



AG5000-SLT w/AG1000-ULT BHO EXTRACTION

120 lbs/hr (2 lbs/min) 70/30 Solvent Condensed and Subcooled to -54°C (-65°F)

CALCULATIONS

From 122°F (50°C) Condensed and Chilled to -15°F (-26°C):

Flowing System	Yes	
Material being cooled flowing through chiller?	No	
Fluid	70/30 (Butane/Propane)	
Inlet Temperature	122	°F
Desired Outlet Temperature	-15	°F
Ambient	90°F	
Required dT	-18	°F
Flow Rate:	2.00	lb/min

Condensing Temperature 8.06F (-13.3C)

Absolute minimum capacity	27670	BTU/hr
	8.11	kW

WARNING PHASE CHANGE!!! - Assumes phase change happens at -13.3°C

Chiller Options at -33°F fluid outlet and 90°F Ambient			
Chiller Model	Capacity (BTU/hr)	Capacity (Watts)	% Oversized
AG5000-SLT	32,800	9,604	19%

Calculations

Inlet Temperature	50.00	°C
Outlet Temperature	-26.11	°C
Flow Rate	0.00000	m ³ /min
Specific Heat (Liquid)	2.3500	kJ /kg °K
Specific Heat (Gas)	1.7150	kJ /kg °K
Density	588.1	kg/m ³
Mass flow rate	0.0151197	kg/sec
Volume	1.1	m ³
Mass	667.9	kg
Static System Power	0.0	kW
Heat of Vaporization	397.6	kJ/kg
Condensing Temperature	-13.3	°C
Start Phase	Gas	
End Phase	Liquid	
Phase Change Energy	6.0116113	kW
Flowing System Power (Gas)	1.6413921	kW
Flowing System Power (Liquid)	0.4551968	kW
Flowing System Power	8.1082002	kW
Required dT	-9.9	°C

From -15°F (-26°C) Subcooled to -65°F (-54°C):

Flowing System	Yes	
Material being cooled flowing through chiller?	No	
Fluid	70/30 (Butane/Propane)	
Inlet Temperature	-15	°F
Desired Outlet Temperature	-65	°F
Ambient	90°F	
Required dT	-18	°F
Flow Rate:	2.00	lb/min

Condensing Temperature 8.06F (-13.3C)

Absolute minimum capacity	3370	BTU/hr
	0.99	kW

Chiller Options at -83°F fluid outlet and 90°F Ambient			
Chiller Model	Capacity (BTU/hr)	Capacity (Watts)	% Oversized
AG1000-ULT	3,900	1,142	16%

Calculations

Inlet Temperature	-26.11	°C
Outlet Temperature	-53.89	°C
Flow Rate	0.00000	m ³ /min
Specific Heat (Liquid)	2.3500	kJ /kg °K
Specific Heat (Gas)	1.7150	kJ /kg °K
Density	588.1	kg/m ³
Mass flow rate	0.0151197	kg/sec
Volume	1.1	m ³
Mass	667.9	kg
Static System Power	0.0	kW
Heat of Vaporization	397.6	kJ/kg
Condensing Temperature	-13.3	°C
Start Phase	Liquid	
End Phase	Liquid	
Phase Change Energy	0	kW
Flowing System Power (Gas)	0	kW
Flowing System Power (Liquid)	0.9869835	kW
Flowing System Power	0.9869835	kW
Required dT	-9.9	°C

