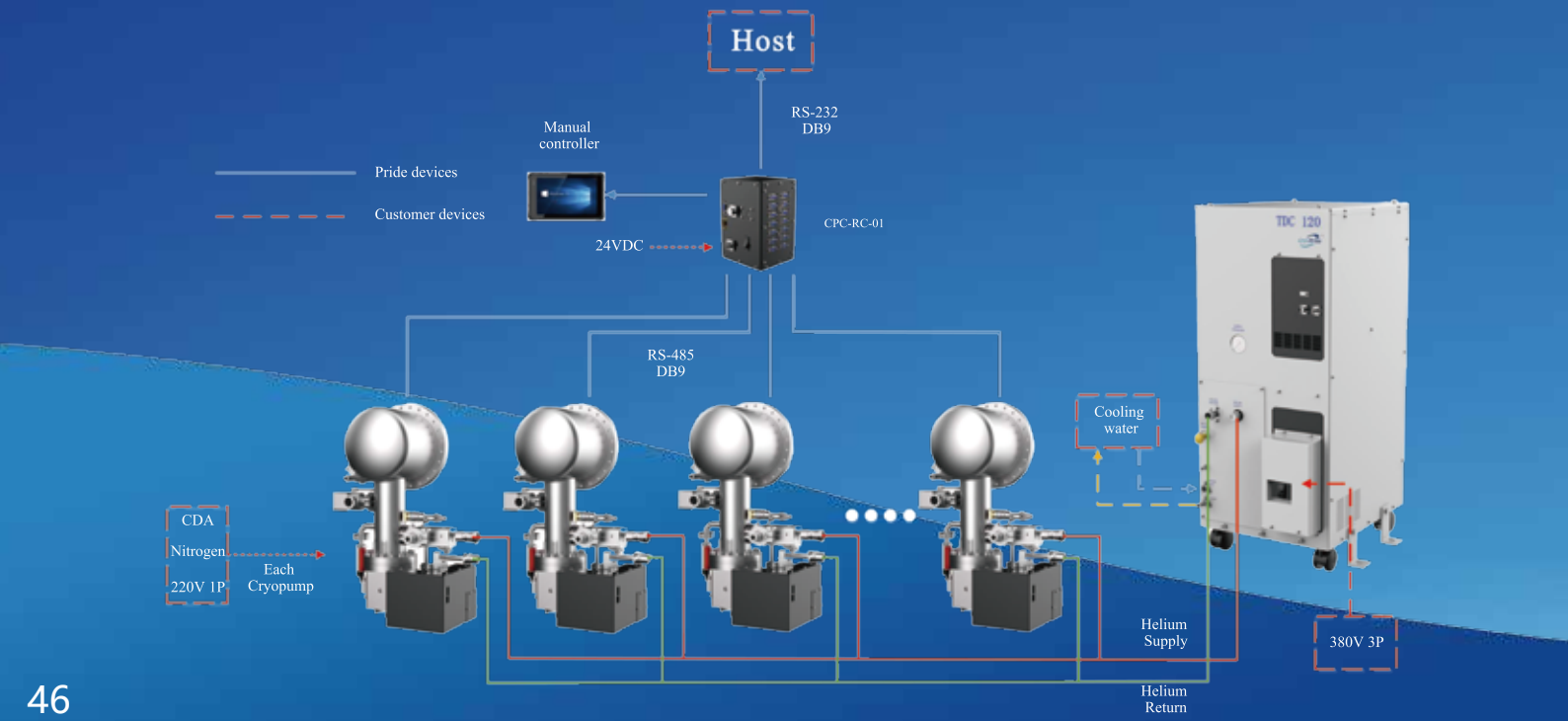
PREVIEW

Cryopump, also known as cryogenic vacuum pump, which is pumped by cryogenic condensation and cryogenic adsorption. It is an oil free and high vacuum environment acquisition device.
Cryogenic pumps are suitable for environments requiring clean oil-free and fast pumping ultra-high vacuum circumstances, mainly used in applications such as sputtering coating equipment, evaporation coating equipment, ion implantation equipment, molecular beam epitaxy equipment, space simulation device, high energy physics research device, accelerator

FEATURES

Oil-free and pollution-free, low-temperature cold plate is used to absorb gas to obtain vacuum.
The gas pumping speed is high, and the exhausting speed is fast.
The operation cost is low, no liquid nitrogen is needed.
Simple operation and high performance.
High reliability, long using period.

Pls contact E-mail "cryosales@724pride.com" for Cryopump catalog.



CPMS

The Cryogen free magnets Property Measurement System (CPMS) is composed of two main parts: a low-temperature superconducting strong magnetic field system and measurement components. Among them, the low-temperature superconducting strong magnetic field system includes a liquid helium free low-temperature system, a superconducting strong magnetic field system, and its measurement and control unit; The measurement components include measuring rods, measuring instruments, and measurement and control software, which can meet the measurement needs of multiple physical parameters such as magnetism, electricity, and heat.
Pls contact E-mail "cryosales@724pride.com" for CPMS catalog.

Dilution Refrigerator

The dilution refrigerator KDDR400 is working through a principle that helium-3 evaporates into the helium-4 by pulling heat from a nearby energy source: the refrigerator itself, to realize a cooling capacity at mK level.
The main components of dilution refrigerator are vacuum pump, precooling cryocooler, cold trap, heat exchanger, current limiter, still and mix chamber. The dilution refrigerator is distinguished to wet type and dry type according to the precooling type is using whether liquid helium or closed-loop cryocooler.
Dilution refrigerator is mainly used in quantum computing and condensed matter physics fields.
Pls contact E-mail "cryosales@724pride.com" for Dilution Refrigerator catalog.

Target Specifications:

- Base Temperature: 10mK
- Cool down Time: 2 Day
- Cooling Capacity: 400μW@100mK
- Ultralow Vibration

Reference:

- Adopt Pride KDE418SA Cold head
- Pride Vibration Deduction Liquefying Chamber
- Precooling with 1K pot, self-made dilution unit
- Heat switch for rapid cooling

APPRECIATION TO PARTNERS


华北电力大学
北京航空航天大學
BEIHANG UNIVERSITY
中国计量科学研究院
National Institute of Metrology, China
華中科技大學
哈爾濱工業大學
HARBIN INSTITUTE OF TECHNOLOGY
浙江大學
Zhejiang University
中南大學
CENTRAL SOUTH UNIVERSITY
中国科学技术大学
University of Science and Technology of China
上海辰光医疗科技股份有限公司
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FUTONG GROUP
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National University of Defense Technology
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清華大學
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IECAS

CryoPride

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