

DALUM
Beverage Equipment

DALUM CO2 Recovery Plant

*CO2 recovery solutions tailored for your specific brewery.
Designed by process engineers and veteran brewers.*



It began in Denmark, 2019

Kim, engineer and beverage industry expert, approached several craft brewers and was encouraged to invent an affordable craft-scale CO2 recovery solution.

He partnered with Ørbæk Bryggeri and had the first plant up and running in March of 2020.



ØRBÆK
ESTD BRYGGERI 1906

The Result: Serious Technology for Sustainable Brewing

Proven Industrial Technology
Scaled & Priced for
Craft Breweries



DALUM CO2 Recovery Plant

Svaneke

DALUM
Beverage Equipment

First commercial customer installed a plant in November 2020 and has been self-sufficient ever since. They sell their excess CO2 to local businesses on the island of Bornholm.

Svaneke Bryghus and Jan Paul, brewmaster, were a big part of the R&D process from the beginning.



Over 100 Plants Across 19 Different Countries



Notable
Breweries



MOLSON
COORS beverage
company

BrauKon



WIPER
AND
TRUE



Thisted
BRYGHUS
Since 1902



Why Are Breweries Using CO2 Recovery?

1. Technology available to industrial breweries for a long time, newly available to craft.
2. To protect from increasing CO2 costs and supply chain disruptions.
3. Short ROI
4. Sustainability benefits of reducing CO2 waste.



"It's just like printing money!"

Mike Murphy, Head Brewer
Lervig Bryghus, Norway



DALUM CO2 RECOVERY PLANT OVERVIEW

Our CO2 Recovery Plant promotes a circular utilization of the brewery's own CO2, by recovering the CO2 from the fermentation.

Secures own high-quality supply of CO2

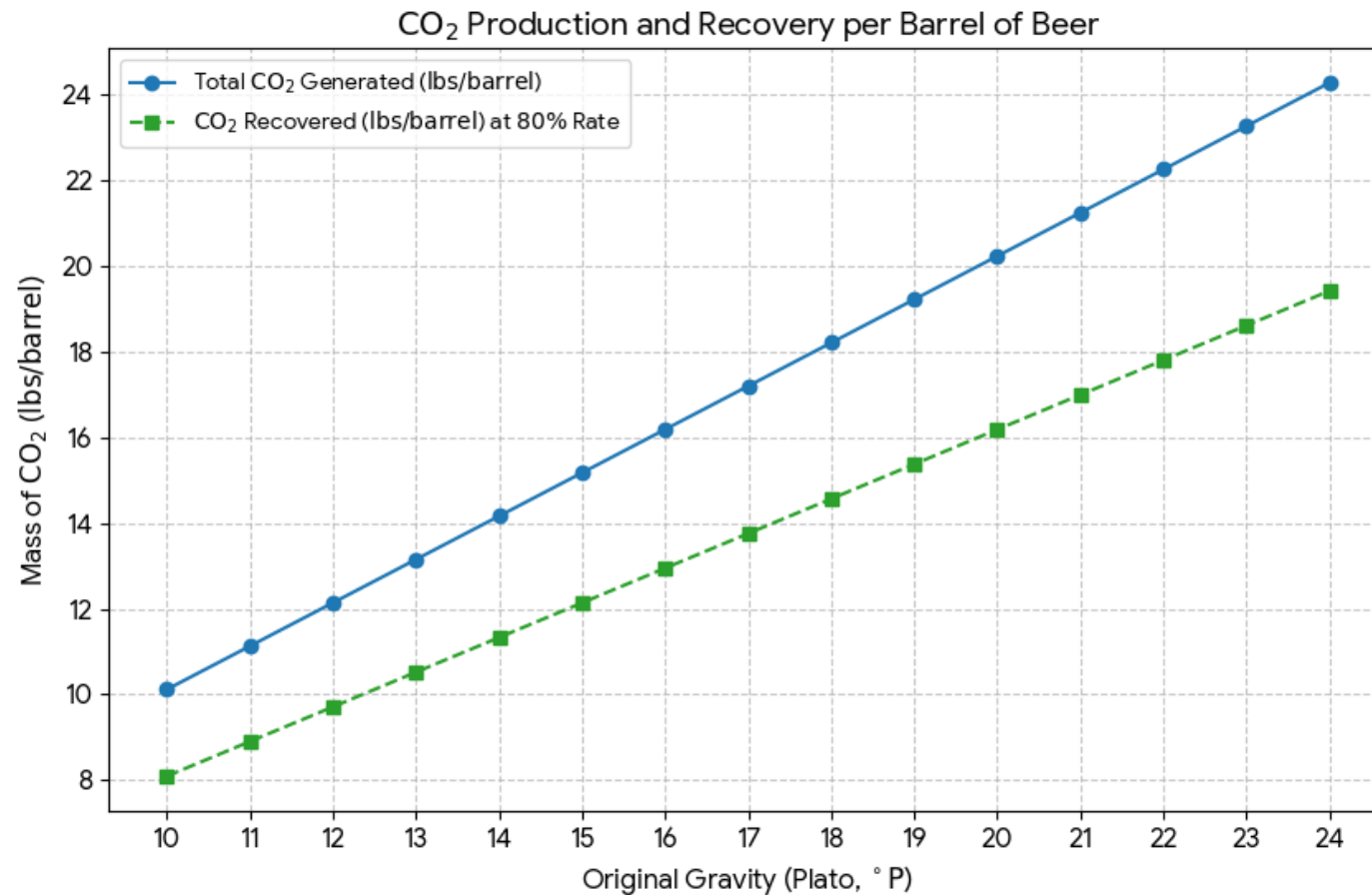
80% of DALUM customers are CO2 self-sufficient

