

# KLARO

## KLARO *Container.One+*

Mobile wastewater treatment solution



GERMAN  
DESIGN AND  
ENGINEERING



No mechanical parts  
in the wastewater



No pumps  
in the wastewater



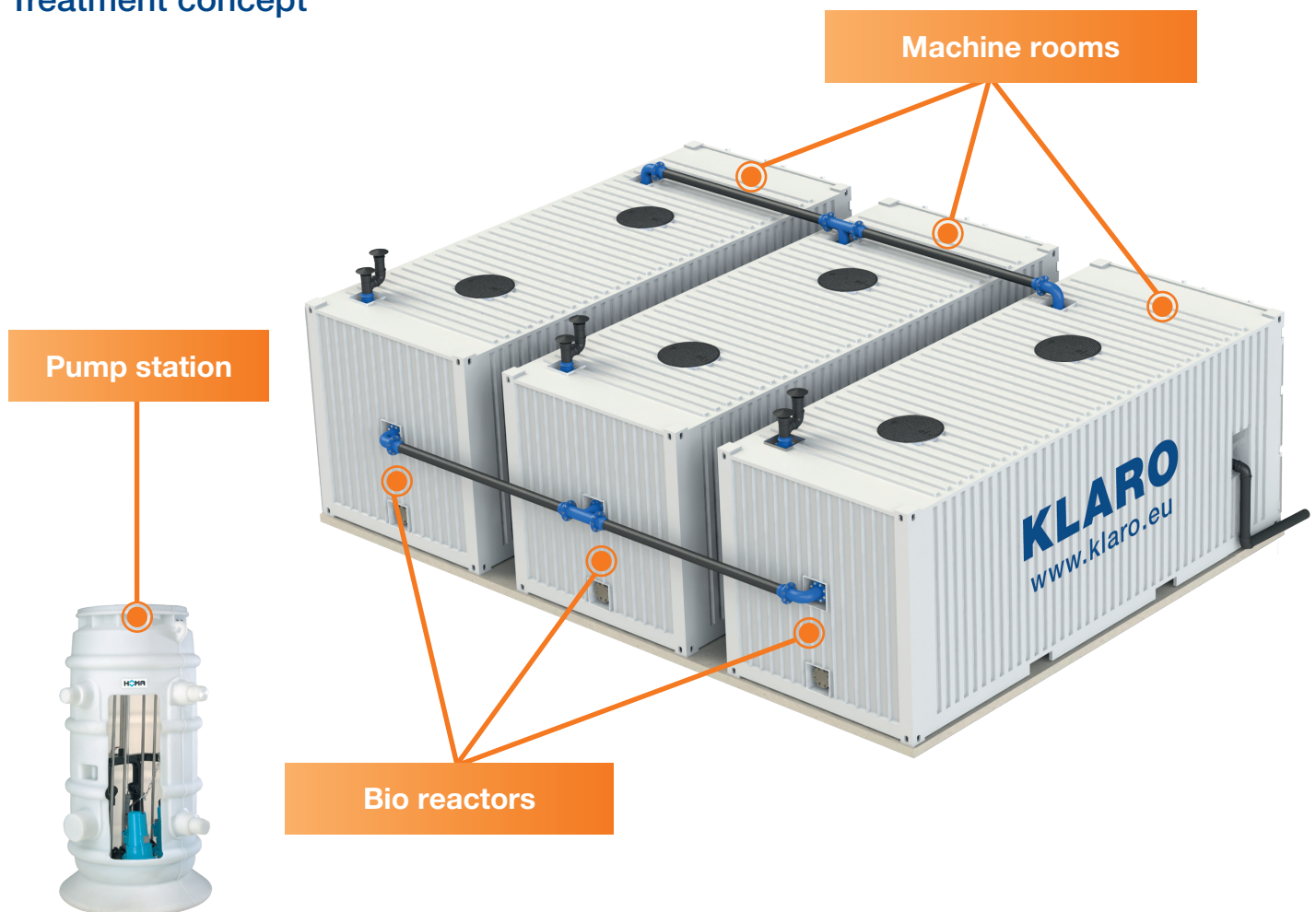
No electrical parts  
in the wastewater

# KLARO Container.One+

## Product description

KLARO Container.One+ is the containerized solution for bigger treatment capacities up to 1150 PE (172,5 m³/day). Several 10 ft, 20 ft or 40 ft container are interconnected. The system is using the fully aerated SBR process. Sludge storage and buffer are integrated.

