KLARO

KLARO *Container.*One

Mobile wastewater treatment solution

GERMAN
DESIGN AND
ENGINEERING

No mechanical parts
in the wastewater

No pumps
in the wastewater

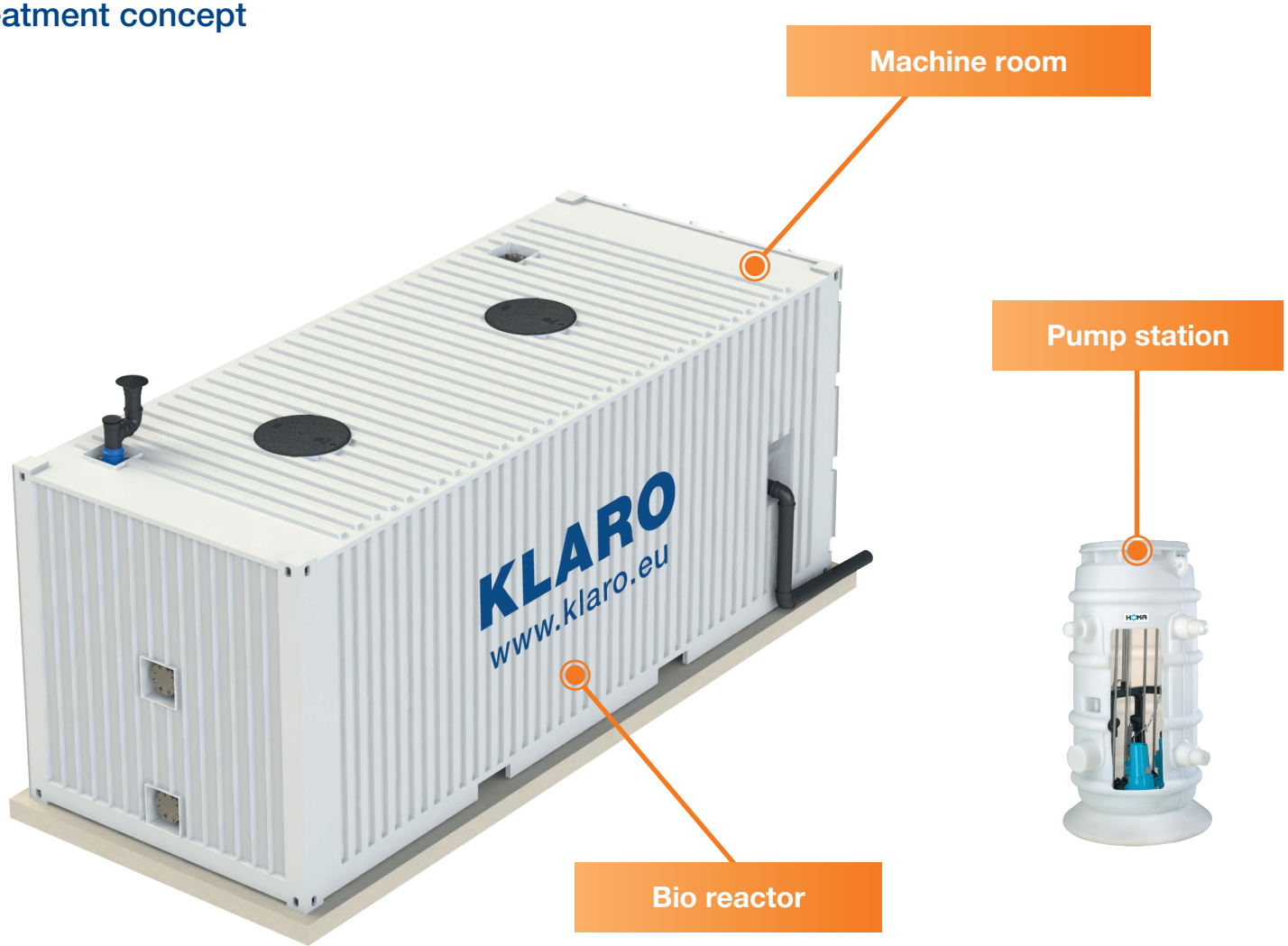
No electrical parts
in the wastewater

KLARO *Container*.One

Product description

KLARO *Container*.One is our most compact containerized solution for wastewater treatment up to 230 PE (34,5 m³/day) that is pre-assembled in just one 10 ft, 20 ft or 40 ft container. The system is using the fully areated SBR process. Sludge storage and buffer are intergrated. All treatment steps are therefore taking place in one container.