Saves costs from the day it is installed and for the rest of the lifetime of your brewery

Recovery estimate:

- 80% of CO2 from fermentation pending brewery practices
- At 5% alc. content approx. 4 kg per hL / 7-8 lbs. per bbl pending brewery practices

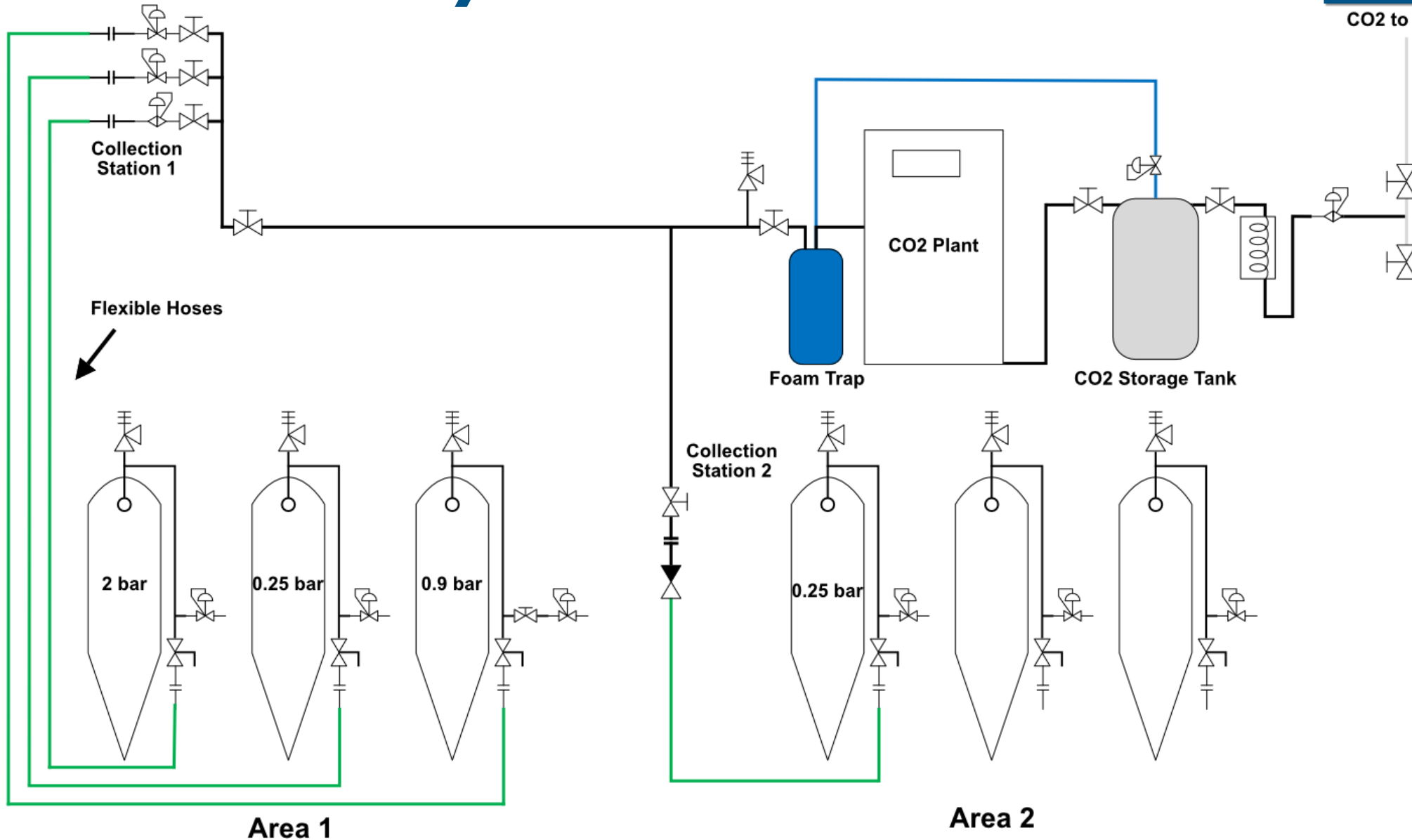
