

Albert Handtmann Armaturenfabrik GmbH & Co. KG - D-88396 Biberach

Great Divide Brewing Co.

Project:

Container Transfer and new BBT cellar

[Redacted content]

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01.00 NEW BBT CELLAR

01.01 Tank top fittings BBT

2	BBT vessels		BY BREWERY
	content:	300 / 360	bbf
	diameter:	...	mm
	total height	...	m
	inlet / outlet connection:	65	DN
	gas / CIP connection:	Triclamp 150	DN
	working pressure:	2	bar g
2	single-hole cleaning-air-valve combination DN 150		
	Tank connection:	6"	Triclamp
	CIP Pipe:		DN 50
	Spray ball:	Breconcherry	DN 40

each equipped with:

- 1 vacuum valve DN 150
weight-loaded
with stainless steel valve cone
- 1 safety valve DN 40; No. 488 make Leser
acc. to ASME Sec. VIII. Div. 1 (UV stamp)
set pressure 1,0 bar
for liquid and gas, with CIP-connection pipe
- 1 cleaning-air-valve combination DN 50,
stainless steel valve cone
- 1 mounting tube DN 50/40
for Breconcherry cleaning device
- 1 Turbo SSB 125
make Breconcherry
Split pin connection 1 ½"

Note:

Vacuum valve on tank top is sized for hot cleaning of tanks:	
Hot cleaning temperature:	65 °C
Cold water temperature:	12 °C
Water flow for cleaning:	17 m ³ /h
Required vacuum design pressure of tank:	50 mbar

01.02

Tank outlet equipment

- 2 tank outlet pipe DN 65
(beer outlet from tank to double seat valve)
- 2 gas / CIP pipe DN 50
- 2 sight glass Vario-hab DN 65
- 2 ball valves DN 10
For CIP of sample valve
- 2 empty level probes
make Negele
type NCS 11 / PNP
length: 40 mm including level module
incl. welding sleeve
(at outlet pipe)
- 2 level probe type Negele NVS-146
length 1000 mm
- 2 welding muff G1/2",
for high level probe
welding muff to be supplied to tank manufacturer for shop welding
- 2 pressure transmitter
make Endress & Hauser
Delta Pilot S FMB 70
- 2 welding adapter for pressure transmitter
welding adapter to be supplied to tank manufacturer for shop welding
- 2 temperature transmitter
make Endress & Hauser
type TR 88
with thread G1/2" for mounting into protection pipe
- 2 protection tube for temperature transmitter E&H TR88
protection tube to be supplied to tank manufacturer for shop welding

Note:

Perlick sample valves to be welded in BBTs
are not included – should be provided by tank manufacturer.
Hoses for CIP will be provided by brewery.

01.03

Valve blocks and pipe fence element for 2 new BBTs for automatic filling and emptying, premounted

- 1 valve block, pre-mounted
for beer pipes to filler including CIP connections and DAW
size of pipe frame is good for 2 tanks and 3 filler lines

with:

- 1 pipe frame
- 1 drip tray
- 4 double seat valve DN 65/50 Inova Basic
top connections: DN 65
bottom connections: DN 50
with balancer and leakage chamber cleaning
with 1 proximity switch
(beer to can and draft filler)
- 2 double seat valve DN 50 Inova Basic
top connections: DN 50
bottom connections: DN 50
with balancer and leakage chamber cleaning
with 1 proximity switch
(DAW supply)
- 2 mixproof butterfly valve DN 65, pneumatic
between flanges
with 1 proximity switch
(beer / CIP return)
- 2 mixproof butterfly valve DN 50, pneumatic
between flanges
with 1 proximity switch
(beer / CIP return)
- 1 butterfly valve DN 50, pneumatic
between flanges
with 1 proximity switch
(CIP supply line)
- 4 butterfly valve DN 25, pneumatic
between flanges
with 1 proximity switch
(balancer cleaning and drain)
- 1 CIP pipe for balancer cleaning DN 25
- 11 flange connection DN 50 / DN 65
Welded to valve block
For easy extension of valve block in future

- 1 valve block, pre-mounted
for beer pipes from container unloading including CIP return connection
size of pipe frame is good for 2 tanks and 2 beer lines

with:

- 1 pipe frame
- 1 drip tray
- 2 double seat valve DN 65 Inova Basic
 - top connections: DN 65
 - bottom connections: DN 65
 - with balancer and leakage chamber cleaning
 - with 1 proximity switch
 - (beer to can and draft filler)
- 2 butterfly valve DN 65, pneumatic
 - between flanges
 - with 1 proximity switch
 - (CIP connection)
- 1 butterfly valve DN 25, pneumatic
 - between flanges
 - with 1 proximity switch
 - (balancer cleaning)
- 2 butterfly valve DN 65, manual
 - between flanges
 - with 1 proximity switch
 - (tank outlet connection)
- 1 butterfly valve DN 40, pneumatic
 - between flanges
 - with 1 proximity switch
 - (drain valve)
- 1 safety valve DN 40, pneumatic lifting
 - Adjustable pressure range with scale
 - (pressure regulation in drain line)
- 1 CIP pipe for balancer cleaning DN 25
- 4 flange connection DN 50 / DN 65
 - Welded to valve block
 - For easy extension of valve block in future

- 1 pipe fence element
for Gas/CIP connections of 2 BBTs
pre-mounted pipes will be delivered in a separate box,
execution ground

consisting of:

- 1 pipe frame made of stainless steel
(pipe fence element)
- 2 butterfly valve DN 50, pneumatic
welding end / thread
with 1 reply
(for tank outlet)
- 2 butterfly valve DN 50, pneumatic, with positioner
welding end / thread
(for tank pressure regulation)
- 11 butterfly valve DN 50, manual
welding end / thread
- 2 butterfly valve DN 50, pneumatic
between flanges
with 1 proximity switch
(CIP, CO2)
- 1 butterfly valve DN 50, pneumatic, with positioner
between flanges
(for CO2 pressure regulation)
- 1 butterfly valve DN 25, pneumatic
between flanges
with 1 proximity switch
(drain)
- 2 manometer with diaphragm
and PSI indication
installed in Vario-hab process housing
- 4 proximity switches M18x1
- 4 swivel bend DN 50
with switch bolt
- 2 swivel bend DN 50
with switch bolt
(for Pipe-CIP connection)

01.04 Valve blocks electrically premounted (Pos 01.03)

Both valve blocks of Pos 01.03 are completely wired, hoses and tested.

02.00

PIPING MATERIAL AND PUMPS WITHIN BBT ROOM, MADE OF STAINLESS STEEL 1.4301 (SIMILAR TO AISI 304), EXECUTION CD, GROUND

Beer lines from BBTs to fillers

- 1 beer pipe DN 50
Tie-in point on pipe bridge
(beer to can filler)
- 1 beer pipe DN 50
Tie-in point on pipe bridge
(beer to draft filler)
- 2 sight glass Vario-hab DN 50
- 2 beer pump, stationary
Fristam model FPR 742 centrifugal pump
Capacity: 62 bbl/h against 4,5 bar
Connections: sanitary clamp including counter connections
Pump material: 316L stainless steel
Motor: Baldor TEFC stainless steel washdown
Power: 7,5 hp (230/460 V, 3 Phase, 60 Hz)
- 2 pressure transmitter
make Endress & Hauser
type Cerabar M PMP 51
Sensor with Varivent connection
- 2 Flow meter DN 40
make Endress & Hauser
Promag 50H 40
- 4 Varinline housing DN 50
For mounting of pressure sensors plus one housing per line for future use.

CIP supply and return line

- 1 CIP supply pipe DN 65
from CIP plant to BBT area and distribution within BBT area, including supply to DAW unit
- 1 CIP return pipe DN 65
Distribution within BBT area and back to CIP plant, including return from DAW unit
- 1 CIP supply pipe DN 65
To truck unloading panel
- 1 CIP return pipe DN 65
From truck unloading panel
- 2 CIP return pipe DN 50
Return run from fillers, connected at Tie-In point at pipe bridge

- 2 butterfly valve DN 65, pneumatic execution between flanges with 1 reply (CIP supply distribution)
- 3 butterfly valve DN 50, pneumatic execution between flanges with 1 reply (CIP supply distribution)
- 1 butterfly valve DN 40, pneumatic execution between flanges with 1 reply (CIP supply distribution)
- 2 butterfly valve DN 65, pneumatic execution between flanges with 1 reply (CIP return distribution)
- 4 butterfly valve DN 50, pneumatic execution between flanges with 1 reply (CIP return distribution)
- 1 butterfly valve DN 40, pneumatic execution between flanges with 1 reply (CIP return distribution)
- 1 mixproof butterfly valve DN 50, pneumatic between flanges with 1 proximity switch (CO2 / CIP supply)
- 1 butterfly valve DN 25, pneumatic execution between flanges with 1 reply (drain valves)
- 2 butterfly valve DN 50, pneumatic execution between flanges with 1 reply (connection exhaust air)
- 1 CIP return pump
Fristam model FZX 2200 Centrifugal pump
capacity 145 bbl/h (170 hl/h) against 2 bar
Connections: sanitary clamp including counter connections
Pump material: 316L stainless steel
Motor: Baldor TEFC stainless steel washdown
Power: 15 hp (230/460 V, 3 Phase, 60 Hz)

