Cryogenic Gas Trap

The **CS204*E-FMX-19 NGA** is a Cryogenic Gas Trap. This systems interfaces to the Mass Spectrometer line via a Swagelok or 1.33" Mini Conflat Flange. The system cools down a stainless steel canister (trap) that is either bare polished or containing activated charcoal. The cryogenic trap line is constructed for UHV environments and is made out of welded stainless steel.

Applications

- Noble Gas Analysis
- Cryo-Adsorption of Gases
- Separation of He and Ne
- Separation of Ar from Kr and Xe

Features

- Cryogen Free, Low Power
- UHV Construction of the Cryogenic Gas Trap
- Traps can be supplied with or without charcoal adsorber
- Fully customizable

Typical Configuration

- Cold head (DE-204AE)
- Compressor (ARS-4HW)
- 2 Helium Hoses
- Noble Gas Interface
- VCR or 1.33" Mini Conflat Interface
- Instrumentation for temperature measurement and control:
  - 10 pin hermetic feed through
  - 50 ohm thermofoil heater
  - Silicon diode sensor curve matched to (±0.5K) for control
- Temperature Controller

Options and Upgrades

- 4K Coldhead (0.2W @ 4.2K)
- 5.5K Coldhead (2W @ 10K)
- 450K High Temperature Interface
- 800K High Temperature Interface
- Turbo upgrade for faster cooldown times
- Custom temperature sensor configuration (please contact our sales staff

The above picture shows a cryocooler with a the Noble Gas Analysis Interface

The above picture shows a complete system (minus the vacuum pump and temperature controller)

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Cooling Technology-

DE-204	Closed Cycle Cryocooler
Refrigeration Type	Pneumatically Driven GM Cycle
Liquid Cryogen Usage	None, Cryogen Free

Temperature*-

DE-204AE	< 9K - 350K
DE-204SE	< 4K - 350K
DE-204PE	< 5.5K - 350K
With 800K Interface	(Base Temp + 2K) - 700K
With 450K Interface	(Base Temp + 2K) - 450K
Stability	0.1K
*Based on bare cold head with a closed radiation shield, and no additional sources of experimental or parasitic heat load	

Radiation Shield-

Material	OFHC Copper
Attachment	Bolt On

Cryostat Footprint -

Overall Length	881 mm (34.7 in)
Motor Housing Diameter	114 mm (4.5 in)

Temperature Instrumentation and Control - (Standard) -

Heater	50 ohm Thermofoil Heater anchored to the coldtip
Control Sensor	Curve Matched Silicon Diode installed on the coldtip
Free Length Sensor	Calibrated Silicon Diode with free length wires
Contact ARS for other options	

Instrumentation Access-

Instrumentation Skirt	Bolt-On, Aluminum
Pump out Port	1 - NW 25
Instrumentation Ports	2
Instrumentation Wiring	Contact sales staff for options

Vacuum Shroud -

Material	Stainless Steel
Length	881mm (34.7 in)
Diameter	77 mm (3. n) at the sample space
Width	77 mm (3in) at the sample space

Sample Compartment Interface -

VCR	1/4”
Mini Conflat	1.33”

Cryocooler Model		**DE-204AE**		**DE-204A(T)E**		**DE-204PE**		**DE-204SE**	
	Frequency	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz
Base Temperature		<9K	<9K	<9K	<9K	<5.5K	<5.5K	<4.2K	<4.2K
Cooling Capacity	4.2K	-	-	-	-	-	-	0.2W	0.16W
	10K	2W	1.6W	2.7W	2.2W	3.5W	2.8W	4W	3.2W
	20K	9W	7.2W	12W	9.6W	8W	6.4W	8W	6.4W
	77K	17W	14W	23W	18.4W	14W	11W	14W	11W
Radiation Shield Cooling Capacity		18W	14W	24W	19W	18W	14W	18W	14W
Cooldown Time	20K	30 min	36 min	25 min	30 min	40 min	48 min	40 min	48 min
	Base Temperature	60 min	72 min	50 min	60 min	80 min	102 min	90 min	108 min
Compressor Model		ARS-4HW		ARS-4HW		ARS-4HW		ARS-4HW	
Typical Maintenance Cycle		12,000 hours		8,000 hours		12,000 hours		12,000 hours	

