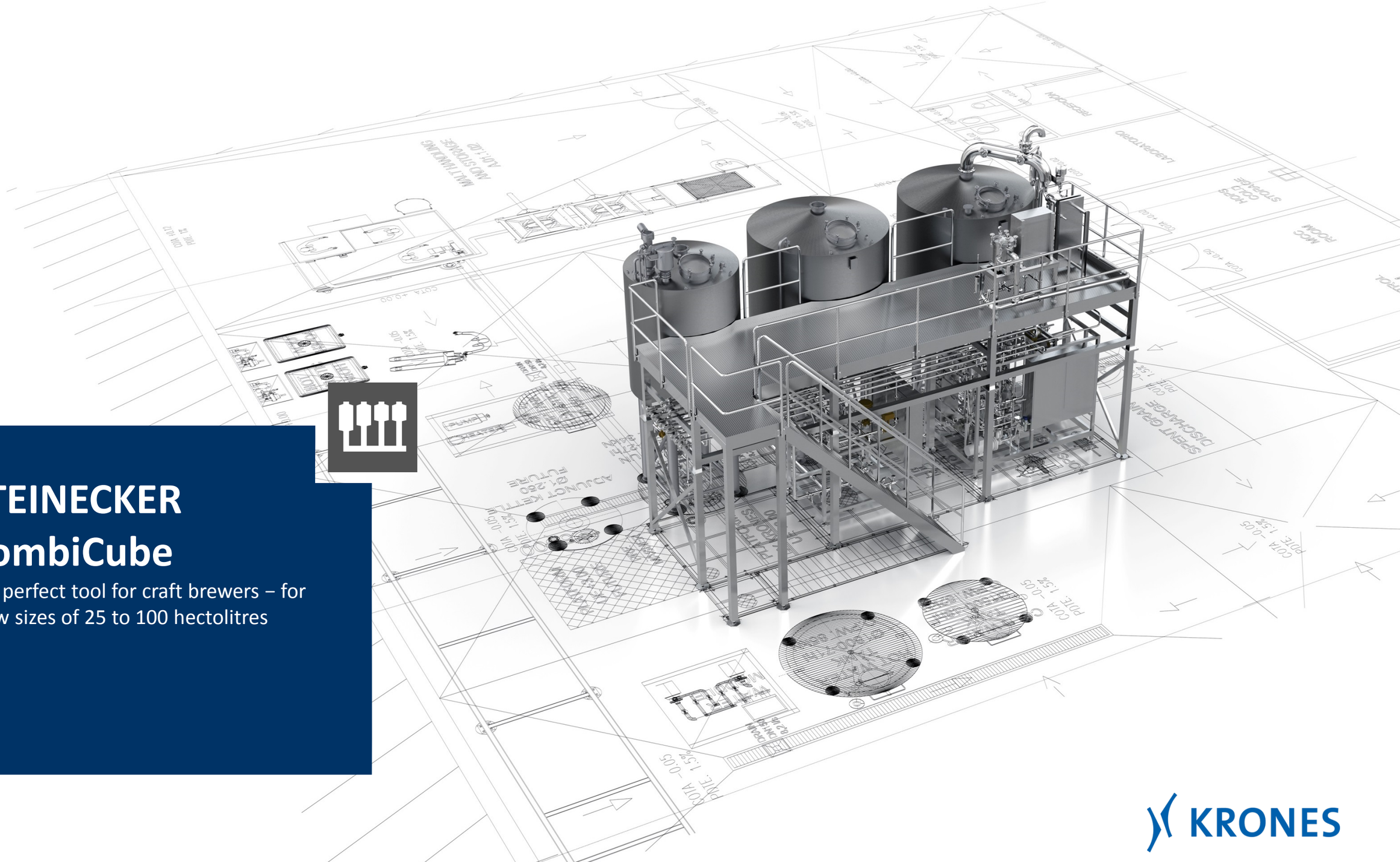
STEINECKER CombiCube

The perfect tool for craft brewers – for brew sizes of 25 to 100 hectolitres



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Compact and powerful for breweries with brew sizes of up to 100 hectolitres

Modular brewing systems can be perfectly configured to meet the needs of craft brewers. Here, the key is to combine flexible brewing processes and brew sizes with the often very limited space available. STEINECKER CombiCube is a brewery concept for cold wort volumes of 25 to 100 hectolitres per brew.