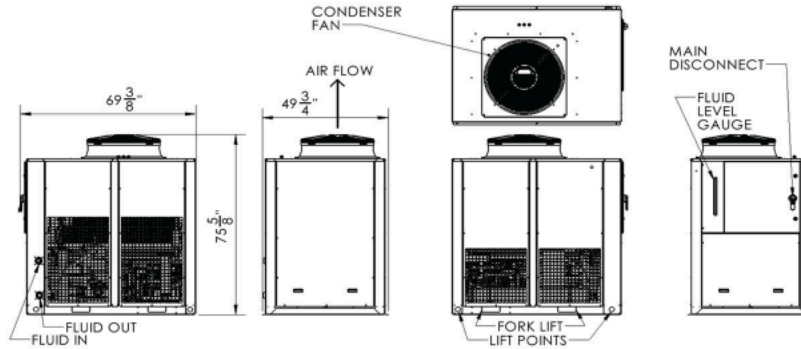
Chiller Technical Data Sheets



AG5000-SLT

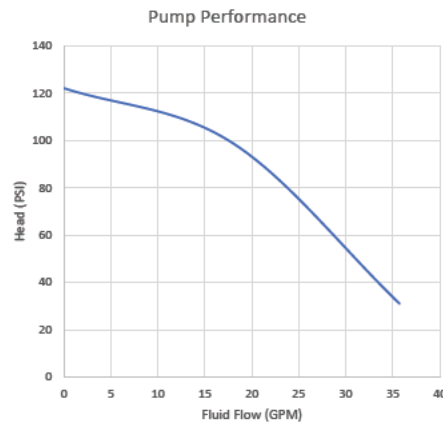
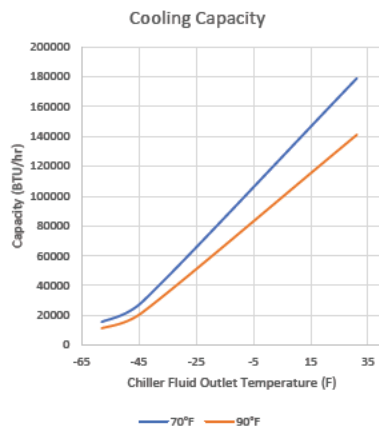
Five Ton Air Cooled Super Low Temp Chiller

Dimensional Drawings



LENGTH	WIDTH	HEIGHT	WEIGHT	TANK CAPACITY	FLUID CONNECTIONS
49 3/4"	69 3/8"	75 5/8"	1250 lbs	15 Gallon Stainless Steel	1-1/2" NPT

Chiller Performance



AG-Optimists, LLC
 3130 South 1030 West, Suite 1
 Salt Lake City, UT 84119
 (801) 244-9769
www.ag-optimists.com

All Information Is For Reference Only



Chiller Technical Data Sheets



AG5000-SLT

Standard Features and Benefits			
Performance	Working Temperature Range	-58°F(-50°C) to 10°F(-12°C)	
	Temperature Stability	±2	
	Cooling Capacity at 70F	-58°F (-50°C) - 15,500 BTU/hr (4,540 Watts) -43.6°F (-42°C) - 29,500 BTU/hr (8,650 Watts) 31.1°F (-0.5°C) - 179,000 BTU/hr (52,460 Watts)	
	Ambient Temperature (Standard)	20°F - 100°F	
	Pump Performance	0 GPM @ 122 PSI 17.9 GPM @ 99 PSI 35.7 GPM @ 31 PSI	
User Interface	Controls	Electronic Programmed Temperature Controller (PLC) with Constant (Setpoint & Process) Temperature Readout	
	Additional Features	Fluid Level Indicator, Touch Screen Controls	
Refrigeration Circuit	Compressor	Bitzer 2 Stage Reciprocating	
	Heat Exchanger	Brazed Plate Heat Exchanger	
	Refrigerant	R404a	
	Additional Features	Access Ports, Service Valves, Filter Drier, Sight Glass, Liquid Receiver, Suction Accumulator, Thermostatic Expansion Valve (TXV)	
	Max Heat Rejection	165,100 BTU/hr (48.3 kW)	
Process Fluid Circuit	Pump	Continuous Duty, 3.75kW Vortex Pump	
	Inlet/Outlet	1-1/2" NPT	
	Reservoir	15 Gallon Stainless Steel	
	Additional Features	Inline Strainer, Inlet and Outlet Temperature Sensors, Pump Discharge Pressure Transducer	
Construction	Frame	Galvanized Steel	
	Enclosure	Powder Coated Steel Enclosure with Easy Access Panels	
Quality	Warranty	1 Year Standard Warranty	
	UL/CSA Certified (Full Assembly)	Certified for Outdoor Use ETL 3170655, UL STD 61010-2-011, CAN/CSA STD, C22.2 No. 61010-2-011	
	Manufacturing	Manufactured in the U.S.A. Certified ISO 9001:2015 Company	
Power	Available Voltages	Max Amps (FLA)	Recommended Breaker/Service (MCA)
	480VAC / 3P / 60Hz (STANDARD)	46 Amps (std)	53.1 Amps (std)

Optional Upgrades			
UPGRADES	Extended Ambient (-15°F) Crating	External Temperature Monitoring Alternate Pumps	Controller Auto Start Remote Start
	More Options and Customization Available - Contact Factory for More Information		

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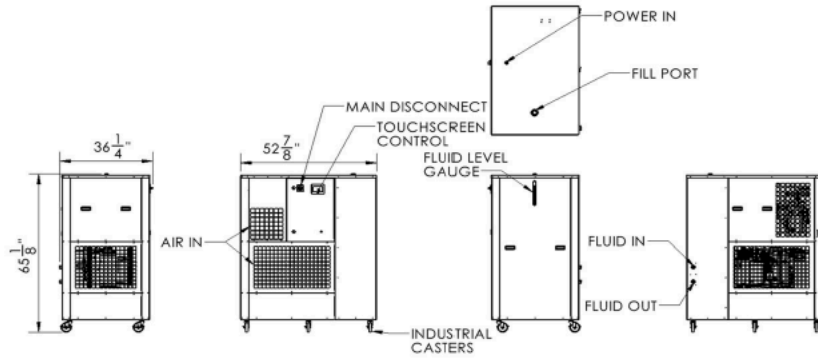
Chiller Technical Data Sheets