CO₂ vent line

- 1 CO₂ vent pipe DN 50 (24 m assumed to the outside)
- 1 butterfly valve DN 50, pneumatic
execution between flanges
with 1 reply
(CO₂ vent line)

Support Material within Fermenting Cellar

- 1 Support material made of stainless steel
for pipe supports in the area of cellar 2
stainless steel rectangular pipes

Utility Piping

- 1 CO₂ supply pipe DN 50
From Tie-In point at pipe bridge to several consumers
- 1 Cold water supply pipe DN 65
From Tie-In point at pipe bridge to CIP and DAW plant
Water supply temp: 8 – 12 °C
- 1 Glycol supply and return pipe DN 65
From Tie-In point at pipe bridge to beer cooler and return
- 1 Deaerated Water Pipe DN 40
From DAW plant to BBT valve block to Unloading station
- 2 Exhaust Air Pipe DN 50 (30 m assumed to tie-in point in total)

03.00

CONTAINER UNLOADING STATION

Connection panel

- 1 connection panel at unloading station
pre-mounted,
execution ground

consisting of:

- 1 pipe frame and panel made of stainless steel
- 1 butterfly valve DN 40, manual
welding end / Triclamp
- 1 butterfly valve DN 40, manual
With Triclamp DN 65
welding end / Triclamp
- 5 butterfly valve DN 65, manual
welding end / Triclamp
- 2 swivel bend DN 65
with sight glas, switch bolt and shut-off valve
connection: Triclamp
- 8 proximity switches M18x1
- 1 CO₂ pressure reduction unit

by brewery

Note:

Unloading panel and beer pump will be installed outdoors.
However, suitable weather protection shall be applied by brewery.

- 1 beer pump
Fristam model FPR 742 centrifugal pump
Capacity: 200 bbl/h against 3,5 bar
Connections: sanitary clamp including counter connections
Pump material: 316L stainless steel
Motor: Baldor TEFC stainless steel washdown
Power: 7,5 hp (230/460 V, 3 Phase, 60 Hz)

Note:

Beer pump also used as CIP return pump.

- 1 flow switch SI6600
make IFM
with varivent housing connection
- 1 varivent housing DN 50

Beer transfer pipe

- 1 beer pipe DN 65
From unloading station to BBT valve block
- 1 Flow meter DN 50
make Endress & Hauser
Promag 50H 50

04.00

CONTAINER LOADING STATION AT EXISTING BREWERY

- 1 equipment for beer and CO₂ connection for truck loading
Loosen delivered
consisting of:
 - 1 butterfly valve DN 65, manual
welding end / Triclamp
 - 1 butterfly valve DN 40, manual
welding end / Triclamp
- 1 Flow meter DN 50
make Endress & Hauser
Promag 50H 50
Transmitter wall mounted, local indication only
Suitable for counting of filled volume to container.
- 1 beer pipe DN 65 (12 m included)
From tie-in point to hose connection

05.00

CIP HYBRID

Low-pressure CIP plant type CIP "HYBRID- I H B"
for CIP tanks and pipes
with 1 cleaning circuit, 1 rectangular mixing tank and 2 rectangular buffer
tanks
loosen delivered

05.01

Pumps, heat exchanger and valves, loosen delivered

- 1 pipe frame, made of stainless steel rectangular pipe
and adjustable high by 4 x calotte feet
for pump/ heat exchanger

consisting of:

for CIP:

- 1 CIP- supply pump
capacity: 100 – 400 hl/h, against 5 bar
make: Fristam
model: FPR 1742/175
motor: 20 HP, 3500 RPM, stainless steel
voltage: 3/60/230-460 VOLT
incl. counter connections
- 3 butterfly valve DN 65, pneumatic
between flanges
with 1 proximity switch
(CIP supply/return/bypass)
- 3 butterfly valve DN 25, pneumatic
between flanges
with 1 proximity switch
(sprayball connection tanks)
- 1 safety valve DN 25
spring loaded
incl. counter connection
- 2 sample valve DN 6
- 1 non-return valve DN 65
between flanges
- 1 manometer bar/psi
with diaphragm seal
with vario hab housing DN 65
- 1 corner sieve DN 65
incl. counter connection acc. DIN 11851 DN 65