Higher ABV = More CO₂



System Overview

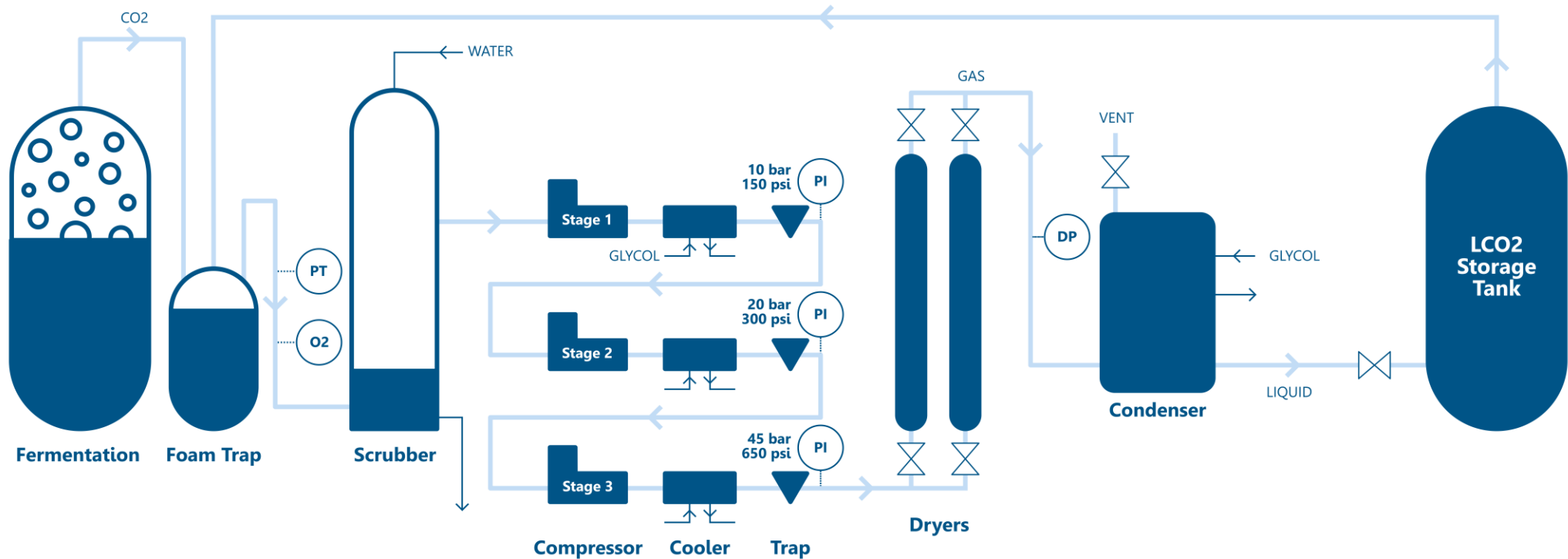


CO2 to Users

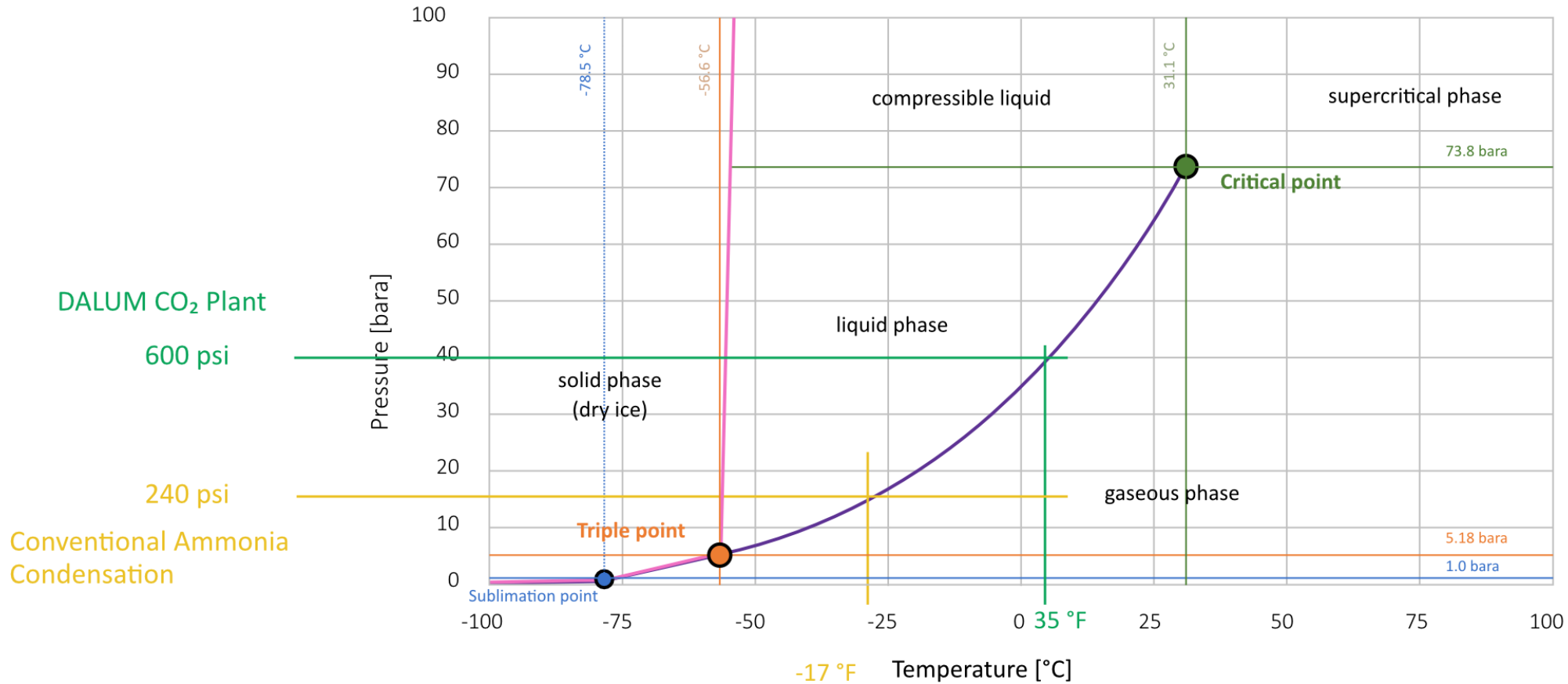


Patented Design

DALUM CO2 Recovery Plant Collection Process



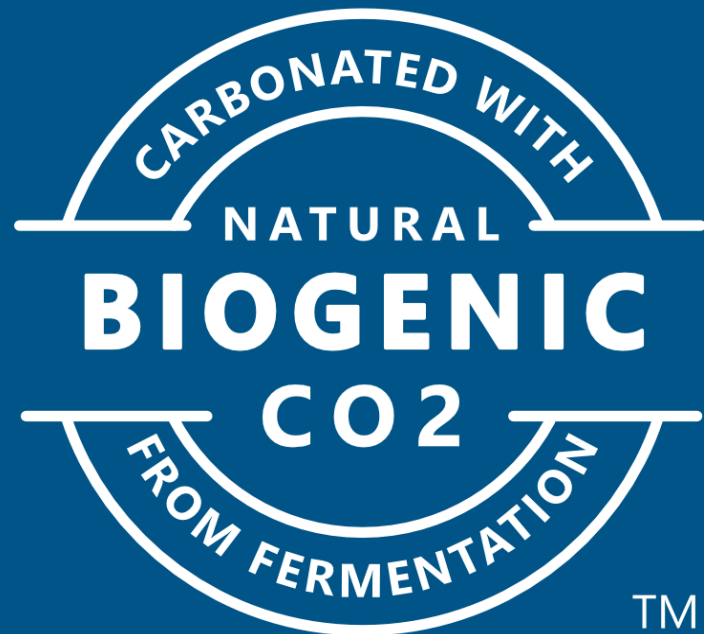
Compressor: Oil-free, 3 phase,
variable speed, stainless



No Refrigerants: Simpler Machine & Less to Maintain

Three stage compressor produces 45 bars/650 psi bars condensation pressure. Unnecessary to use separate CFC or ammonia cooling systems. A glycol, ice-water, or alcohol coolant system can be used – even the existing coolant system in the brewery can be utilized.