At a glance:

- Compact layout for the brewhouse with a frame construction with two to six vessels for all process steps
- Fermentation tanks and different options for beer treatment for the cold block
- Standardised modules for utilities and CIP system
- Automated processes are combined with manual intervention options for individually crafted beers

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The right equipment for every brewery

MicroCube for manual operation (5 hl, 10 hl and 17 hl)

CombiCube for automatic operation (25 hl – 100 hl)

The right equipment for every brewery

	2 vessels	3 vessels	3 vessels	3 vessels	4 vessels	4 vessels	4 vessels	5 vessels	5 vessels	5 vessels	6 vessels
Mash tun				x	x	x	x	x	x	x	x
Mash kettle*					x			x	x		x
Mash and lauter tun	x		x								
Mash and wort kettle		x									
Lauter tun		x		x	x	x	x	x	x	x	x
Holding vessel							x		x	x	x
Wort kettle			x			x		x		x	x
Whirlpool kettle	x			x	x		x		x		
Whirlpool		x	x			x		x		x	x

MicroCube

CombiCube

** Or cereal cooker*

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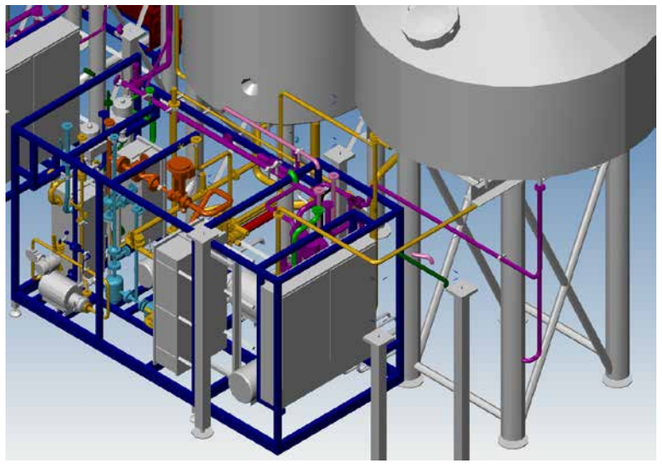
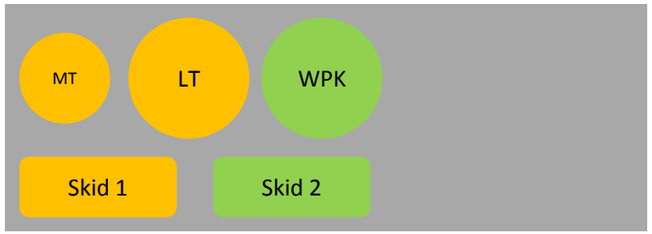
The right equipment for every brewery

Combination options with the frame modules

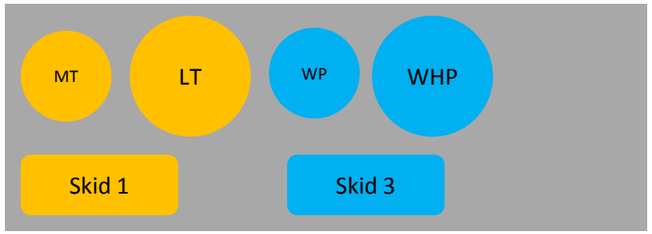
- Four standardised skids for pumps, valves and heat exchangers
- Arrangement of the vessels next to the frame modules
- Combination of the skids with the different vessel variants
- Holding vessel integrated without frame
- Individual arrangement of the vessels and skids possible



