

WEDECO UV equipment for the Pudong/Shanghai project selected

In 2002 the city of Shanghai/Pudong selected Veolia Water to operate its water services for its 2 million inhabitants for a period of 50 years. While expanding its operations in the municipal outsourcing of water services to major cities WEDECO was awarded by OTV, a subcontractor of Veolia Water, to be the responsible company for the UV drinking water disinfection of the waterworks Lin Jiang in Pudong, the industrial suburb of Shanghai. Here 4 - WEDECO K reactors designed to treat a total water flow of 13.252 m³/h had been installed.

With the help of those new effective UV - disinfection units, beside other treatment steps, Lin Jiang waterworks is able to supply safe and clean drinking water to all inhabitants, respective facilities and surroundings of Shanghai City.

“The customer asked for latest technology and water treatment equipment which fulfils international standards”

The water source is a river filtrate which is pre-treated by filtration, ozone and activated carbon followed by final UV disinfection.

The UV lamps currently used in WEDECO UV-units are State-Of-The-Art products. They are classified as “high intensity low pressure UV lamps. The predominant features of this lamp technology are a very high electrical efficiency in the generation of UV light at a wavelength of 254 nm with about 40 % and a long lamp life < 12.000 hours of operation.



PROCESS DESCRIPTION

- » Plant design flow: 13.252 m³/h
- » Reactor design flow: 6.627 m³/h
- » UV transmission: 96 %
- » UV dose: 250 J/m² - 5 lamp rows
400 J/m² - 7 lamp rows

In order to disinfect drinking water, the UV lamps are surrounded by a quartz sleeve, that is placed in the reactor with direct contact to the water to be disinfected. The lamps of a WEDECO K reactor are typically staggered arranged and placed perpendicular to the water flow (see picture 2). That constellation ensures a sufficient water mixing and improves the penetration and reaction of UV irradiation to the water, thus best disinfection performance is ensured.

Specifications of Lin Jiang K reactors

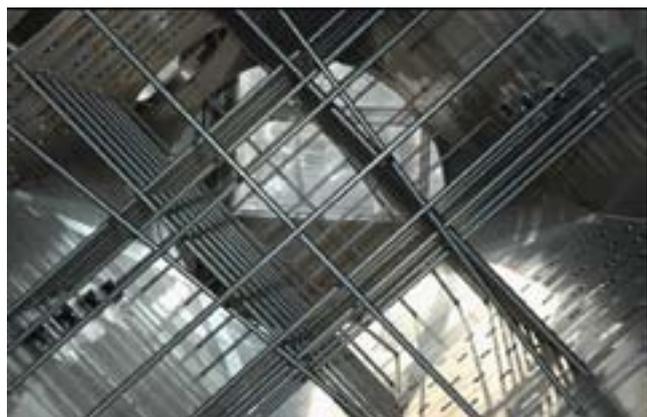
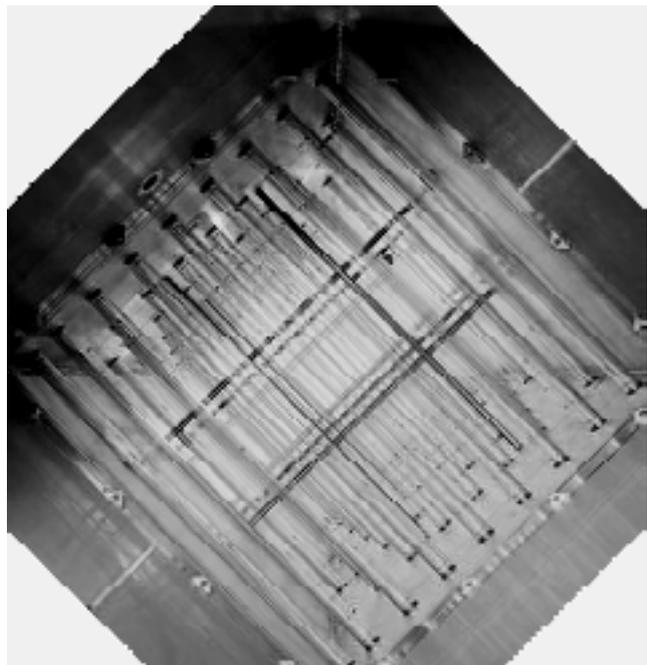
The customer in Shanghai asked for latest technology and water treatment equipment which fulfils international standards like US EPA or German DVGW for UV systems. Special emphasis was laid upon the save and efficient reduction of parasites like Crypto and Giardia.

The UV reactors are equipped with 5 lamp rows for the first stage of operation. Each lamp row contains 12 UV lamps (= 60 UV lamps in total at 5 lamp rows).

The multiple lamp row design for upgradeability ensures that at a later stage two additional lamp rows per reactor can be operated, in order to disinfect a larger amount of water as effective as for the first stage. Each of the 4 WEDECO K-reactors is designed to disinfect a maximum flow rate of 6.627 m³/h drinking water and operates independent from the others, either as Duty or Standby unit.

The on/off-turning of different lamp rows is furthermore used to adjust the UV dose applied to the water. The UV disinfection units are controlled by a PLC, which determines the number of lamp rows in operation as well as the lamp power (50 - 100%) according to the flow rate and measured UV-intensity. Herewith the required UV dose is safely supervised and kept stable over the entire disinfection and plant operation period.

The applied UV doses for the here mentioned application vary between 250 J/m² and 400 J/m² and depend on the respective reactor design and equipment and also on specific conditions of operation. Biodosimetric tests show best disinfection results in compliance to the requirements.



K reactor for Shanghai with principle of UV lamp arrangement

Disinfection guarantee (based on 100% spot samples)

Total coliforms	18 CFU/100 ml
Giardia	2.5 to 3 log
Cryptosporidium	2.5 to 3 log

WEDECO's Scope of supply
 WWTP Lin Jiang - 6.627 m³/h, 250(400)J/m²
 4 pcs. WEDECO K 143 12- 5(7)
 Delivery in 2005