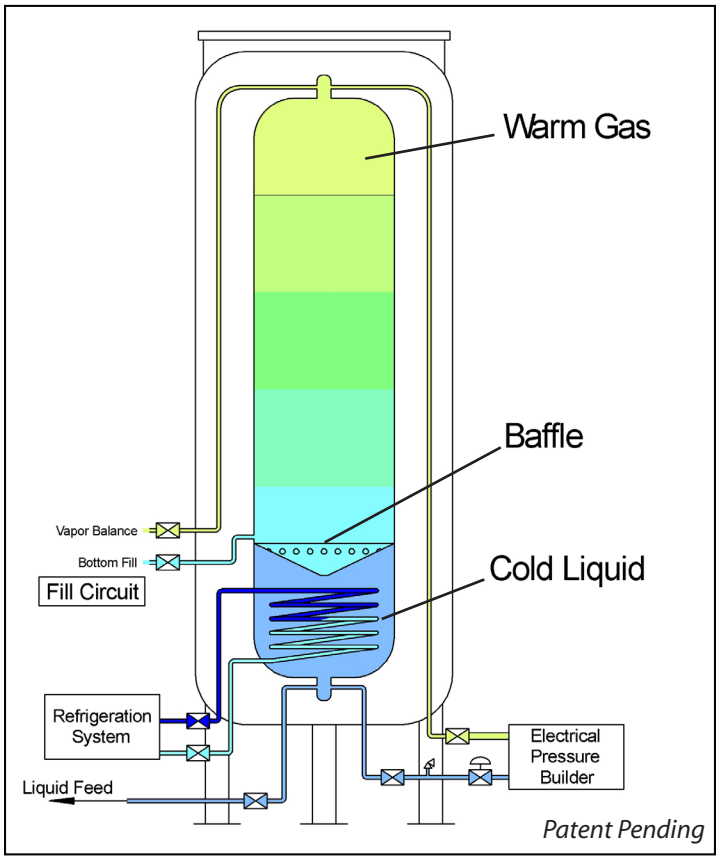
CHILLZILLA® CO_2 LIQUID SUPPLY SYSTEM

BULK CO_2 FOOD FREEZING AND DRY ICE PRODUCTION SYSTEM

The ChillZilla® bulk CO_2 Liquid Supply System for food freezing and dry ice production increases the refrigeration capacity of the liquid CO_2 by as much as **24%** over traditional bulk tanks. The ChillZilla system incorporates a patent pending design to lower the saturation pressure of the liquid output without reducing the delivery pressure. With the aid of an external refrigeration system, an internal heat exchanger coil and an insulating baffle, the temperature of the liquid CO_2 is effectively reduced. This system subcools the saturated liquid CO_2 from 300 psig to 120 psig while the electric pressure builder maintains the high tank vapor pressure necessary for consistent CO_2 delivery to the application. The result is an *increase* in refrigeration capacity in the liquid or an *improved* snow yield from 41 to 51%.



PRODUCT HIGHLIGHTS

- Reduce liquid CO_2 consumption by as much as 24%
- Reduce bulk tank minimum operating temperature from -40°F to -320°F with stainless steel inner vessel
- T304 stainless steel inner complies with food grade standards
- Improve bulk tank thermal efficiency with vacuum-insulated super insulation system
- Control freezing process more accurately by controlling liquid conditions
- Flexible system control allows lower tank operating pressure to further reduce operating costs
- Reduce deliveries at bulk tank site
- Reduce CO_2 emissions
- Liquid connection: 2" NPS, Python®-Ready

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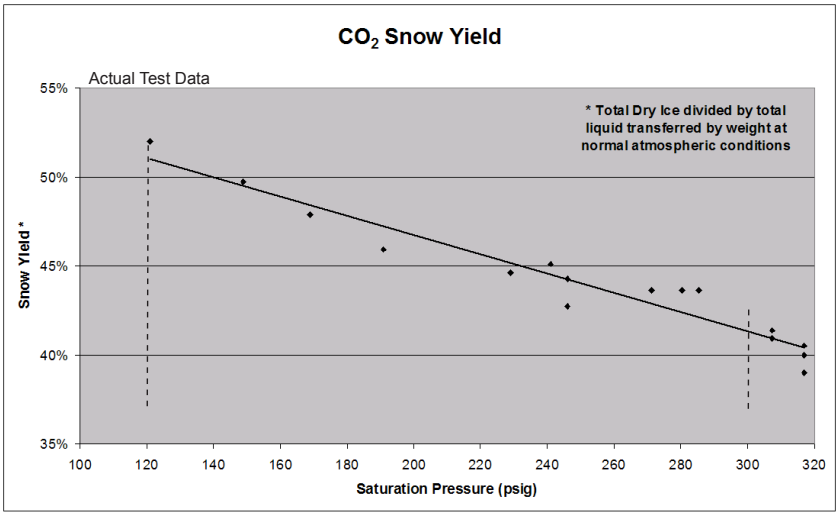
Tank Specifications

Model	Gross Capacity Ton	Gross Capacity Tonne	Net Capacity Ton	Net Capacity Tonne	MAWP* psig	MAWP* barg	Height in	Height mm	Diameter in	Diameter mm	Tare Weight** lbs.	Tare Weight** kg	NER %/day in CO_2
50 Ton	48.1	43.6	45.8	41.5	350	24.1	406	10,312	114	2,900	56,900	25,810	.04

*MAWP - Maximum Allowable Working Pressure. ** Weights are for ASME design.



System Requirements

- Chiller: 480 VAC/3Ph/60Hz
  23kW
  230 VAC/1Ph/60Hz
  171" L x 45" D x 56" H
  2500 lbs
- Pressure Builder:
  480 VAC/3Ph/60Hz
  12kW

ChillZilla Savings	Units	50 Ton Carbon Steel/Foam	50 Ton ChillZilla System
Design Pressure	(psig)	350	350
Design Temperature	(°F)	-40	-320
Dispense Pressure (PB set)	(psig)	300	300
Dispense Saturation Pressure	(psig)	250	120
Refrigeration Energy @ Dispense Pressure*	(BTU/lb)	54.3	76.5
Amount Flashed to Dry Ice	(%)	44%	51%
CO2 Snow Required (yield)	(lb/day)	20,000	
Liquid CO2 Supply Needed**	(lb/day)	45,450	39,210
CO2 Deliveries (26 days/mo)*	(#/mo)	28	24
Liquid CO2 Costs	($/ton)	$75.00	$75.00
Total CO2 Product Costs	($/mo)	$44,314	$38,230
Subtotal Savings w/ ChillZilla	($/mo)		*$6,084*
Operating Costs			
Electrical Rate	($/kWh)	$0.10	
Chiller & Electric PB size	(kW)	12	35
Electrical Operating Costs***	($/mo)	$250	$1,206
Maintenance Costs	($/mo)	$200	$328
Total Net Savings w/ ChillZilla	***($/mo)***		***$5,000***
Annual Net Savings w/ ChillZilla	***($/yr)***		***$60,000***

* Reference Only
** One typical trailer load of 20 tons at 250 psig at a usage rate of not less than 16 hrs/day continuous for peak efficiency.
*** 26 days/mo @ 16 hrs/day. PB @ 50% duty cycle.

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