

HYDRO WELL® UV Disinfection system B – Series

Application

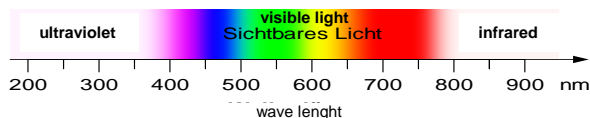
Our HYDRO WELL® UV disinfection systems of type B are used for disinfection of iron and manganese free drinking water as well as for treatment of industrial applications. The systems are suited for cold water and hot water applications.

UV light has much energy and is very effective for disinfection at a wavelength between 250 and 260 nm.

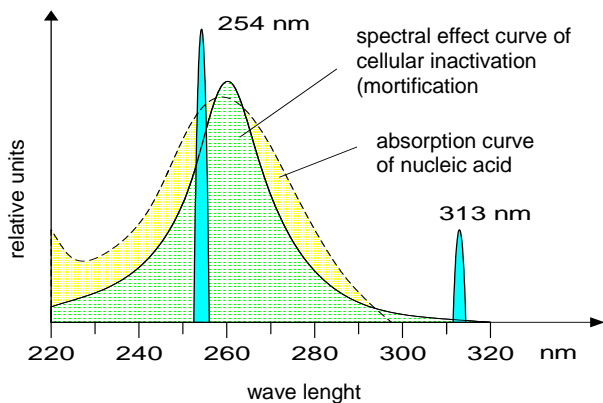
In this range the DNA of dangerous micro organisms (e.g. germs, legionella bacteria, pseudomonas and coli) is changed so that they lose their ability to reproduce themselves and get inactivated.

Our HYDRO WELL® UV disinfection systems are designed and used for drinking water applications at irradiation intensity of 400 J/m² at the end of the operating life of lamps. The maximum effect of the UV disinfection system is given at the disinfection spectral range with 254 nm (wave length).

UV-light



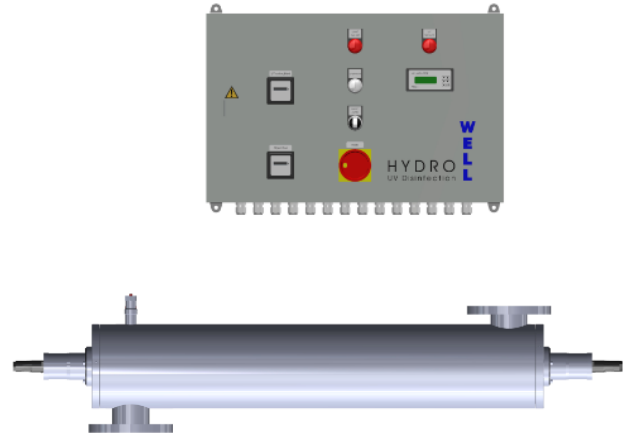
...and its effect



The efficiency of UV systems is determined by the light transmission of the water.

96% transmission should be observed for UV systems, but the aim should be at 98%. Impairments of light transmission of the water are possible because of turbid substances, iron content etc.

The risk of formation of dangerous by-products (e.g. trihalomethanes (THM) at the chlorination) does not exist because there are no chemical substances to be used.



Advantages of UV disinfection:

- low operating costs
- easy use
- fast disinfection
- no change of water quality in terms of odour and taste
- no use of chemicals
- operational safety

Use of the UV disinfection in the following areas of application:

- private and local drinking water supplies
- industrial process water
- beverage and food industry
- rainwater utilisation
- pool water
- cooling water

Information about the operating location and the operating mode as well as a water analysis is required to determine the use of our systems for the specific application.

System description / scope of supply

Irradiation of the water is by means of a flow-through reactor.

UV reactor

Cylindrical stainless steel reactor

Material: 1.4571
 Max. pressure: 16 bar
 Inst. length: horizontal
 Lamps: horizontal
 Connection: Flange according to DIN 2576
 Sampling valve

Lamp protection tube

One-way locked pure quartz glass protection tubes in stainless steel flange for shadowless illumination

High-performance UV lamps

Easy to remove for maintenance and repair works

Lamp heads

With 2 m connection cable, wired ready for connection

UV sensor

Wave length selective, can be calibrated, resistant to ageing

Power supply

In steel plate casing, varnished, electrically ventilated, EMC proved with following components:

- Display unit process-controlled
- Display of UV intensity
- Display of operating hours
- Display of power-on impulses
- Display of dosing (optional with external flow rate gauge)
- Display of UV intensity lower deviation
- Display of lamp malfunction
- Display of collective fault

Operating and alarm outputs:

- UV intensity lower deviation pre-alarm
- UV intensity lower deviation main alarm
- Lamp failure
- Collective fault
- External control