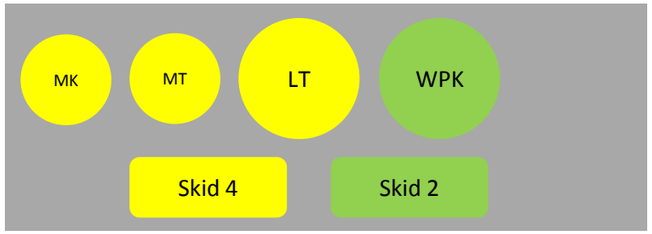
Skid 3



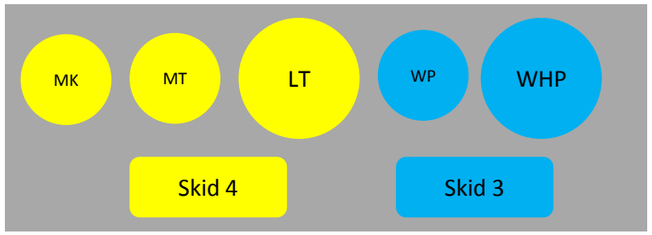
Combination 1



Combination 2



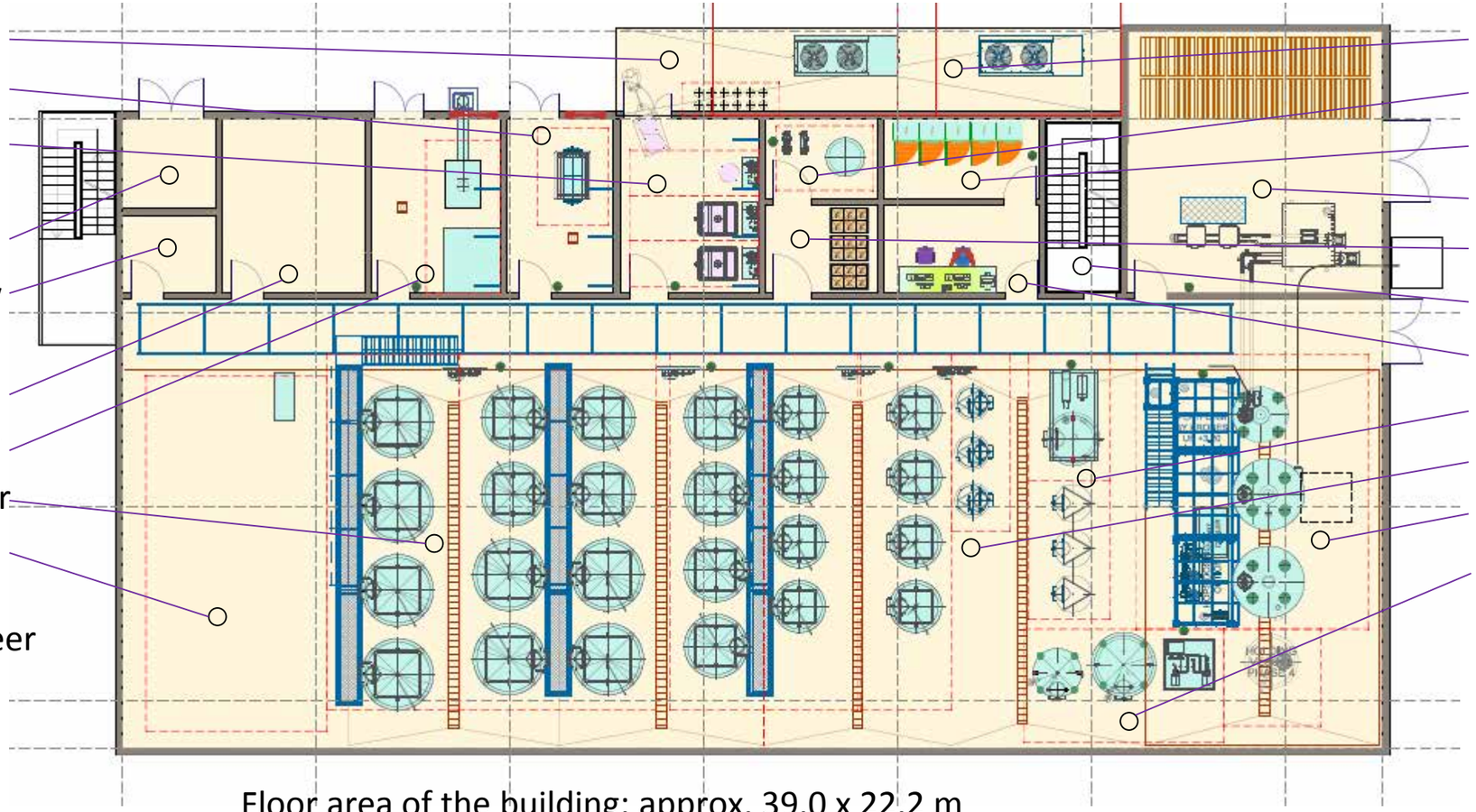
Combination 3



Combination 4

Standard layout for a brewery with a brew size of 25 hectolitres

- CO_2 supply
- Air compressor
- CIP concentrate dosing
- Transformer*
- Medium and low voltage*
- Workshop
- Steam generator
- Fermenting cellar
- Area for filter, centrifuge, D/A water system, beer chiller etc.



- Cooling system
- Glycol water tank
- MCC room
- Malt handling
- Hops storage
- Stairwell
- Control room
- CIP system
- Yeast cellar
- Brewhouse
- Water supply

Floor area of the building: approx. 39.0 x 22.2 m
Building height: approx. 11.5 m (for fermenting tanks with a volume of 150 hl)

** To be provided locally by the customer*

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Basic equipment for plant planning

Process unit	Standard	Characteristic 1	Characteristic 2	Characteristic 3
Malt handling for…	… manual malt sack infilling	… big-bag infilling with crane	… truck supply with silos	… manual grist sack infilling
Malt milling with …	… 2-roller dry mill	… 4-roller dry mill	… 6-roller dry mill	
Mash tun kettle with …	… pre-masher, dry grist	… additive dosing vessel	… vent stack to lauter tun	… vent stack through the roof
Lauter tun with …		… pre-masher dry grist	… additive dosing vessel	
Spent grains handling …	… for manual spent grains removal	… with eccentric worm pump	… with pneumatic conveyor	… with spent grains silo
Holding vessel …	… not required	… required with 7 – 9 brews per day		
Wort kettle* with …	… up to three hops dosings per brew	… vent stack through the roof	… vapour condenser	… additive dosing vessel