- 1 heating device DN 65 / 40
for hot cleaning of the pipes
with 1 tube heat exchanger
make Deller with ASME certificate
incl. counter flange connection acc. ASME
and seal for CIP, steam and condensate connection
- 1 pipe DN 80, 1.4307 (6 m)
incl. 90° bends
- 1 pipe DN 65, 1.4307 (6 m)
incl. 90° bends
- 1 pipe DN 25, 1.4307 (6 m)
incl. 90° bends
- 1 inductive flow meter
PROMAG 50H DN 50
make Endress & Hauser
- 1 temperature transmitter
TMR 35 easytemp G1/2"
make Endress & Hauser
(Note: also with varivent connection possible)
- 1 welding muff
for temperature transmitter
make Endress & Hauser
- 1 flow switch SI6600
make IFM
with varivent housing connection
- 1 varivent housing DN 65

for steam:

- 1 shut-off valve DN 65
with hand wheel
incl. counter flange connection and seal DN 65
- 1 dirt trap DN 65
incl. counter flange connection and seal DN 65
- 1 shut-off valve for steam DN 65 pneumatic
incl. counter flange connection and seal DN 65
- 1 control valve for steam DN 65 pneumatic
incl. counter flange connection and seal DN 65
- 1 vacuum breaker G 1/2"
and welding muff
- 1 pipe 1/2"
with manometer and shut off valve
- 1 ball cock DN 15
- 1 pipe DN 65, 1.4404
incl. 90° bends

for condensate:

- 1 steam trap, therm. DN 15
incl. counter flange connection and seal DN 15
- 1 steam trap, DN 40
incl. counter flange connection and seal DN 40
- 1 shut-off valve for steam DN 40
with hand wheel
incl. counter flange connection and seal DN 40
- 1 non return valve DN 15
incl. counter flange connection and seal DN 15
- 1 non return valve DN 40
incl. counter flange connection and seal DN 40
- 1 ball cock DN 15
- 1 pipe DN 40, 1.4404
incl. 90° bends

for concentrate:

- 3 inductive flow meter DN 8
make Endress & Hauser
- 4 diaphragm valve DN 15
with 1 proximity switch
- 3 dosing valve DN 15
- 4 ball cock DN 15
- 4 pipe 21,3 x 2,6 mm , 1.4571
(total: 12 m)
incl. 90° bends

pipe supports within pump/heat exchanger unit
cable protection pipes within pump/heat exchanger unit

05.02

Pipe frame with 3 rectangular tanks, premounted

- 1 pipe frame, made of stainless steel rectangular pipe
and adjustable high by 8 x calotte feet
for mixing/recovery tanks,
rectangular tanks are premounted on pipe frame

consisting of:

- 1 rectangular mixing tank, capacity 10 hl
equipped with:
 - 1 pipe connection DN 100 (overflow pipe)
 - 1 manhole
 - 2 outlet connection DN 80 with flow breaker
 - 1 connection for pressure transmitter

- 1 rectangular tank for hot caustic, capacity 15 hl
with insulation
equipped with:
 - 1 pipe connection DN 100 (overflow pipe)
 - 1 manhole
 - 1 connection for temperature transmitter
 - 1 outlet connection DN 80 with flow breaker
 - 1 connection for pressure transmitter
 - 1 insulation
- 1 rectangular tank for hot water, capacity 15 hl
with insulation
equipped with:
 - 1 pipe connection DN 100 (overflow pipe)
 - 1 manhole
 - 1 connection for temperature transmitter
 - 1 outlet connection DN 80 with flow breaker
 - 1 connection for pressure transmitter
 - 1 insulation
- 1 set of tank equipment, (1 x mixing tank)
each consisting of:
 - 1 sprayball DN 25
 - 1 mounting tube for sprayball DN
 - 1 pressure transmitter
DELTAPILOT S FMB70
0 – 1,5 psi
make Endress & Hauser
 - 1 welding muff
for pressure transmitter
- 2 set of tank equipment, for hot caustic tank, hot water tank
consisting of:
 - 1 sprayball DN 25
 - 1 mounting tube for sprayball DN 25
 - 1 pressure transmitter
DELTAPILOT S FMB70
0 – 1,5 psi
make Endress & Hauser
 - 1 welding muff
for pressure transmitter
 - 1 temperature transmitter
TMR 35 easytemp G1/2”
make Endress & Hauser
 - 1 welding muff
for temperature transmitter
make Endress & Hauser

05.03 Additional equipment, loosen delivered for tank pipe frame (related to POS 05.02)

for CIP:

- 1 butterfly valve with positioner DN 65
between flanges
(pressure keeping device)
 - 2 butterfly valve DN 65, pneumatic
between flanges
with 1 proximity switch
(drain, CIP return)
 - 1 butterfly valve DN 25, pneumatic
between flanges, N.O.
with 1 proximity switch
 - 1 butterfly valve DN 80, pneumatic
between flanges
with 1 proximity switch
(CIP supply/return)
 - 1 conductivity transmitter
SMARTEC S CLD134
with integrated temperature transmitter
make Endress & Hauser
 - 1 flow switch SI6600
make IFM
with varivent housing connection
 - 1 pressure transmitter
CERABAR M PMP51
0-150 psi
make Endress & Hauser
 - 3 varivent housing DN 50
(No. 107083)
 - 1 pipe DN 80, 1.4307 (9 m)
incl. 90° bends
 - 1 pipe DN 65, 1.4307 (9 m)
incl. 90° bends
- for 3 tanks: outlet/spray ball connection/overflow pipe:**
- 6 butterfly valve DN 80, pneumatic
between flanges
with 1 proximity switch
(mixing tank in-/outlet, hot caustic tank, hot water tank)

- 2 butterfly valve DN 25, pneumatic
between flanges
with 1 proximity switch
(drain)
- 3 pipe DN 80, 1.4307 (total: 6 m)
incl. 90° bends
(tank outlet)
- 3 pipe DN 25, 1.4307 (total 18 m)
incl. 90° bends
(sprayball connection)
- 3 overflow pipe DN 100 each appr. 3.000 mm

for cold water:

- 1 butterfly valve with positioner DN 65
between flanges
- 1 butterfly valve DN 65, pneumatic
between flanges
with 1 proximity switch
- 1 butterfly valve DN 25, pneumatic
between flanges
with 1 proximity switch
- 1 pipe DN 65, 1.4307 (6 m)
incl. 90° bends

control air:

- 1 pipe DN 25, 1.4307 (6 m)
incl. 90° bends

pipe supports within tank-unit
cable protection pipes within tank-unit

05.04

**Pipe work made of stainless steel 1.4301/1.4404 similar AISI 304
and for the CIP-plant execution CD ground within CIP room,
loosen delivered for installation on site**

- 1 steam and condensate pipes 1.4404 DN 65/40 (18 m/ 18 m)
From and to Tie-In point at pipe bridge
- 1 cold water pipe DN 65 (6 m)
- 1 CIP supply and return pipe DN 65 (18 m)
- 4 concentrate pipe 1.4571 DN 20 (26, 9 x 2,6 mm) (total: 30 m)
From concentrate room to CIP plant
- 1 control air pipe DN 25, 1.4307 (6 m)
incl. 90° bends

- 1 drain pipe DN 25, 1.4307 (6 m)
incl. 90° bends
- 1 drain pipe DN 65, 1.4307 (6 m)
incl. 90° bends
pipe supports
pipe insulation by brewery

05.05 CIP Plant mechanical premounted (Pos 05.01 + 05.02 + 05.03)

The CIP plant is mechanically fully premounted on pipe frame.
The CIP plant is not wired and hosed.

05.06 CIP Plant electrically premounted (Pos 05.01 + 05.02 + 05.03)

The CIP plant is completely wired, hosed and tested.

06.00 CHEMICAL DOSING

- 1 chemical supply station, pre mounted
fittings and piping for concentrate dosage
of caustic, acid and disinfectant,
made of stainless steel material 316L

including:
 - 1 dosing pump capacity: 0-180 l/h, 0,43 kW
 - 2 dosing pump capacity: 0- 680 l/h, 0,87 kW
 - 3 overflow valves
 - 3 diaphragm pulsation damper
 - 9 ball valves
 - 3 suction lance
with low level detection
 - 3 concentrate pipe DN 15,
made of stainless steel 316L
from concentrate station to CIP-plant
 - 3 concentrate tanks for caustic, acid, desi by brewery
- 1 cold water pipe DN 25

with:
 - 1 safety shower with eyewash facility
within CIP – plant and chemical drums
 - 1 splash-water device DN 20
 - 2 ball valve DN 25

07.00 BLOWER FOR BLOW-OFF CO₂ (FIX CONNECTED TO CIP LINE)

- 1 Low-pressure compressor
Power blow 5.3B
For tank purging
Oil-free compression
- 1 Blower pipe DN 65
From blower to BBTs
Line will be connected to CIP supply line
- 2 butterfly valve DN 65, pneumatic
execution between flanges
with 1 reply
- 1 butterfly valve DN 25, pneumatic
execution between flanges
with 1 reply

08.00 COLD WATER DEAERATION SYSTEM CWD 50

for the deaeration of brewing water by cold stripping with CO₂

Capacity:	50 hl/h
DO Level:	< 50 ppb
InletTemp.:	+ 8 - +12 °C
CO ₂ -purity:	> 99.995 %
CO ₂ consumption deaeration:	≤ 2.4 g/l