AG1000-ULT

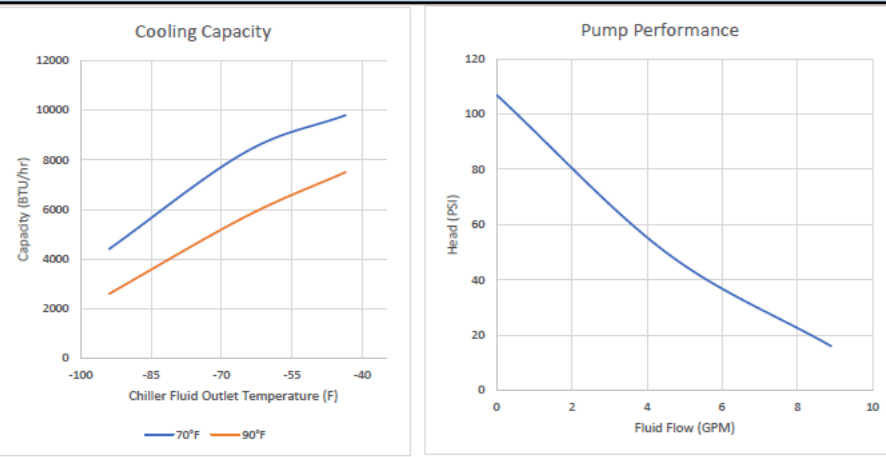
One Ton Air Cooled Ultra Low Temp Chiller

Dimensional Drawings



LENGTH	WIDTH	HEIGHT	WEIGHT	TANK CAPACITY	FLUID CONNECTIONS
36 1/4"	52 7/8"	65 1/8"	1150 lbs	5 Gallon Stainless Steel	1/2" NPT

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Chiller Technical Data Sheets



AG1000-ULT

Standard Features and Benefits			
Performance	Working Temperature Range	-112°F(-80°C) to 70°F(21°C)	
	Temperature Stability	±2	
	Cooling Capacity at 70F	-94°F (-70°C) - 4,400 BTU/hr (1,290 Watts) -65°F (-53.9°C) - 8,300 BTU/hr (2,430 Watts) -43.6°F (-42°C) - 9,800 BTU/hr (2,870 Watts)	
	Ambient Temperature (Standard)	40°F - 100°F	
	Pump Performance	0 GPM @ 107 PSI 4.5 GPM @ 50 PSI 8.9 GPM @ 16 PSI	
User Interface	Controls	Electronic Programmed Temperature Controller (PLC) with Constant (Setpoint & Process) Temperature Readout	
	Additional Features	Fluid Level Indicator, Touch Screen Controls, IO Remote Chiller Control System	
Refrigeration Circuit	Compressor	Copeland Scroll	
	Heat Exchanger	Brazed Plate Heat Exchanger	
	Refrigerant	R404a/R508b	
	Additional Features	Access Ports, Service Valves, Filter Drier, Sight Glass, Liquid Receiver, Thermostatic Expansion Valve (TXV), Fan Cycling, Oil Separator	
	Max Heat Rejection	31,450 BTU/hr (9.2 kW)	
Process Fluid Circuit	Pump	Continuous Duty, 0.75kW Vortex Pump	
	Inlet/Outlet	1/2" NPT	
	Reservoir	5 Gallon Stainless Steel	
	Additional Features	Inline Strainer, Inlet and Outlet Temperature Sensors, Pump Discharge Pressure Transducer	
Construction	Frame	Galvanized Steel	
	Enclosure	Powder Coated Steel Enclosure with Easy Access Panels	
Quality	Warranty	1 Year Standard Warranty	
	UL/CSA Certified (Full Assembly)	ETL 3170655, UL STD 61010-2-011, CAN/CSA STD, C22.2 No. 61010-2-011	
	Manufacturing	Manufactured in the U.S.A. Certified ISO 9001:2015 Company	
Power	Available Voltages	Max Amps (FLA)	Recommended Breaker/Service (MCA)
	208-240VAC / 3P / 60Hz (STANDARD) 480VAC / 3P / 60Hz	25 Amps (std)	30 Amps (std)

Optional Upgrades			
UPGRADES	Process Heating UL/CSA Outdoor Certified Extended Ambient (-15°F)	External Temperature Monitoring Alternate Pumps	Crating
More Options and Customization Available - Contact Factory for More Information			

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