Whirlpool* with …		… trub tank		
Wort cooler with …	… two cooling stages	… aeration with air	… air filter sterilisation	… aeration with oxygen
Yeast cellar …		… with mobile yeast tanks	… with yeast storage tanks	… with yeast propagator
Fermenting cellar …	… hose connection for product	… hose connection for gas	… permanent gas pipes	… panel cellar
Beer filter …		… as a frame-type filter	… as a candle filter	… with beer chiller
Bright beer cellar …	… hose connection for product	… hose connection for Gas	… permanent gas pipes	… panel cellar

* Alternatively whirlpool kettle

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Equipment options for plant planning

Process unit	Standard	Characteristic 1	Characteristic 2	Characteristic 3
Water supply ...	... for warm and cold water			
CIP system ...	... for brewhouse and wort route	... for cellar pipe systems		
Green beer cooler ...		... for green beer transfer		
Centrifuge ...		... for preliminary beer clarification	... as green beer centrifuge	
D/A water system ...		... for in-tank deaeration	... for cold deaeration	... for hot deaeration
CO_2 supply ...	... with bottles	... with storage tanks	... with recovery system	
Boiler plant ...	... as gas-operated high-speed steam generator	... as current-operated high-speed steam generator		
Air compressor ...	... oil-free compressing with dryer			
Cooling plant ...	... as compact system			
Water treatment ...		*... separate engineering*		
Filling technology ...		*... separate engineering*		
Waste water treatment ...		*... separate engineering*		
Power supply ...		*... separate engineering*		

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Performance data and frame conditions

