There are 5 containers that each contain a water treatment technology. The containers are modular and thus can be operated as a stand-alone unit or connected to each other in a treatment train. A UV disinfection unit can be connected to each of the containers. Also, there is the option to connect the effluent to a final buffer tank (2 m³ on a skid + mixing + sensors), which can regulate the effluent flows to a certain ratio or conductivity.

The experimental setup of the containers allows remote operation and continuous monitoring of critical parameters, including temperature, pH, conductivity, turbidity, and chloride. The robust local PLC-based control level is complemented with an IIoT Edge gateway with a double purpose: it enables secure remote access to all HMIs from a central operating system and makes reliable data acquisition towards the cloud possible.

An overview of the power supply and electrical data that is the same for all the containers is given beneath.

|  |  |
| --- | --- |
| Power supply and electrical data (all containers) | |
| Power supply voltage | 400 Vac |
| Power supply frequency | 50 Hz |
| Power supply phases | 3P + N + PE\* |
| Power supply connection | CEE 5 pin male 32A |
| Power supply net type | TN-S |
| Short circuit current rating | 10 kA |
| Control voltage | 24 Vdc |
| Max power supply cable length (10 mm²) | 60 m |
| Max power supply cable length (16 mm²) | 89 m |

\*3 fasensysteem, neutral draad en beschermende aarde



MMF



UF

In/out

Out/in



dNF

+ cfUF



ACF



RO + CCRO

### Activated carbon filtration (AKF-3-2)

|  |  |
| --- | --- |
| Power supply and electrical data (specific for ACF) | |
| Total installed power | 8.89 kW |
| Full load current | 28.46 A |

##### A blue and orange machine Description automatically generatedDescription

The activated carbon unit consists of 2 filter vessels that can be operated **in series or in parallel**. The activated carbon removes pollutants from a fluid using adsorption. Applications include removing chlorine, particles such as sediment, volatile organic compounds (VOCs), taste and odour, colour, micropollutants, like some pesticides, herbicides, and pharmaceuticals, some PFAS. It is possible to replace the activated carbon by a different adsorption material.

##### Connections

* Inlet: service water, compressed air, feed water.
* Outlet: waste out (pressurized), draining feed tank, product water out 1, product water out 2.
* Chemicals:
  + A blue container next to a blue container

    Description automatically generated Acid: H2SO4 50%, H3PO4 30% or C6H8O7 50%
  + Base: NaOH 30%

##### Monitoring parameters

* Feed: pH, temperature, tank level, turbidity, conductivity.
* Filters: conductivity, feed & backwash flow; inlet & outlet pressure, turbidity.
* Filtrate: tank level, transfer pressure, product out flow.

##### Dimensions and weight

|  |  |
| --- | --- |
| Size container (L x W x H) | 299 x 244 x 289 cm |
| Weight container | 3600 kg |
| Size filtrate tank (L x W x H) | 286 x 90 x 210 cm |
| Weight filtrate tank | 200 kg |

##### Process data

|  |  |  |  |
| --- | --- | --- | --- |
|  | Unit | Nominal | Maximal |
| Amount of filters | - | 2 | - |
| Filtration velocity | m³/h/m² | 2.4 | 30 |
| Feed flow rate | m³/h | 2.00 | 3.25 |
| Surface per filter | m² | 0.44 | - |
| Filter diameter | m | 0.75 | - |
| Backwash air flow rate | m³/h | 23.6 | 50 |
| Backwash water flow rate | m³/h | 8.82 | 35 |
| Rinsing flow rate | m³/h | 1.0 | 10 |