Treatment concept



Additional options

- Railing
- Pump station
- Sieve screw
- KLARO WebMonitor
- UV disinfection
- Chlorine disinfection
- Phosphate reduction
- Sludge dewatering

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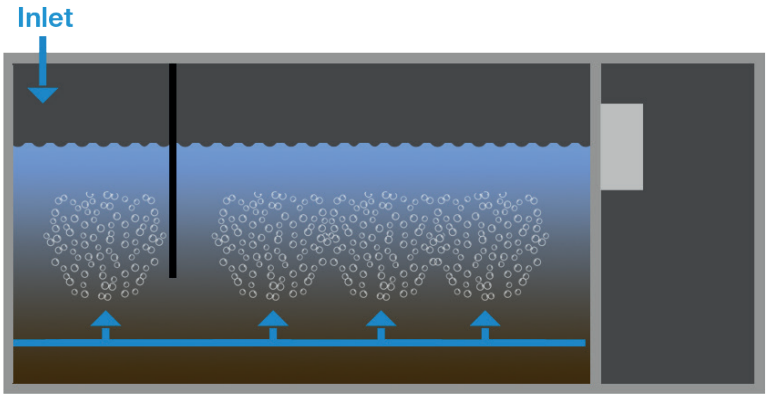
Treatment process

KLARO *Container*.One versions are working according to the fully aerated SBR (= sequencing batch reactor) process and are carrying out two treatment cylces per day as standard. Each treatment cycle is taking twelve hours and is divided into the following treatment steps:



Aeration phase

The raw wastewater, coming from the up streamed pumping station, enters the primary zone and immediately undergoes aerobic treatment. The microorganism in the activated sludge are supplied with oxygen and thus pollutants are reduced.