Sales beer volume, unblended	37,600 hl	60,000 hl	90,000 hl	120,320 hl	150,400 hl
Cold-wort volume (hl)	25	40	60	80	100
Brews per day	8	8	8	8	8
Production days per year	225	225	225	225	225
Cold-wort volume per year	40,000	64,000	96,000	128,000	160,000
Total losses (%)	6	6	6	6	6
Duration of main fermentation (days)	5	5	5	5	5
Duration of maturation (days)	9	9	9	9	9
Required fermenting tank volume (hl)	1,600	2,560	3,480	5,120	6,400
Number of employees	6	6	6	6	6
Employee attendance window (h)	24	24	24	24	24
Mashing-in rhythm (h)	3	3	3	3	3
Nominal malt load (kg)	500	870	1,300	1,740	2,190
Maximum first wort concentration (°P)	22.0	22.0	22.0	22.0	22.0
Nominal hop volume, type 90 kg	6.3	20.6	32.9	39.7	48.4
Nominal hop volume, type 45 kg	7.8	29.5	47.0	56.8	69.2

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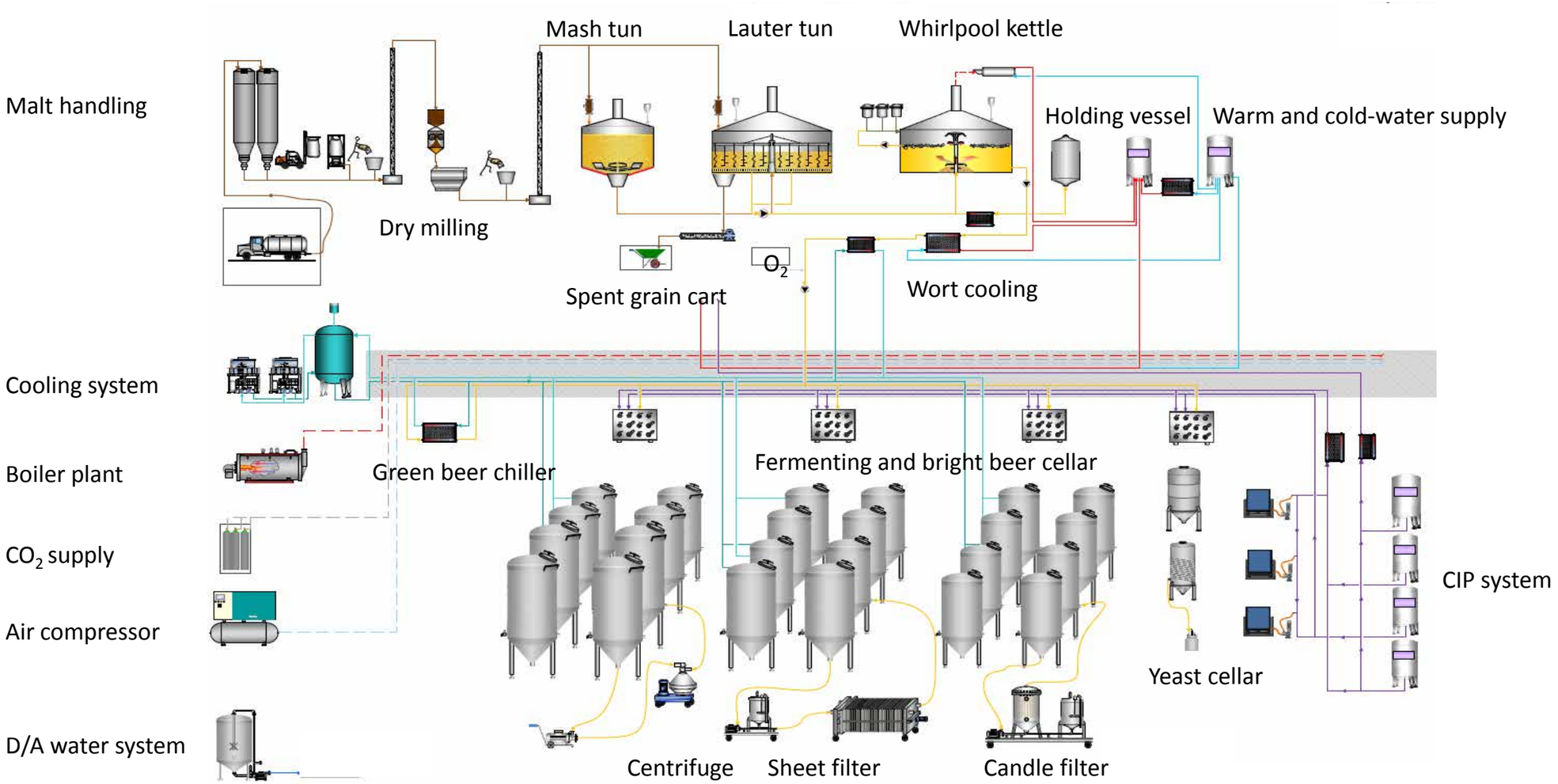
Function plan and plant layout



