Non-Optical Cryostat - Economy

The **CS202*E-DMX-3-1AL** offers a wide range of flexibility at a low cost, making it an excellent choice for most sample and device testing. This system is well suited for optical, electrical, and magnetic sample testing.

Applications

- Resistivity/Hall Probe Experiments
- Thermal, Electrical and Magnetic Susceptibility
- Heat Capacitance
- Seebeck Effect
- DLTS

Features

- Cryogen Free, Low Power
- Low cost aluminum construction
- Can operate in any orientation
- Fully customizable

Typical Configuration

- Cold head (DE-202AE)
- Compressor (ARS-2HW)
- 2 Helium Hoses
- Aluminum vacuum shroud for electrical experiments (DMX-3)
- Aluminum radiation shield
- Instrumentation for temperature measurement and control:
  - 10 pin hermetic feed through
  - 36 ohm thermofoil heater
  - Silicon diode sensor curve matched to (±0.5K) for control
  - Calibrated silicon diode sensor (±12 mk) with 4 in. free length for accurate sample measurement.
- Wiring for electrical experiments:
  - 10 pin hermetic feed through
  - 4 copper wires
- Sample holder for electrical experiments
- Temperature Controller

Options and Upgrades

- 4K cold head (0.1W @ 4.2K)
- 5.5K cold head (1W @ 10K)
- 450K High Temperature Interface
- 800K High Temperature Interface
- Turbo upgrade for faster cooldown times
- Custom temperature sensor configuration (please contact our sales staff
- Custom wiring configurations (please contact our sales staff)
- Window material upgrades (custom materials available)
- Sample holder upgrades (custom sample holders available)

The above picture shows a cryocooler with a vacuum shroud, radiation shield, and sample holder installed.

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

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Cooling Technology

DE-202	Closed Cycle Cryocooler
Refrigeration Type	Pneumatically Driven GM Cycle
Liquid Cryogen Usage	None, Cryogen Free

Temperature*

DE-202AE	< 10K - 350K
DE-202SE	< 4.2K - 350K
DE-202PE	< 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	

Sample Space

Diameter	36 mm (1.43 in.) 27mm(1.06in)
Height	39 mm (1.53 in.)
Sample Holder Attachment	1/4 - 28 screw
Sample Holder	www.arscryo.com/Products/SampleHolders.html

Optical Access

Window Ports	N/A
Diameter	N/A
Clear View	N/A
#/F	N/A
Window Material	N/A

Temperature Instrumentation and Control (Standard)

Heater	36 ohm Thermofoil Heater anchored to the coldtip
Control Sensor	Curve Matched Silicon Diode installed on the coldtip
Sample 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	Aluminum
Length	338 mm (13.3 in)
Diameter	45 mm (1.75 in) at the sample space
	35mm (1.37 in) FMX-3-1B

Radiation Shield

Material	Aluminum
Attachment	Threaded
Optical Access	N/A

Cryostat Footprint

Overall Length	544 mm (21.41 in)
Motor Housing Diameter	114 mm (4.5 in)
Rotational Clearance	200 mm (8 in) with “G” Configuration

Cryocooler Model		DE-202AE		DE-202A(T)E		DE-202PE		DE-202SE	
	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	-	-	-	-	-	-	0.1W	0.08W
	10K	0.5W	0.4W	0.7W	0.56W	1W	0.8W	1.2W	1W
	20K	2.5W	2W	3.7W	3W	3.5W	2.8W	4W	3.2W
	77K	4W	3.2W	6W	4.8W	3.5W	2.8W	4W	3.2W
Radiation Shield Cooling Capacity		10W	8W	15W	12W	10W	8W	10W	8W
Cooldown Time	20K	50 min	60 min	35 min	42 min	60 min	72 min	60 min	72 min
	Base Temperature	70 min	84 min	50 min	60 min	90 min	108 min	90 min	108 min
Compressor Model		ARS-4HW		ARS-4HW		ARS-4HW		ARS-4HW	
Typical Maintenance Cycle		12,000 hours		12,000 hours		12,000 hours		12,000 hours	