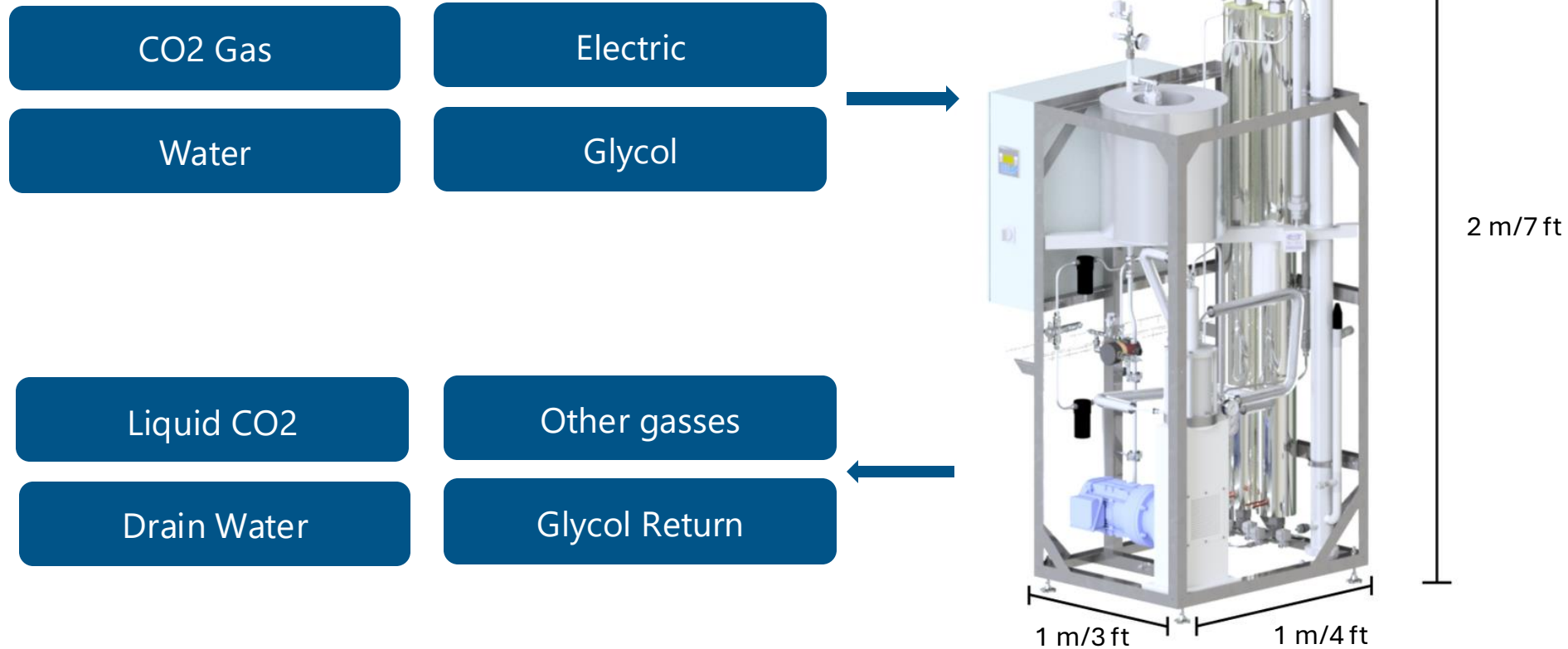
Typical Chemical Profile in CO2 Output



Typical chemical profile in DALUM CO2 Recovery					
Component	Presence in feed, ppm	After water scrubber, ppm	After compressor, ppm	After dehydrator and condenser, ppm	ISBT ppm
Acetaldehyde	20	0	0	0.02	0.2
Ethyl acetate	200	10	8	0.0	
Mercaptans	5	1	0.7	0.0	0.1
Dimethyl sulfide	35	3	2	0.05*	0.1
Ethanol	2500	5	0	0.0	
Carbon disulfide, CS ₂	0	0	0	<0.05	0.1
Hydrogen sulfide, H ₂ S	0	0	0	<0.01	0.1
Carbonyl sulfide COS	0	0	0	<0.05	0.1
Oxygen O ₂	1000	1000	1000	0.005-0.1*	30
Moist H ₂ O	>10000	>10000	1000	1	20
Carbon dioxide %	96	97	99	99.985-99.995	99.900
Nitrogen	4000	4000	4000	0.1	na
Ammonia	na	na	na	<1	2.5
Oil & grease	na	na	na	<1	5
Hydrocarbon	na	na	na	1.5	50
Benzene	na	na	na	<0.01	2.5
Methanol	na	na	na	0.06	10

ISBT: International Society of Beverage Technologists

Simple to Connect to Utilities



HIGH QUALITY CO2

- No oil, or refrigerants in CO2 Plant.
- Stainless steel and 3-stage variable speed oil-free DALUM Compressor.
- Only food safe materials in contact with CO2.
- ISBT standard - 99.98% purity and no odor

PLUG-AND-PLAY PLANT

- Fully assembled and tested plant ready to plug in.
- Water, electricity, coolant, and drain to be connected.
- No PED or ASME needed for plant.*

*Storage tanks for liquid CO2 need approvals and may need inspections.



EASY TO USE AND MAINTAIN

- Simple and fully automatic operation with self-diagnosing software.
- Adapts automatically capacity to fermentation cycles.
- No consumables to be replaced regularly.
- Dashboard on smartphone and remote access.

FINANCIALLY FEASIBLE

- Low capex and short ROI
- Protected from CO2 shortages and price increases.
- Reduces cost of CO2 considerably and secures supply.
- increases surplus CO2 value by cylinder filling for beer dispensers for draft beer.



EASY TO FIT

- Small footprint of plant (1 m² or 10 sq. ft.)
- Low noise level (65 dB) and can be placed anywhere in the brewery.
- No balloon due to 100% variable speed DALUM Compressor.
- No hazardous ammonia or CFC refrigerants as external cooling source is used.