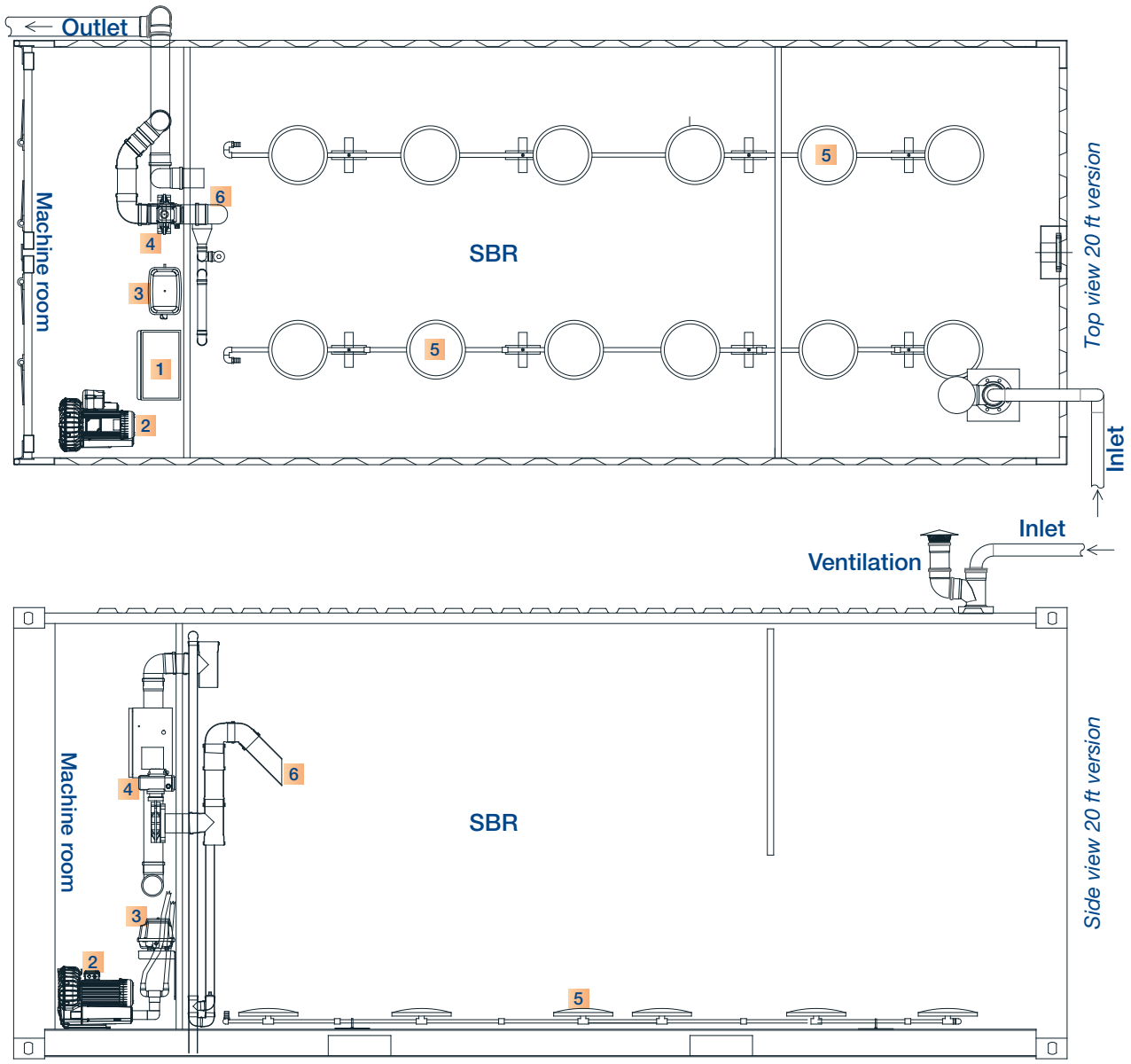
Sedimentation phase

When aeration is stopped, the activated sludge settles to the bottom. A clear water zone forms in the upper part of the container. If any raw wastewater enters the system, it is retained by the half baffle wall in the primary zone.

Clear water extraction

In the final step, the clarified wastewater is extracted by a discharge device. This discharge device is briefly backwashed to prevent any sludge from coming out.

Schematic view



1 Switch cabinet 2 Compressor 3 Blower 4 Butterfly valve 5 Diffusor 6 Decanter

Type program

PE	max. hydraulic load	max. organic load	Container					
[PE]	[m³/d]	[kg BOD/d]	[no.]	[type]	[no.]	[type]	[no.]	[type]
45	6,75	2,70	1	10 ft	–	–	–	–
100	15,00	6,00	–	–	1	20 ft	–	–
230	34,50	13,80	–	–	–	–	1	40 ft HC

Design criteria

The containerized treatment plant is designed based on German regulations and standards for wastewater treatment. The design factors in both hydraulic and organic loads as well as the required treatment efficiency.

Raw wastewater

KLARO containerized treatment plants are designed with the following wastewater values:

pH	7,5 - 8,5
BOD_5	150 - 400 mg/l
COD	300 - 800 mg/l
TSS	150 - 450 mg/l
TN	20 - 80 mg/l
TP	6 - 25 mg/l

Special inflow values on request!

Effluent values

The quality of the treated wastewater is normally within or below the following ranges:

BOD_5	< 20 mg/l
COD	< 90 mg/l
TSS	< 20 mg/l
NH_4N	< 10 mg/l
TN	< 25 mg/l

Different effluent values on request!

Systems specifications

Container		10 ft container	20 ft container	40 ft HC container
Dimensions (external)	Length	2989 mm	6058 mm	12192 mm
	Width	2438 mm		
	Height	2591 mm	2591 mm	2896 mm
Total capacity		13,4 m³	30,4 m³	71,1 m³
Weight incl. mounting parts		2050 kg	3150 kg	5700 kg
Inlet pipe	Connection	DN 110		
	External height	2591 mm	2591 mm	2896 mm
Outlet pipe	Connection	DN 110		DN 160
	External height	945 mm	945 mm	900 mm
Recommended operating voltage		400 V, 50/60 Hz		
Recommended current load		16 A		
Power consumption		Approx. 12,9 kWh/d	Approx. 16,6 kWh/d	Approx. 33,8 kWh/d
Operating temperature range		-10°C ... +35°C		
Standard calculated sludge removal intervall		3 months		

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