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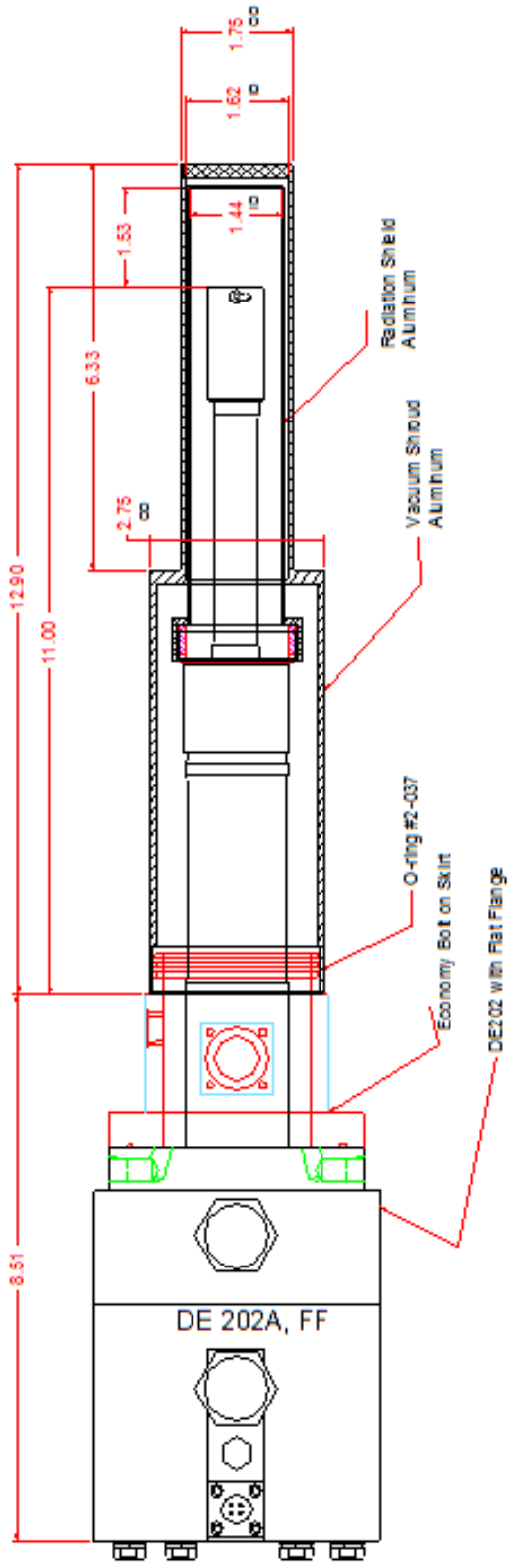
DE202*E-DMX-3-1 Outline Drawing



