

Glycol Chiller Sizing

Fermentation Tank Crash Cooling from 75°F to 35°F

Tank Volume (BBL)	Cool Down Time (hours)	BTU/hr Required	Cool Down Time (hours)	BTU/hr Required
3	18	1,720	24	1,290
7	18	4,005	24	3,005
10	18	5,720	24	4,290
15	18	8,580	24	6,435
20	18	11,440	24	8,580
30	18	17,155	24	12,865
40	18	22,875	24	17,155

Formula : $BTU/hr = BBL \times 575$ (crashing from 75°F - 35°F in 18 hours)

Fermentation Tank In Active Fermentation

Fermentation gives off heat that must be removed to keep the fermentation tank at the desired temperature. This table provides the estimated heat gain that might be expected from typical tanks during the fermentation process.

(BBL)	BTU/hr
3	180
7	420
10	600
15	900
20	1,200
30	1,800
40	2,400

Formula : $BTU/hr = BBL \times 60$

Brite Tank Temperature Maintenance

Even a well-insulated tank will gain heat when sitting in a room that is warmer than your beer. Knowing your tank volumes, use the formulas below to estimate your cooling needs to maintain a typical tank at 35°F in a 70°F room.

Tank Capacity : 1 - 5 Barrels : $BTU/hr = BBL \times 150$

Tank Capacity : 6 - 20 Barrels : $BTU/hr = BBL \times 100$

Tank Capacity : 21 or greater : $BTU/hr = BBL \times 60$

Wort Cooling

If wort will be cooled by the glycol chiller, one of these two methods are typical.

1. A Cold Liquor Tank (CLT) can be cooled over many hours reducing the glycol chiller capacity required.

Formula : $BTU/hr = CLT \text{ volume (BBL)} \times 320$

• Assumes dropping cold liquor tank 75°F to 45°F in 24 hours.

OR

2. A Two Stage Wort Cooler uses city water to do most of the wort cooling with the glycol chiller finishing the job. During wort cooling all other loads can be isolated and the glycol chiller can be sized for second stage wort cooling only.

Formula : $BTU/hr = BBL \text{ per hour} \times 5,150$

• Assumes city water cools from boil to 90°F and the glycol cools from 90°F to 70°F.

Sizing factors should be used only as an approximation tool.
Consult factory for additional assistance.

Glycol Chiller Set Up

The fluid used in the chiller should protect the system from freezing to the lowest expected ambient temperature or 20°F below the operating fluid setpoint. Most breweries operate at a fluid temperature between 25°F and 30°F and will require a fluid mixture of 40% inhibited propylene glycol and 60% water. Use only industrial propylene glycol. Never use automotive or RV antifreeze. Recommended pressure settings are shown in the chart below.

Ambient Temperature	39°F	0 - 38°F	-20 - 0°F
Operating Temperature	48°F - 70°F	10°F - 47°F	n/a
Glycol	0%	40%	50%
Freeze Temperature	32°F	-5°F	
Cut Out Temperature	32°F	-5°F	
Cut In Temperature	36° - 39°F	0° - 7°F	

Low Pressure Settings

R134A

Cut Out	102#	4#
Cut In	111#	9#

R410A

Cut Out	102#	43#
Cut In	111#	52#

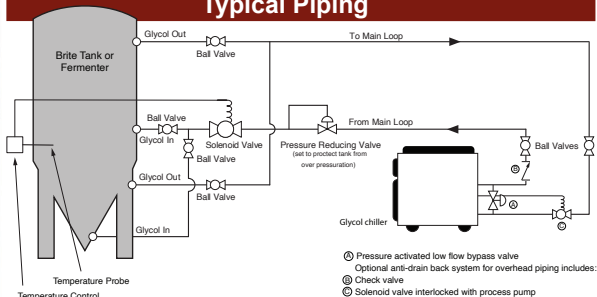
R407C

Cut Out	52#	11#
Cut In	58#	22#

High Pressure Setting

R134A	260#	260#
R410A	450#	450#
R407C	360#	360#

Typical Piping



Abbreviations, Equivalents & Formulas

- 1 Barrel (BBL) = 31 gallons
- Btu = British Thermal Unit
- PSI = Pounds per square inch
- GPM = Gallon per minute
- 1 Cubic foot = 7.48 gallons
- Hectoliters to Gallons x 26.421
- 1 Gallon - 8.33 LBS (water)

ADVANTAGE

317-887-0729

Glycol Chillers

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