System consisting of:

Components:

- 1 Stripping column with high efficient structured packing, stainless steel AISI 304, H=6000 mm, -1 to +0,5 bar g (corosys)
- 1 Hygienic centrifugal pump, 50 hl/h, 5 bar, 6,0 bar
w. Baldor SS wash down motor (Fristam)
- 1 Pneumatic control valve DN40 f. water feed (GEA Tuchenhagen)
- 1 Needle valve f. CO₂ (End Armaturen)
- 1 Manual butterfly valve ZF DN25 (Handtmann)
- 2 Pneumatic butterfly valve ZF DN40 (Handtmann)
- 2 Manual butterfly valve GS DN25 (Handtmann)
- 1 Pneumatic butterfly valve GS DN25 (Handtmann)
- 1 Pneumatic butterfly valve GS DN40 (Handtmann)
- 4 Manual butterfly valve, GS DN40 (Handtmann)
- 1 Non return valve DN40 (Handtmann)
- 1 Non return valve DN25 (Handtmann)

- 1 Sampling valve (Perlick)
- 1 Pressure reducing valve w. manometer f. CO₂ (Niezgodka)
- 1 VARIVENT housing DN40 (GEA)
- 1 Panel with 8 connections and 3 bends for connection of brewing water, DAW, CO₂ and CIP

Instrumentation:

- 1 Electromagnetic flow meter DN40 (E+H)
- 1 Sanitary pressure transmitter (E+H)
- 1 Sanitary level switch (E+H)
- 1 CO₂-flow transmitter DN25 (Krohne)

Automation:

- 1 Stainless steel switch cabinet IP55 (Rittal)
- 1 Flex-IO w. all necessary digital and analog I/O's (Rockwell)
- 1 Solenoid valve device w. Ethernet IP for the pneum. Actuators (Festo)
Valve feedback signal in position closed
- 1 Visualization and Automation Software in Proleit BREWMAXX

Before not mentioned:

- Stainless steel base frame
- Documentation 2-fold English paper copy and 2-fold C-D according EU machinery directive
- System prepared for later modification to work under vacuum

Remarks:

The system will be delivered completely assembled, wired and tested. The connection of media, air and electric power is carried out by the customer. The attached P&I No. CO 13 0038 PI 01 dated 03.02.2014 is part of this quotation.

09.00

DAW TANK AUTOMATION AND DAW DISTRIBUTION

consisting of:

- 1 Double Seat Valve 4-port DN40 (Handtmann)
- 1 Sanitary centrifugal pump for DAW 50 hl/h, 3 bar w. Baldor SS wash down motor (Fristam)
- 1 Pressure reducing valve w. manometer f. CO₂ (Niezgodka)
- 2 Manual butterfly valve ZF DN25 (Handtmann)
- 2 Manual butterfly valve GS DN25 (Handtmann)
- 1 Pneumatic butterfly valve GS DN25 (Handtmann)
- 1 Pneumatic butterfly valve GS DN40 (Handtmann)
- 2 Manual butterfly valve, GS DN40 (Handtmann)
- 1 Non return valve DN25 (Handtmann)
- 1 VARIVENT housing DN40 (GEA)
- 1 Pressure transmitter (E+H)
- 1 Panel with 6 connections and 2 bends for connection of DAW, CO₂ and CIP (3 connections for later enlargement are foreseen)
- 1 Visualization and Automation Software in Proleit BREWMAXX

Remarks:

The system will be delivered in parts. The installation and connection of medias, air and electric power is carried out by the customer. The attached P&I No. CO P 14 0038 PI 01 dated 03.04.2014 is part of this quotation.

10.00

CONTINUOUS CARBONATION SYSTEM CCS DN 50

for the continuous and high accurate carbonation and cooling of beer with glycol

200 bbl/h filtered Beer

from min. 2.0 g/l to max. 6.0 g/l CO₂

System consisting of:

Components:

- 1 Beer cooler, $\Delta T=10K$, frame coated steel, plates stainless steel, gaskets EPDM (GEA Ecoflex)
- 1 Pressure holding valve DN65 (GEATuchenhagen)
- 1 Pneumatic control valve DN25f. CO₂(GEA Tuchenhagen)
- 1 Pneumatic control valve DN65 f. glycol (Samson)
- 1 Inline pump f. glycol (Grundfos)
- 1 CO₂-injector DN65 (corosys)

