

Project Reference: _____
 Contractor: _____
 Country of Installation: _____
 Inquiry Date: _____

Upstream treatment processes before disinfection			
Secondary treatment type			
Tertiary treatment			
Hydraulic parameters			
	Min	Average	Max
Effluent flow rate, m ³ /h			
Peak Hydraulic flow to UV			
Allowed head loss, mm			
Physical-Chemical parameters			
UV Transmission % 10mm			
TSS, mg/l			
Total iron (Fe), mg/l			
Dissolved iron (Fe), mg/l			
COD, mg/l			
Microbiological parameters			
	Maximum before disinfection	Effluent requirements after UV disinfection <small>Indicate 30 day geometric mean, 95%, 90%, 85%, 80%, 75% or Max for above microbiological parameters</small>	
Total coliform, per 100 ml			
Fecal coliform, per 100 ml			
E.coli, per 100 ml			
Enterococci, per 100ml			
Installation conditions			
Ambient temperature, °C			
Installation		<input type="checkbox"/> Outdoor	<input type="checkbox"/> Indoor
System type		<input type="checkbox"/> open channel	<input type="checkbox"/> closed reactor
Operating pressure (only in closed reactor), bar			

Project Bid Date: _____
 Expected PO Date: _____
 On site Delivery Date: _____
 Company Name: _____
 Contact: _____

Remarks:

Upstream treatment processes before disinfection

Secondary treatment type

The secondary treatment reduces the organic load of the water. Commonly used systems are:

- activated sludge
- trickling filters
- rotating biological contactors
- lagoons

The type of secondary treatment influences the shape and compactness of the sludge particles. When sludge particles are small with an open structure, the light can penetrate the particle easily. More UV light is required when the particle has a large and compact shape.

Tertiary treatment

The tertiary treatment mainly consists of a filtration step. Some examples are:

- Sand filtration
- Disk filtration
- Drum filtration
- Membrane filtration

The filtration reduces the concentration of suspended solids and also reduces the size of the particles.

Hydraulic parameters

Effluent flow rate, m³/h

This parameter shows the average and maximum flow rate that has to be disinfected.

The flow rate has a linear relation with the size of the UV system.

Peak Hydraulic flow to UV

This is the maximum flow that flows through the UV system during exceptional cases such as extreme long periods of rain.

In most cases, the peak hydraulic flow is equal to the maximum disinfection flow.

Allowed head loss, mm

The maximum difference in water level measured before and after the complete UV system, including the weir.

Physical-Chemical parameters

UV Transmission % 10mm

Transparency of the water at a wavelength of 254 nm, measured over 1 cm of water layer. The transmission is the parameter with the biggest impact on the system size of the UV system. When the transmission is decreased by 10%, the system size increases approximately 20%.

If the transmission is not known, you can send samples of 100 ml to LIT Europe. This measurement is free of charge.

Total suspended solids (TSS), mg/l

The concentration of suspended solids influences the UV dose that is required. A higher concentration also results in a higher dose and system size. The impact of the TSS concentration on the system size is hard to predict there it also depends on the desired disinfection level.

Iron (Fe), mg/l

The iron concentration can have a large impact on the system size. A high concentration of iron has three different effects:

- reduction of UV Transmission, resulting in a larger UV system;

- fouling of the sleeves, therefore the sleeves must be cleaned more frequently;
- shielding the micro-organisms from the UV light, therefore more UV light is required to penetrate this iron layer before the organisms are reached.

To properly evaluate the iron-effect, the concentration of total and soluble iron is required.

Chemical Oxygen Demand (COD), mg/l

The COD is only used to estimate the UV Transmission. When the UV transmission is already known, the COD concentration does not have to be filled in.

Microbiological parameters

Maximum before disinfection

Indicate the concentration of organisms that is entering the UV system.

Effluent requirements after UV disinfection

The detailed description of the bacterial concentration after UV treatment is essential for the size of the UV system. The following details are essential:

- Type of microorganism
- Concentration of organisms
- Statistical value!

It must be specified if the disinfection level is based on geometric mean, or that the xx% of the samples are lower than the indicated concentration. The statistical value strongly impacts the system size. When the concentration of organisms is asked on basis of 95% of the samples, the UV system becomes approximately 2 times larger compared to the same disinfection level on basis of a geometric mean.

Installation conditions

Ambient temperature, °C

The cooling of the UV installation is based on convectional cooling up to a ambient temperature of 35 . When the ambient temperature can exceed this limit, a tropicalization unit is recommended.

Installation

The UV system can be installed inside a building as well as outside. Depending on its location the isolation rating can be altered from IP54 to IP55. Also the material of the cabinets can be upgraded from coated steel to stainless steel 304.

Operating pressure, bar

The pressure of the water inside the UV reactor. This parameter is only applicable in closed vessel systems.