ENVIRONMENTALLY FRIENDLY

- Low consumption of power and water.
- Better working environment.
- Eliminates breweries largest CO₂ emission source (2 tons less emissions per ton recovered).
- Eliminates breweries need for purchase and transport of CO₂.



DALUM Customers

Satisfied
customers all
over the world

DALUM
Beverage Equipment



"There's no reason every brewery shouldn't have one, it's performing as promised which is kind of unheard of."

Paul Graham, President of Central Waters, WI, USA



"The whole system is extremely reliable and very efficient. Incredibly well-thought-out condenser. First class quality CO2."

Eddie Gadd, President of Ramsgate Brewery, UK



"We're recovering tons of very pure CO2 every week, it's incredibly rewarding to see the savings add up, and we now have complete control over the quality & source, which is invaluable."

**Vinnie & Natalie Cilurzo, Co-Owners,
Russian River Brewing Company, Windsor, CA USA**

CO2 Self-Sufficiency



2023
Scotland

CO2 self-sufficient on day one since commissioning two Craft models in February 2023, and are selling excess CO2 in cylinders to local businesses.



2023
Scotland

CO2 self-sufficient on day one since commissioning the first Micro model in October 2023.



2025
California, USA

Running 3x Senior Plants, collected 10 tons in first week. Running an excess of CO2 after serving tap rooms, packaging lines etc.

Cost Reduction and Increased Profits



2024
Vanuatu

Brewery located on island with volatile CO2 prices and unpredictable disruptions.



Thisted
BRYGHUS
since 1902

2023
Denmark

Saving approx. 150 tons of CO2 annually with two Craft models.



2024
Sweden

Newly built brewery with built-in piping for CO2 recovery.

Simple and Easy Installs by Brewing & Engineering Experts



CENTRAL WATERS
BREWING CO.

2023
WI, USA

First US install running after two days and recovering approx. 67,200 lbs. Annually.



2025
UK

Senior Plant was running and producing CO2 after two days.



2024
Maine, USA

Running and producing CO2 on day one.

Financially Feasible for Craft Breweries



Beer Output in hL	Plant Model	Theoretical Compressor Displacement Size
1,000 – 2,500 hL/yr	Nano	2.5 kg/hr
2,500 – 10,000 hL/yr	Micro	7 kg/hr
10,000 - 25,000 hL/yr	Craft	15 kg/hr
25,000 - 50,000 hL/yr	Senior	30 kg/hr
50,000 +	Hercules	50 kg/hr

General sizing estimate, may vary based on brewing schedule, ABV etc.

Financially Feasible for Craft Breweries



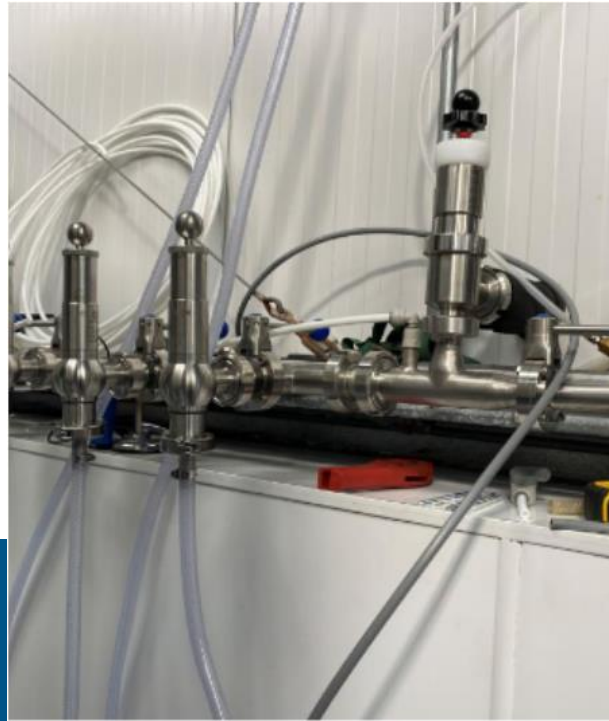
Beer Output in bbl.	Plant Model	Theoretical Compressor Displacement Size
800 – 2,000 bbl/yr	Nano	5 lbs/hr
2,000 – 8,000 bbl/yr	Micro	14 lbs/hr
8,000 – 21,000 bbl/yr	Craft	30 lbs/hr
21,000 – 43,000 bbl/yr	Senior	60 lbs/hr
43,000 +	Hercules	100 lbs/hr

General sizing estimate, may vary based on brewing schedule, ABV etc.

Total Solution Packages: Storage Tanks, Cylinder Filling Stations, Vaporizers etc.