- 1 Pneumatic butterfly valve DN65 (Handtmann)
- 2 Manual butterfly valve DN25 (Handtmann)
- 4 Pneumatic butterfly valve DN25 (Handtmann)
- 1 Check valve DN25 (Handtmann)
- 1 Pressure reducing valve w. manometer f. CO₂ (Niezgodka)
- 1 Sampling valve (Perlick)
- 2 VARINLIE sight glass DN65 (GEA)
- 2 VARIVENT housing DN65 (GEA)

Instrumentation:

- 1 In-line CO₂-analyzer Carbo 510 with operating terminal (Anton Paar)
- 1 CO₂-flow indicator DN25 (Krohne)
- 2 Temperature transmitter (E+H)

Automation:

- 1 Stainless steel switch cabinet IP55 (Rittal)
- 1 Flex-IO w. all necessary digital and analog I/O's (Rockwell)
- 1 Solenoid valve device w. Ethernet IP for the pneum. Actuators (Festo)
Valve feedback signal in position closed
- 1 Visualization and Automation Software in Proleit BREWMAXX
- All electrical components with UL certificate

Before not mentioned:

- Stainless Steel Base Frame
- Documentation 2-fold English according EU machinery directive

Remarks:

The system will be delivered completely assembled, wired and tested. The connection of media, air and electric power is carried out by the customer. The attached P&I No. CO P 14 0038 PI 02 dated 03.02.2014 is part of this quotation.

11.00 MOTOR CONTROL CABINET AND PLC

consisting of:

- 1 Switch cabinet, coated steel, L x D x H = 2400 x 500 x 2000 mm (Rittal)
- 1 Power supply 24 VDC (Siemens)
- 1 Main Switch (Eaton)
- 1 PLC 1756-L74 Controllogix processor 16 MB (Rockwell)
- 1 1756-EN2T High Capacity Ethernet Module (Rockwell)
- 1 1756-EN2T High Capacity Ethernet Module f. Flex-IO (Rockwell)
- 1 1756-A4Controllogix Rack (Rockwell)
- 1 1756-PA72 Rack powersupplies (Rockwell)
- 1 FT Gateway 70k with RS Linx Enterprise bundle (Rockwell)
- 1 FACTORY TALK GATEWAY DISTRIBUTE (Rockwell)
- 1 Flex-IO w. all necessary digital and analog I/O's (Rockwell)
- 1 Ethernet Switch (Rockwell)
- 1 Ethernet Switch (Hirschmann)
- 1 VPN modem f. remote service
- 6 Frequency Converter Type FC302 (Danfoss)
- 7 Motor starters and thermo relays (Eaton)
- 1 Electrical Engineering in E-Plan P8
- 1 System set up and FAT
- All electrical components with UL certificate

12.00 AUTOMATION OF BBT'S AND CIP

consisting of:

- 2 Switch cabinet, stainless steel, W x D x H = 800 x 300 x 1200 mm (Rittal)
- 2 Power supply 24 VDC (Siemens)
- 2 Flex-IO w. all necessary digital and analog I/O's (Rockwell)
- 2 Solenoid valve device w. Ethernet IP for the pneum. Actuators (Festo)

- Valve feedback signal in position closed
- Electrical Engineering in E-Plan P8
- Visualization and Automation Software in Proleit BREWMAXX
- All electrical components with UL certificate

13.00 ELECTRICAL INSTALLATION MATERIAL

consisting of:

- 2500 m Air Hose 6 mm, black (Festo)
- All necessary cables **except main power supply to switch cabinet**, UL certified
- 120 m cable trays, basket type, 300 mm, stainless steel
- 120 m cable trays, basket type, 100 mm, stainless steel
- 60 m cable trays, basket type, 60 mm, stainless steel
- 105 x INI M12, stainless steel, type IFT203 (IFM)
- 15 x INI M18, stainless steel, type IGT203 (IFM)
- Cables markers at the switch cabinet
- TAG numbering at the field instrument
- Maintenance switch for motors
- All electrical components with UL certificate

14.00 PROLEIT BREWMAXX SYSTEM

consisting of:

- 1 DELL Optiplex 990 DT Workstation
- 2 DELL Monitor 24 " TFT
- 1 MS Windows 7 Professional
- 1 MS SQL2008 Server Express Edition
- 1 Proleit BREWMAXX LiquiT express 500 Automation Objects
- 1 Installation and FAT

15.00 COMMISSIONING, SIGNAL TEST, START UP, TRAINING OF OPERATOR AND MAINTENANCE STAFF

4 travelling days, 20 days on site including 2 flights, hotel accommodation and all other related costs