## Treatment concept

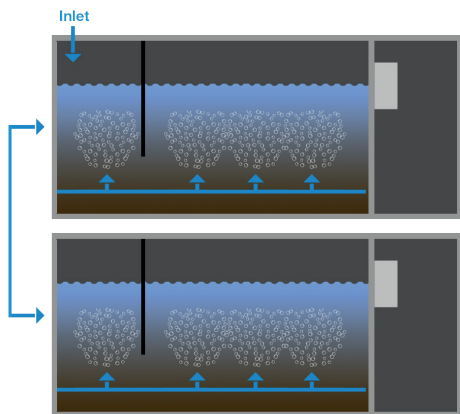


## Additional options

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

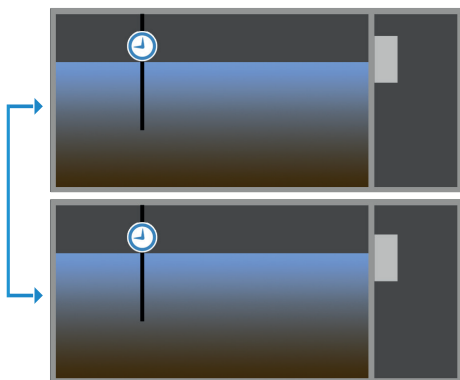
## Treatment process

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



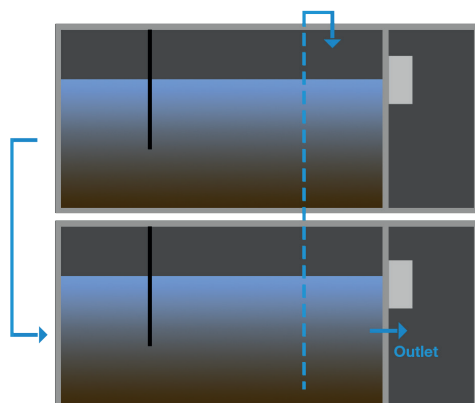
### Aeration phase

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



### Sedimentation phase

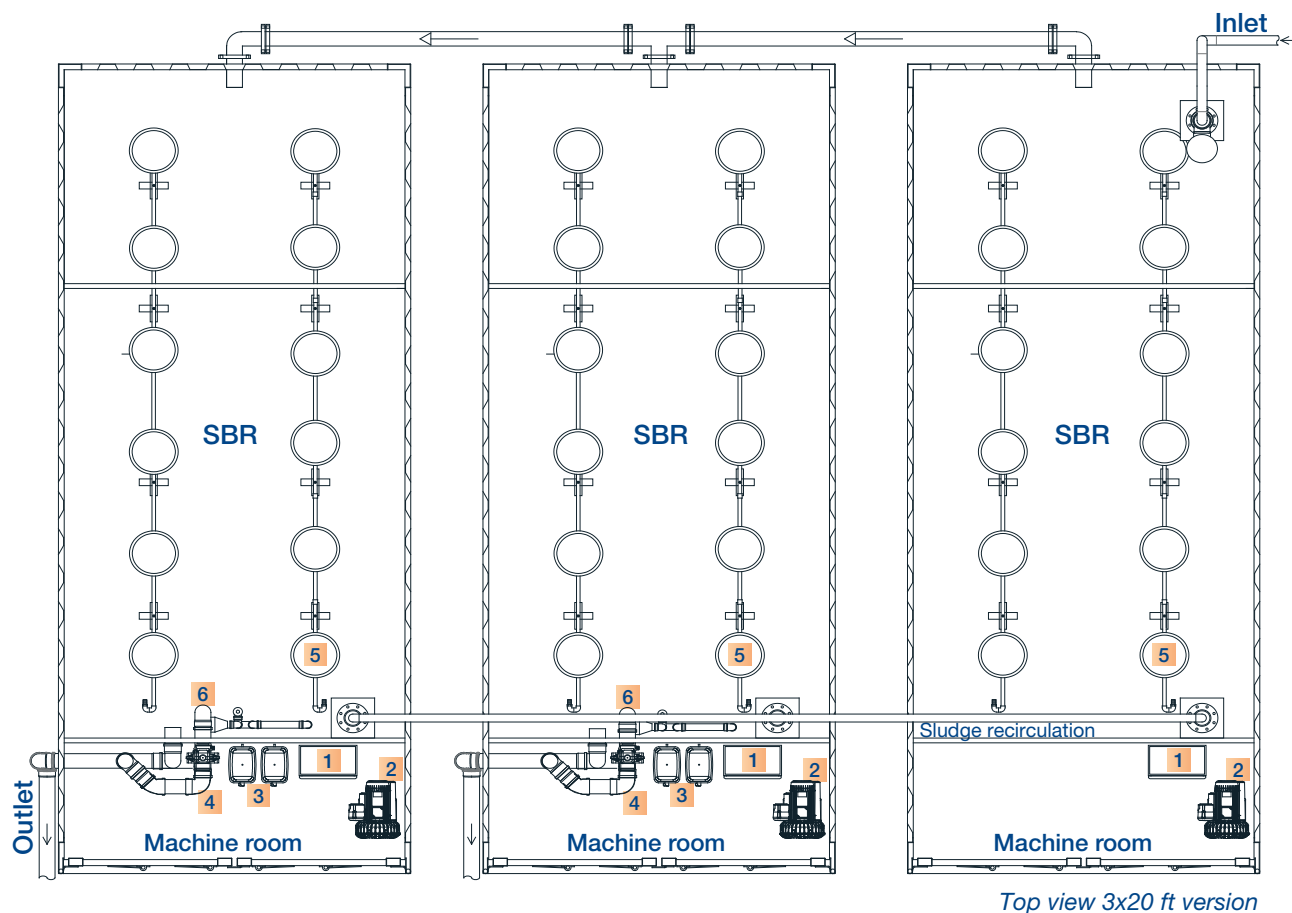
When aeration is stopped, the activated sludge settles to the bottom. A clear water zone forms in the upper part of the container. If any raw wastewater enters the system, it is retained by the half baffle wall in the first container.