Customized Collection Stations




Emission Reduction is 2:1 Relationship

Two tons of emission reduction from each ton of CO2 recovered.

Producing and transporting one ton of CO2 to a brewery emits 2 tons of CO2.*

*University of Winnipeg.

Beer Output 5% alc. Hl	Compressor Displacement Size	CO2 Recovery (Tons CO2)	Emission Reduction (Tons CO2)
7,000	5 kg/hr	22 	44
15,000	10 kg/hr	66	132
25,000	15 kg/hr	99	198
50,000	30 kg/hr	198	396

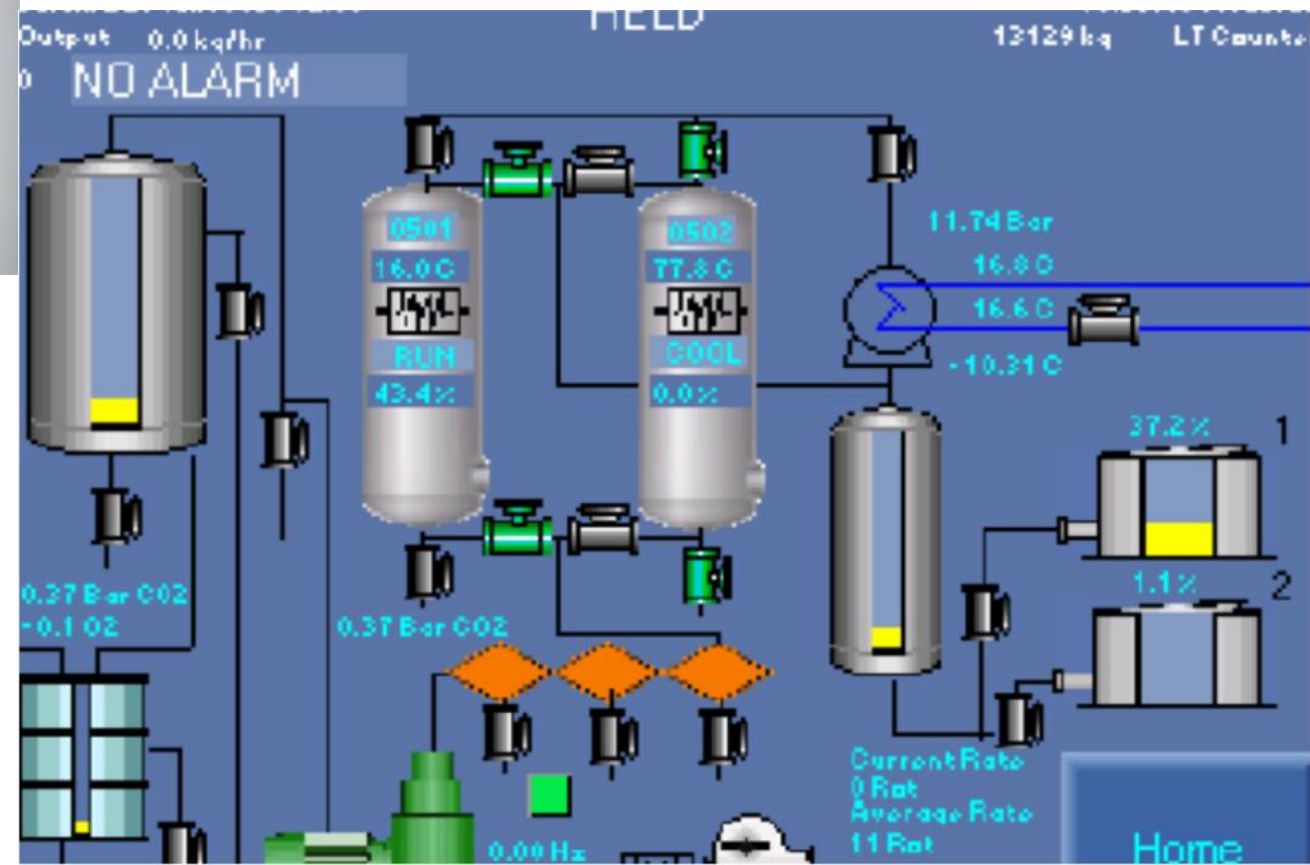
Control System With Vision Combi PLC Remote Operator