The frame conditions in four stages using the example of a 25 hectolitre brewing plant

Sales beer volume, unblended	9,400 hl	18,800 hl	28,200 hl	37,600 hl
Cold-wort volume (hl)	25	25	25	25
Brews per day	2	4	6	8
Production days per year	200	200	225*	225*
Cold-wort volume per year	10,000	20,000	30,000	40,000
Total losses (%)	6	6	6	6
Duration of main fermentation (days)	5	5	5	5
Duration of maturation (days)	9	9	9	9
Required fermenting tank volume (hl)	400	800	1,200	1,600
Number of employees	2	3	5	6
Employee attendance window (h)	12	18	24	24
Mashing-in rhythm (h)	3	3	3	3
Nominal malt load (kg)	500	500	500	500
Maximum first wort concentration (°P)	22.5	22.5	22.5	22.5
Nominal hop volume, type 90 kg	6.3	6.3	6.3	6.3
Nominal hop volume, type 45 kg	7.8	7.8	7.8	7.8

* External boiler intermediate cleaning processes

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Technology – brewhouse (for example: 25 hl brewing plant)

Grist mill with two rollers
- Milling capacity 500 kg/h with two malt silos with 7,000 kg each
- Mashing-in output 2,500 kg/h

Mash tun
- Mash volume 16 – 20 hl, heating rate 1.0 K/min
- Side wall and optional base heating for the mashing process
- Pillow plate technology for low thermal impact
- Automatic process with manual dosing of additives

Lauter tun
- Lautering area 3.1 m², false bottom load 161 kg/m²
- Automatic lautering process for first wort and sparging wort with manual dosing of additives and disposal of spent grains

Whirlpool kettle
- External boiler with 130 kW
- Vapour condenser for hot water generation
- Up to 3 hop dosages @ 6 kg
- Two-stage wort cooler, wort aeration with air or oxygen

Technology – yeast cellar and fermenting cellar (example: 25 hl brewing plant)

Yeast cellar

- Yeast propagation with net capacity of 5 hl
- Yeast storage with net capacity of 2.8 or 3.9 hl

Fermenting cellar

- Net capacity:
  25, 50, 100, 150 and 200 hl
- Coolant: glycol water -4 °C
- Extract breakdown: 3 °P per 24 h
- Cooling: 24 hours from + 20 °C to + 4 °C
  48 hours from + 4 °C to + -1 °C
- Manual filling of fermentation tank and bright beer tank
- Volumes measured via mobile inductive flow rate measurement
- Automatic temperature regulation, mechanical pressure regulation
- Manual lost cleaning

Technology – beer handling and CIP cleaning (example: 25 hl brewing plant)

Beer cooler, filter and centrifuge

- Cooling medium, beer cooler: Glycol water - 4°C, with a cooling rate from + 8°C to - 1°C
- Filter aid: kieselguhr or alternative filter aids
- Process water centrifuge (as per the manufacturer's specifications)
- Manual operation of the modules with performance data set up to match the tank size

CIP cleaning

- Design as single-tank CIP, pre-piped four-tank CIP or free-standing four-tank CIP
- Net capacity: CIP system in brewhouse 18.5 hl
  CIP system in cellar 11.9 hl
- Capacity of heat exchanger in brewhouse 145 kW, in fermenting cellar and storage cellar 58 kW
- Hot or cold cleaning with manual or automatic function, depending on design

Technology – utilities (for example: 25 hl brewing plant)