### Clear water extraction & excess sludge return

The clarified wastewater is extracted by a discharge device in the last container(s). Each discharge device is briefly backwashed to prevent any sludge from coming out. In the final step excess sludge from the last container(s) is returned to the first container via an integrated air lifter.

## 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]   |
| 90   | 13,50               | 5,40              | 2         | 10 ft  | –     | –      | –     | –        |
| 145  | 21,75               | 8,70              | 1         | 10 ft  | 1     | 20 ft  | –     | –        |
| 200  | 30,00               | 12,00             | –         | –      | 2     | 20 ft  | –     | –        |
| 245  | 36,75               | 14,70             | 1         | 10 ft  | –     | –      | 1     | 40 ft HC |
| 300  | 45,00               | 18,00             | –         | –      | 1     | 20 ft  | 1     | 40 ft HC |
| 460  | 69,00               | 27,60             | –         | –      | –     | –      | 2     | 40 ft HC |
| 500  | 75,00               | 30,00             | –         | –      | 1     | 20 ft  | 2     | 40 ft HC |
| 690  | 103,50              | 41,40             | –         | –      | –     | –      | 3     | 40 ft HC |
| 920  | 138,00              | 55,20             | –         | –      | –     | –      | 4     | 40 ft HC |
| 1150 | 172,00              | 69,00             | –         | –      | –     | –      | 5     | 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 <sub>5</sub> | 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 <sub>5</sub>  | < 20 mg/l |
| COD               | < 90 mg/l |
| TSS               | < 20 mg/l |
| NH <sub>4</sub> N | < 10 mg/l |
| TN                | < 25 mg/l |

*Different effluent values on request!*

## Systems specifications

| Container                                    |                 | for each<br>10 ft container | for each<br>20 ft container | for each<br>40 ft HC container |
|--|-----------------|-----------------------------|-----------------------------|--------------------------------|
| Dimensions (external)                        | Length          | 2989 mm                     | 6058 mm                     | 12192 mm                       |
|  | Width           | 2438 mm                     |                             |                                |
|  | Height          | 2591 mm                     | 2591 mm                     | 2896 mm                        |
| Capacity                                     |                 | 13,4 m <sup>3</sup>         | 30,4 m <sup>3</sup>         | 71,1 m <sup>3</sup>            |
| Weight incl. mounting parts                  |                 | 2050 kg                     | 3150 kg                     | 5700 kg                        |
| Inlet pipe                                   | Connection      | DN 100                      |                             |                                |
|  | External height | 2591 mm                     | 2591 mm                     | 2896 mm                        |
| Outlet/charging pipe                         | Connection      | DN 100                      |                             | DN 160                         |
|  | External height | 945 mm                      | 945 mm                      | 900 mm                         |
| Connection pipe                              | Connection      | DN 100                      |                             |                                |
|  | External height | 1200 mm                     |                             |                                |
| Excess sludge return                         |                 | DN 70                       |                             |                                |
| Recommended operating voltage                |                 | 400 V, 50/60 Hz             |                             |                                |
| Recommended current load                     |                 | 63 A                        |                             |                                |
| Power consumption                            |                 | avg = 13 kWh/d              | avg = 16,7 kWh/d            | avg = 33,9 kWh/d               |
| Operating temperature range                  |                 | -10°C ... +35°C             |                             |                                |
| Standard calculated sludge removal intervall |                 | 3 months                    |                             |                                |



## Address



KLARO GmbH  
Spitzwegstraße 63  
95447 Bayreuth

## Telephone



+49(0)921 16279-0  
**Technical hotline:**  
+49(0)921 16279-370

## Website



Further information:  
**[www.klaro.eu](http://www.klaro.eu)**

## Information



Email:  
**[info@klaro.eu](mailto:info@klaro.eu)**