16.00	OPTIONS	
16.01	Oxygen measurement for filler lines	included
	2 Oxygen transmitter for beer lines Haffmans OGM Sensor with Varivent connection	
	2 Varinline housing DN 50 For mounting of oxygen sensors	
16.02	Vacuum system (additional to Pos. 07.00)	<u>not included</u>
	DO Level:	< 10 ppb
	CO2 consumption deaeration:	≤ 0.4 g/l
	<u>consisting of:</u>	
	1 Liquid ring vacuum pump w. Integral cooler (Gardner Denver)	
	1 Pneumatic butterfly valve DN40 (Handtmann)	
	1 Safety valve 0,5 bar g (Handtmann)	
	1 Sanitary pressure transmitter (E+H)	
	1 Integration in Pos. 07.00	
16.03	Nitrogen dosing (additional to Pos. 10.00)	<u>not included</u>
	from min. 0,0 mg/l to max. 40,0 mg/l N	
	<u>consisting of:</u>	
	Components:	
	1 Pneumatic control valve DN10 (Samson)	
	1 Pressure reducer w. pressure gauge (Niezgodka)	
	3 Pneumatic membrane valve DN10	
	1 Manual ball valve DN10	
	1 Check valve DN10	
	1 Mass Flow Meter DN01 (E+H)	
	1 Combined N ₂ /CO ₂ Analyzer instead of the CO ₂ Analyzer Pos. 02 (Anton Paar)	
	1 Integration in Pos. 10.00	
16.04	DAW Tank fittings	included
	1 DAW tank	BY BREWERY
	content:	50 bbl
	diameter:	... mm

- total height ... m
 inlet / outlet connection: 65 DN
 gas / CIP connection: Triclamp 80 DN
 working pressure: 1 bar g
- 1 single-hole cleaning-air-valve combination DN 80
 Tank connection: DN 80 Triclamp
 CIP Pipe: DN 25
 Spray ball: Handtmann DN 25
- each equipped with:
- 1 vacuum valve DN 65/80
 spring-loaded
 with stainless steel valve cone
- 1 safety valve DN 40; No. 488 make Leser
 acc. to ASME Sec. VIII. Div. 1 (UV stamp)
 set pressure 1,0 bar
 for liquid and gas, with CIP-connection pipe
- 1 cleaning-air-valve combination DN 40,
 stainless steel valve cone
- 1 sprayball DN 25
- 1 mounting tube for sprayball DN 25
- 1 empty level probes
 make Negele
 type NCS 11 / PNP
 length: 40 mm including level module
 incl. welding sleeve
 (at outlet pipe)
- 1 level probe type Negele NVS-146
 length 1000 mm
- 1 welding muff G1/2",
 for high level probe
 to be site-welded into tank top (or re-use of existing port if possible)
- 2 pressure transmitter
 make Endress & Hauser
 Delta Pilot S FMB 70
 (tank top and tank bottom)
- 2 welding adapter for pressure transmitter
 to be site-welded into tank top and tank bottom
 (or re-use of existing port if possible)

- 1 temperature transmitter
make Endress & Hauser
type TR 88
with thread G1/2" for mounting into existing protection pipe

17.00

MECHANICAL SUPERVISOR ASSEMBLY:

- 1 Supervisor from Handtmann based on weekly rates
The agreed inclusive price include all additional costs
as daily allowance and provisions.

Travel costs, flight tickets and hotel expenses will be charged according to expense.

THE INDICATED SCOPE OF DELIVERY DOES NOT INCLUDE:

Transport and incidental transport charges

- unloading of the delivered equipment
- transport costs ex works
- duties and customs charges
- cost of customs clearance at the frontier

Installation and ancillary installation services

- cranes
- electrical energy, water and compressed air
- charges for TÜV or other costs for approval at the place of installation
- social, office and material storage rooms
- welding gases
- scaffolding
- Supervision of electrical installation
- travel costs, flight tickets, hotel accommodation, car rental
- health & safety engineer

Following items are not included in the scope of supply:

- foreign government charges, especially taxes and other fiscal
- charges levied in buyer's country
- pipework beyond the described scope of supply
- catwalk for yeast tanks
- insulation of pipework beyond the described scope of supply
- insulation of fittings
- interconnecting pipework and insulation for cellar and packaging area beyond the described scope of supply
- cable basement floor and supports
- fillings of oil for gears and motors
- topcoat of the steel parts, beyond the described scope of supply
- spare parts
- civil works
- as well as all other deliveries and performances not expressly mentioned in this quotation.
- provisions if necessary will be charged according to expense
- disassembly of existing equipment at current brewery
- Any equipment such as valves or cleaning devices for container truck
- Hoses for truck loading and unloading stations
- All CO₂ supply devices