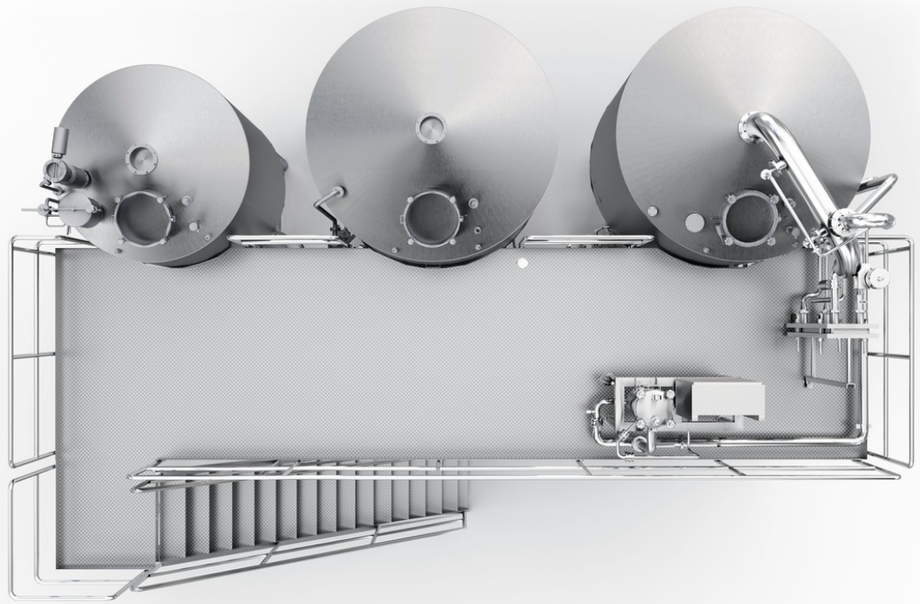
- Output: Cooling 69 kW*
  Compressed air 40 Nm^3/h
  Steam 335 kW, steam amount 540 kg/h
- Automatic, self-controlled operation for cooling plant, air compressor and steam generator, plus manual operation of CO_2 supply and D/A water system
- Supply via mains electricity supply for cooling system and air compressor, plus optionally via mains electricity supply or gas supply for steam generator; CO_2 supply via integration of CO_2 canisters

** From 6 brews per day, 2 units*

The facts at a glance

CombiCube puts STEINECKER technology in the hands of small breweries…

- with a skid solution layout for the brewhouse and two to six vessels for all process steps,
- allowing an annual output of up to 37,600 hl of sales beer depending on design and based on a brew size of 25 hl
- or enabling a production of 150,400 hl of sales beer based on a brew size of 100 hl.



Benefits to you

Optimum flexibility

- You put together your own individual brewery with flexibility using modular components.
- This individual combination of modules allows the CombiCube to stand out with low space requirements.

Reliability through proven technology

- Proven STEINECKER technology is also available for smaller brewing volumes.
- High beer quality and optimum efficiency are ensured with proven technology.

Manual and automated processes reasonably combined

- The plant allows for manual intervention in areas where it makes sense and offers automated processes to make your brewing process highly efficient.

Quick start for your production

- The CombiCube concept comprises pre-assembled plant modules which are installed and started quickly.

Everything from a single source

KIC KRONES cleaning agents make your machine shine

Only if the production environment is immaculate, can your product be brilliant. KIC KRONES provides you with the optimum cleaning agents and disinfectants for each individual production step.

Lubricants from KIC KRONES for every production step

Whether for gears, chains or central lubrication systems – our greases and oils are true all-round talents. They can reach every lubrication point, protect your line and ensure gentle treatment for your products thanks to their food-grade quality.

EVOGUARD – excellent valve technology all along the line

The valve series of EVOGUARD comprises a modular system with hygienic and aseptic components which contributes to every point of the production line with increased performance and which has the perfect solution for every process step.

EVOGUARD – pumps for absolute process safety

In addition to the separation and locking of a line, one thing is particularly important - and that is the reliable conveyance of your product. This is why EVOGUARD also offers innovative centrifugal pumps in addition to high-quality valves.

Digitalisation

Process technology

Bottling and packaging equipment

Intralogistics

Lifecycle service

We do more.

KRONES