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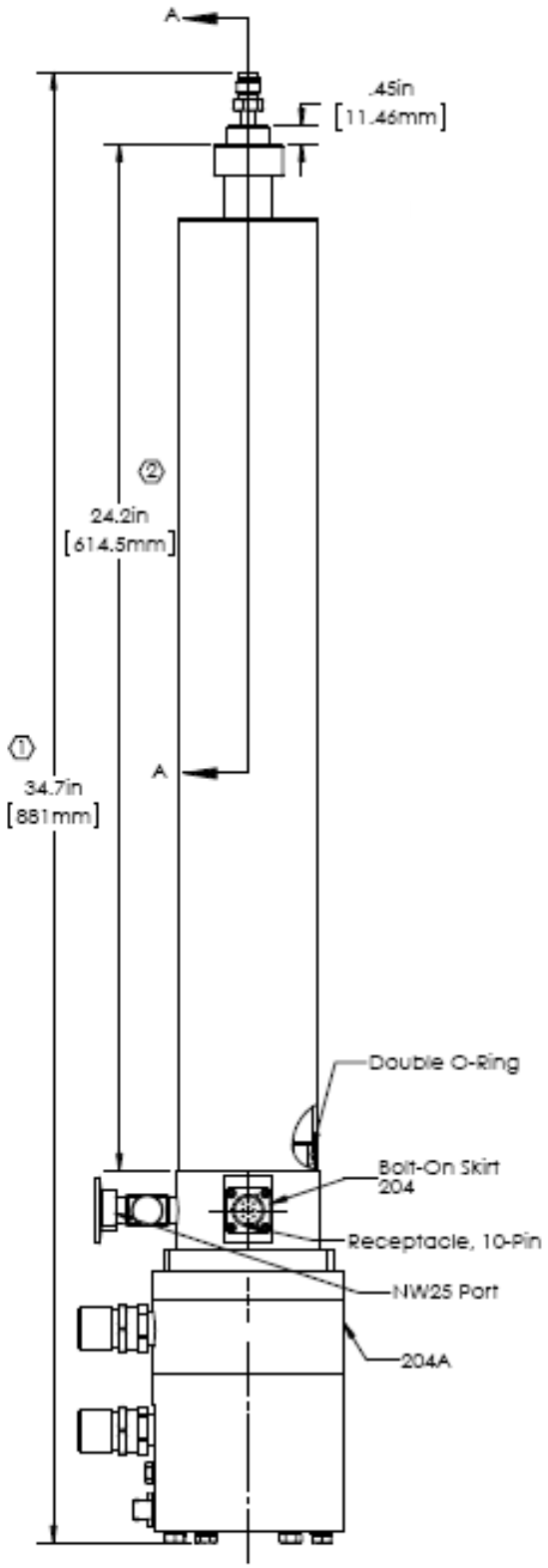
DE204*E-FMX-19 NGA Outline Drawing



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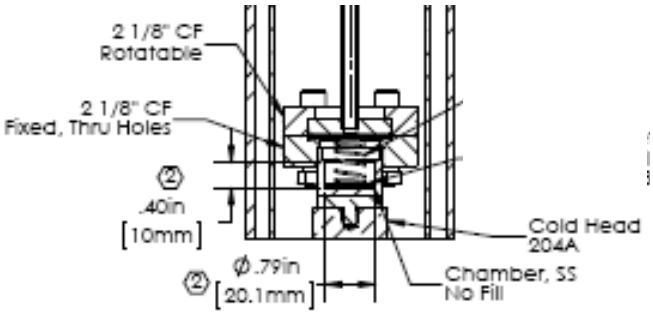
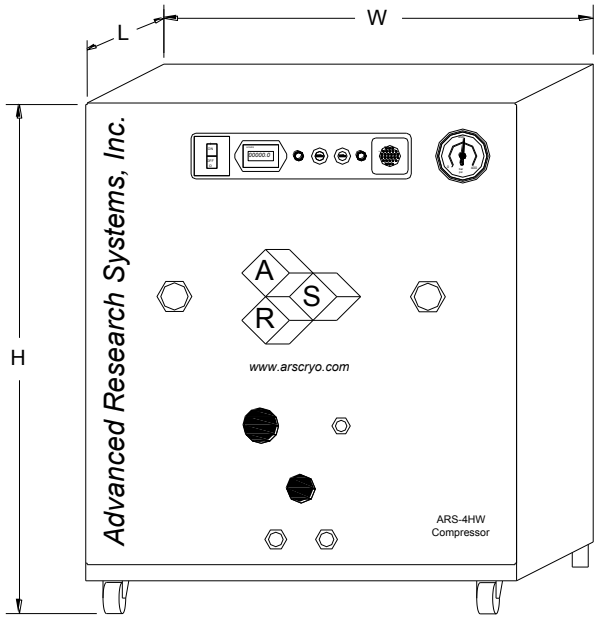
Sample Space



ARS-4HW Compressor



Compressor Model		ARS-4HW	
	Frequency	60 Hz	50 Hz
Standard Voltage	Min	208 V	190 V
	Max	230 V	210 V
Transformer Options	10%		220 V, 230 V
	15%		240 V
Power Usage	Single Phase	3.6 kW	3.0 kW
Refrigerant Gas		99.999% Helium Gas, Pre-Charged	
Noise Level		60 dBA	
Ambient Temperature			
Cooling Water	Consumption	2.3 L / min (0.6 Gal. / min)	
	Temperature	10 - 35 C (50—95 F)	
	Connection	3/8 in. Swagelok Fitting	
Dimensions:	L	483 mm (19 in)	
	W	434 mm (17.1 in)	
	H	516 mm (20.3 in)	
Weight		72 kg (160 lbs)	
Typical Maintenance Cycle		12,000 hours	
Water Recirculation Option		CoolPac Compatible	