Simple and fully automatic operation with self-diagnosing software

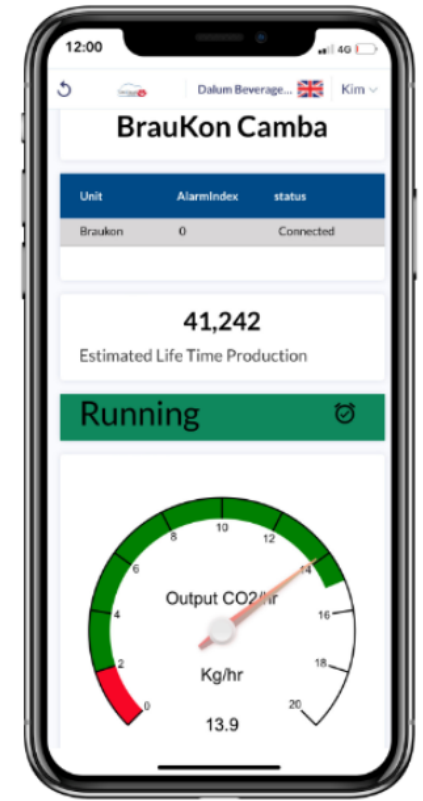
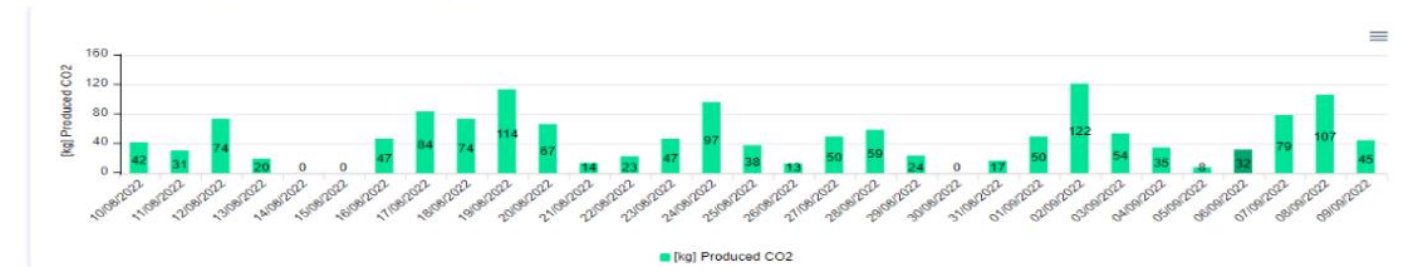
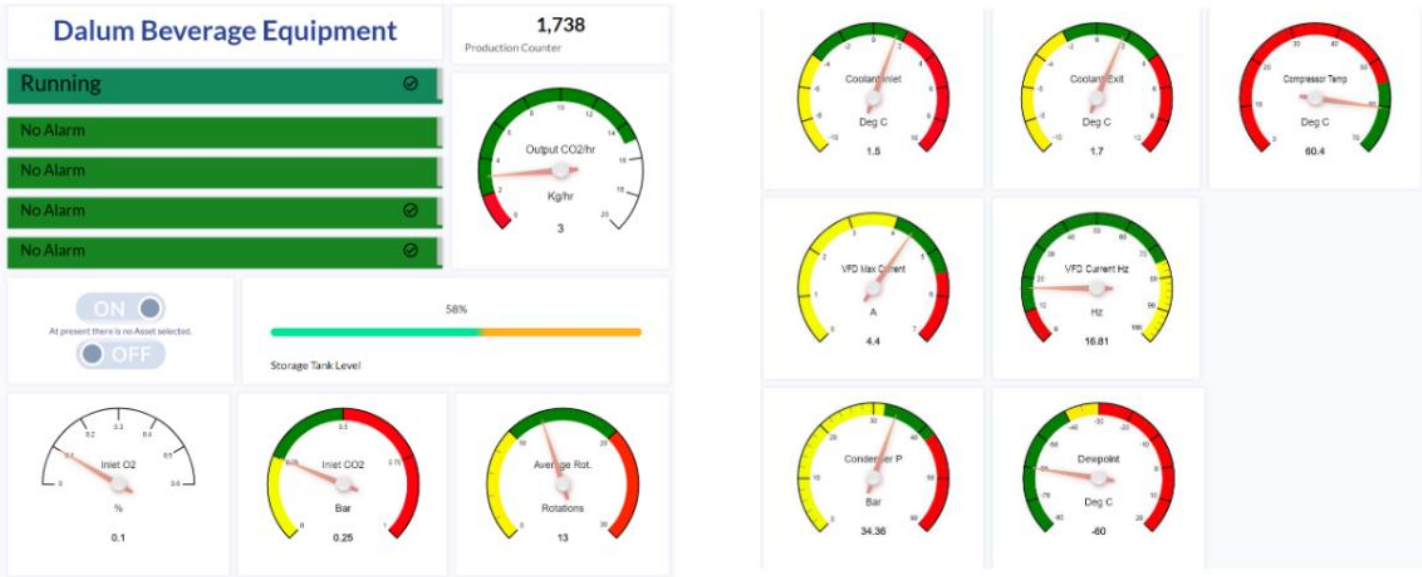


User Interface

Easy to monitor and control



Remote Operator and Smartphone Dashboard



Control System With Vision Combi PLC Remote Operator
Simple and fully automatic operation with self-diagnosing software