



# ARS Cryocoolers

Advanced Research Systems, Inc manufactures its own series of Closed Cycle Cryocoolers. They are pneumatically driven GM Cryocoolers, that are offered as both single and two-stage units.

The single stage units are designed when fast cooldowns and high cooling capacities are needed. These systems have been modified to allow for high cooling capacities at 77 K. The single stage units reach base temperatures of < 25 K. The cooling power at 77 K ranges from **16 W to 200 W**.

The two-stage units are designed for when low temperatures are needed. These system come available at 10 K, < 5.5 K, and < 4 K cryocoolers. The cooling power at 4.2 K are **0.1 W, 0.2 W or 0.8 W**.

## Features

- Cryogen Free
- Displex, Pneumatically driven Gifford-McMahon closed cycle cryocooler designed for low sample vibrations.
- Simple, efficient design with only 3 moving components for high reliability.
- Easy field maintenance
- Low life cycle cost
- Water cooled compressor for quite and clean operation.

## Standard Components

- Cold head (**DE102, DE104, DE110, DE202, DE204, DE210**)
- Compressor (**ARS-2HW, ARS-4HW, ARS-10HW**)
- 2 Helium Hoses

## Options and Upgrades

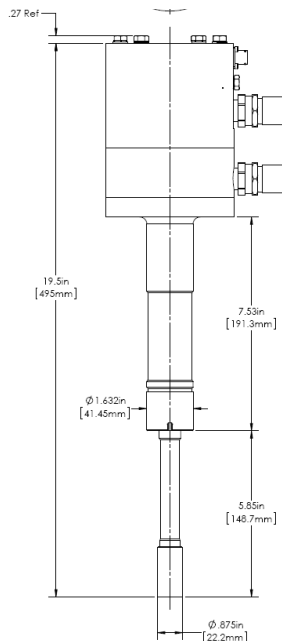
- Turbo upgrade for faster cooldown
- 450 K high temperature interface
- 800 K high temperature interface



The above picture shows the ARS Cryocooler Family

*\*Cooling Capacities are based on 60Hz performance with closed radiation shield. Actual sample temperature depends upon final configuration. 50Hz performance will be reduced.*

## DE202 Cryocooler

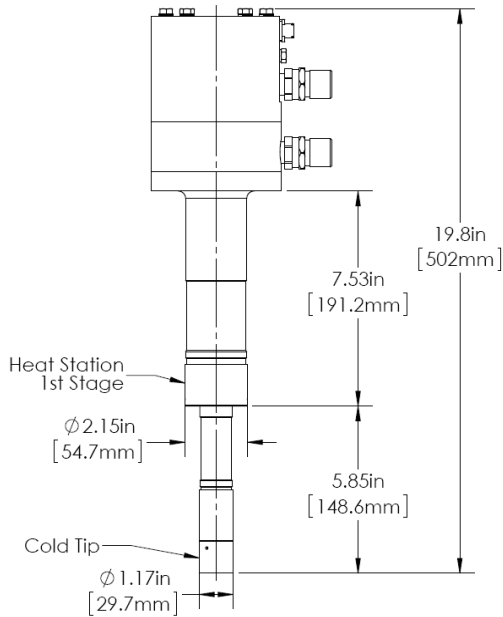


Cryocooler Model		DE-202AF	DE-202A(T)F	DE-202PF	DE-202SF
	Frequency	60 Hz	60 Hz	60 Hz	60 Hz
<b>Base Temperature</b>		< 9 K	< 9 K	< 5.5 K	< 4.2 K
<b>Cooling Capacity*</b>					
	4.2 K	-	-	-	0.1 W
	10 K	0.5 W	0.7 W	1 W	1.2 W
	20 K	2.5 W	3.7 W	3.5 W	4 W
	77 K	4 W	6 W	3.5 W	4 W
<b>Radiation Shield Cooling Capacity</b>		10 W	15 W	10 W	10 W
<b>Cooldown Time</b>					
	20 K	50 min	35 min	60 min	60 min
	Base Temperature	70 min	50 min	90 min	90 min
<b>Compressor Model</b>		ARS-2HW	ARS-2HW	ARS-2HW	ARS-4HW
<b>Typical Maintenance Cycle</b>		12,000 hours	8,000 hours	12,000 hours	12,000 hours



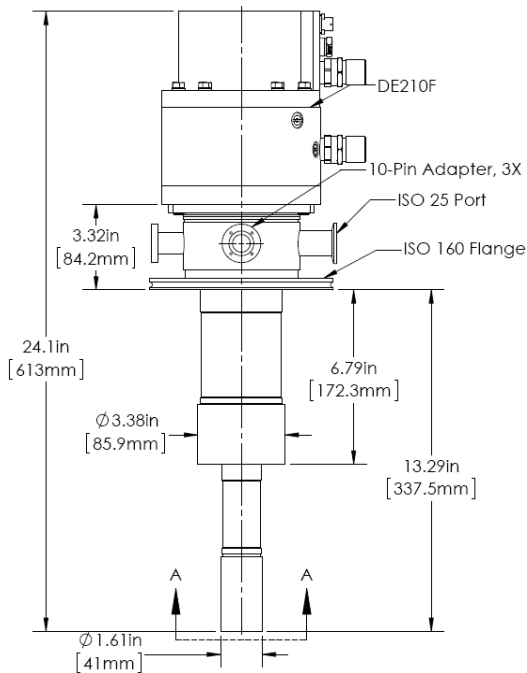
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## DE204 Cryocooler



Cryocooler Model		DE-204AF	DE-204A(T)F	DE-204PF	DE-204SF
	Frequency	60 Hz	60 Hz	60 Hz	60 Hz
<b>Base Temperature</b>		< 9 K	< 9 K	< 5.5 K	< 4.2 K
<b>Cooling Capacity*</b>	4.2 K	-	-	-	0.2 W
	10 K	2 W	2.7 W	3.5 W	4 W
	20 K	9 W	12 W	8 W	8 W
	77 K	17 W	23 W	14 W	14 W
<b>Radiation Shield Cooling Capacity</b>		18 W	24 W	18 W	18 W
<b>Cooldown Time</b>	20 K	30 min	25 min	40 min	40 min
	Base Temperature	60 min	50 min	80 min	90 min
<b>Compressor Model</b>		ARS-4HW	ARS-4HW	ARS-4HW	ARS-4HW
<b>Typical Maintenance Cycle</b>		12,000 hours	8,000 hours	12,000 hours	12,000 hours

## DE210 Cryocooler



Cryocooler Model		DE-210AF	DE-210SgF	DE-210ShF
	Frequency	60 Hz	60 Hz	60 Hz
<b>Base Temperature</b>		< 9 K	< 2.7 K	< 3 K
<b>Cooling Capacity*</b>	4.2 K	-	1.1 W	0.8 W
	10 K	4 W	6.4 W	10 W
	20 K	17 W	12 W	16 W
	77 K	25 W	25 W	25 W
<b>Radiation Shield Cooling Capacity</b>		60 W	65 W	60 W
<b>Cooldown Time</b>	20 K	35 min	40 min	40 min
	Base Temperature	70 min	< 60 min	< 60 min
<b>Compressor Model</b>		ARS-10HW	ARS-10HW	ARS-10HW
<b>Typical Maintenance Cycle</b>		12,000 hours	8,000 hours	8,000 hours

\*Cooling Capacities are based on 60Hz performance with closed radiation shield. Actual sample temperature depends upon final configuration. 50Hz performance will be reduced.