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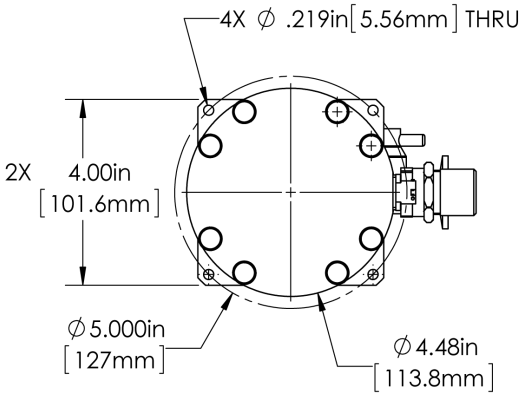
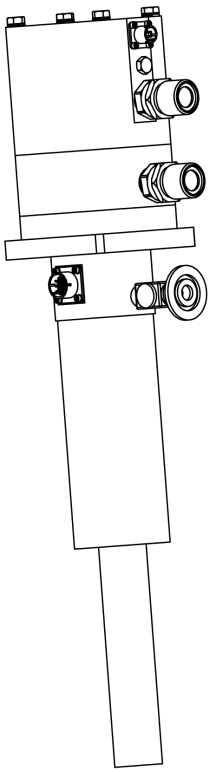
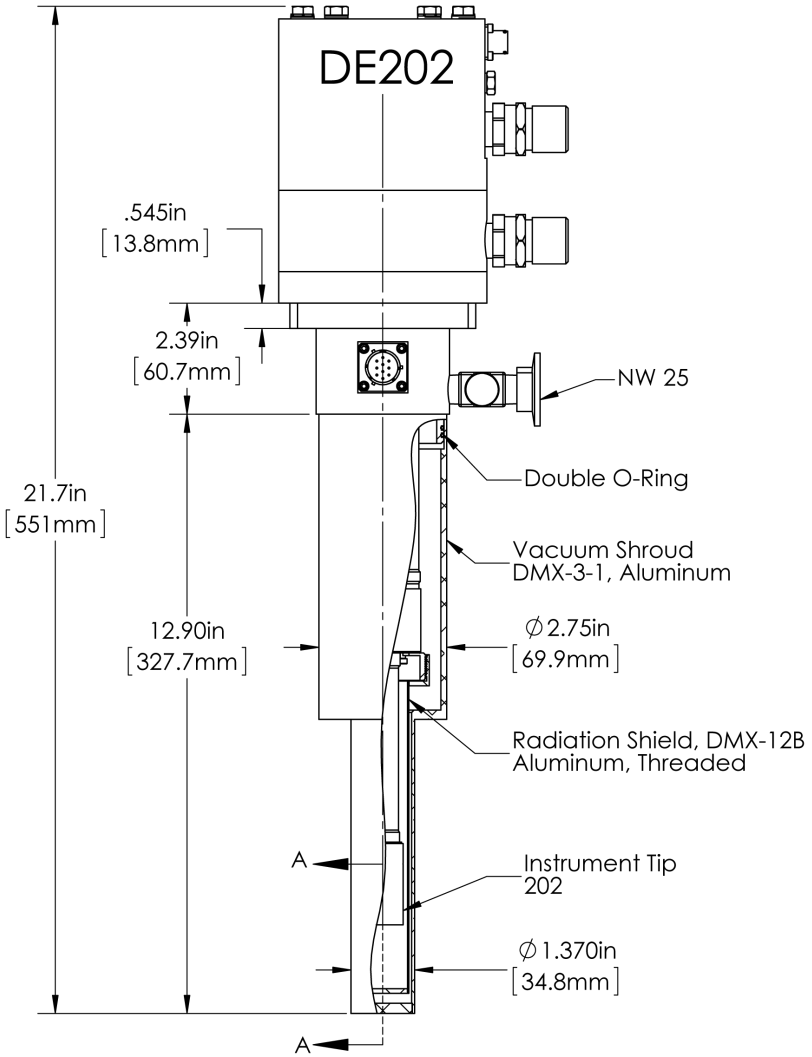
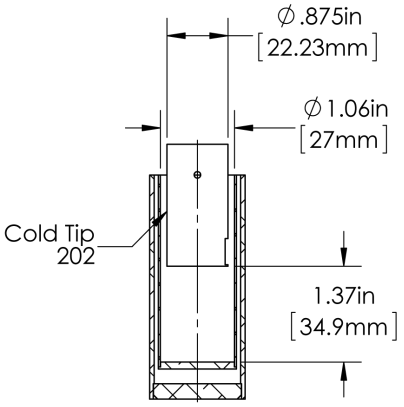
DE202*E-DMX-3-1B Outline Drawing









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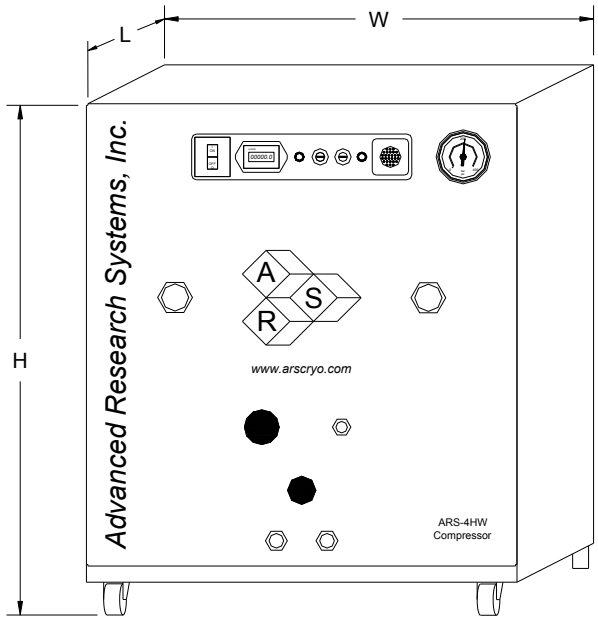
ARS-4HW Compressor



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	