Electronic ballast with single lamp monitoring

Installation and operation manual with operating log

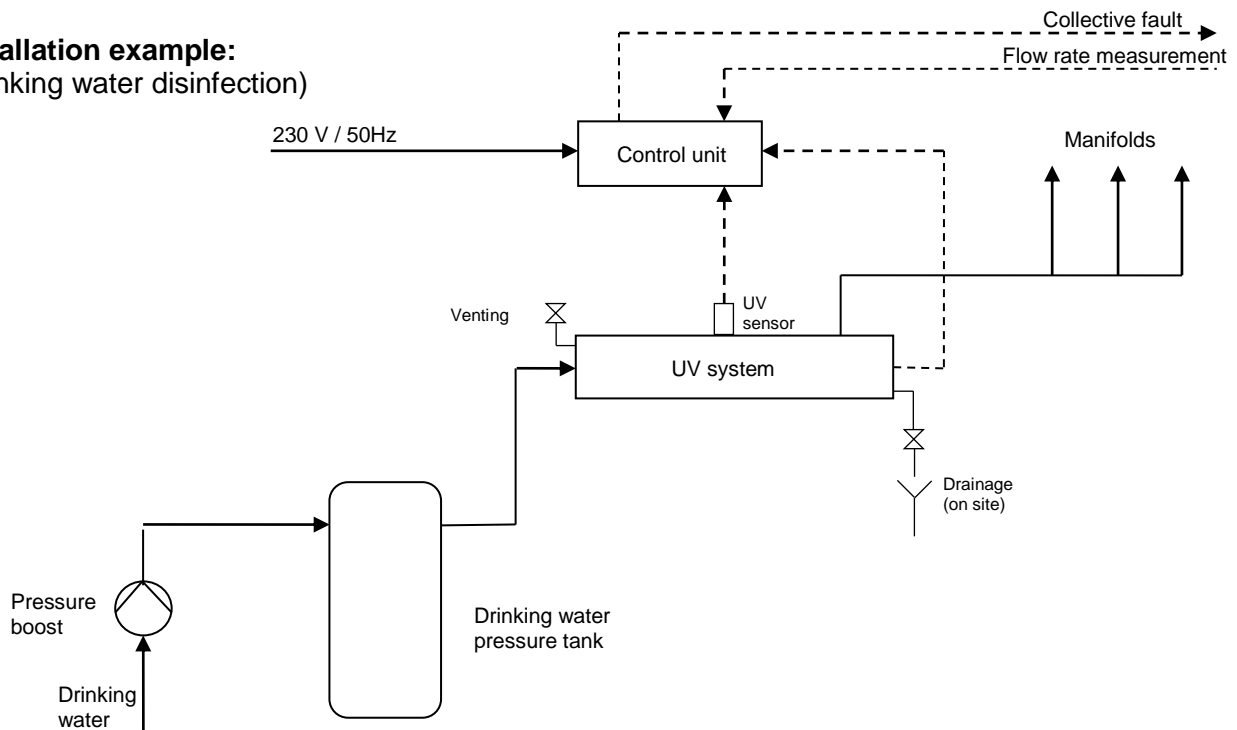
Controlled ex works, ready for connection (UV lamps will be delivered separately)

Environmental friendly packaging.

Notes / Installation conditions

- Water quality before feeding into UV system:
 - turbidity < 0.3 NTU
 - iron < 0.2 mg/l
 - manganese < 0.05 mg/l
- Technical data and general technical standards as well as local installation conditions must be observed.
- The UV reactor is mounted between the pipelines. Therefore it is to be ensured that there is enough space available according to the dimensional drawing.
- It is imperative that the reactor will not run dry.
- The ambient temperature and possibly occurring radiation heat may not exceed 40°C.
- The installation site must be frost-resistant.
- The installation site must be free from solvent, colorant, varnish and chemical vapours.
- A water meter is to be installed for observation of the flow rate.
- It is to be ensured that the operating pressure will not be exceeded. Vacuum is to be avoided as well.
- Pressure impacts in piping system are to be avoided.
- Pipelines and reactor are to be connected voltage free. Mounts must be designed for the respective weight.
- It is to be ensured that no pollutants find their way into the reactor.
- A floor drain must be provided. (Consider reactor volume!)

Installation example: (Drinking water disinfection)



Technical data

System	Unit	HYDRO WELL® B – 30	HYDRO WELL® B – 50	HYDRO WELL® B – 70	HYDRO WELL® B – 90
Flow rate maximal at a transmission of 96% /1 cm 400 J/m² irradiation intensity	m³/h	26	50	66	83
Water temperature	°C	10 - 30			
Ambient temperature	°C	max. 40			
Reactor					
Connection		Flange according to DIN 2576			
Nominal size		DN 100	DN 100	DN 125	DN 125
Connection distance A	mm	650			850
Installation length B	mm	1,190			1,450
Height C	mm	400	500		
Distance D	mm	> 500			
Dimension E	mm	220	324		
Empty weight ca.	kg	40	55	55	80
Operating weight ca.	kg	60	160	160	200
Material		stainless steel 1.4571			
Operating pressure	bar	16			
Pressure drop	bar	< 0.1			
Power supply					
Electrical connection		230 V / 50 Hz			
Height	mm	380	600	760	
Width	mm	600		760	
Depth	mm	260			
Power consumption	W	240	360	480	600
Housing		Steel plate, varnished, electrically ventilated			
Protection class		IP 54			
UV lamp					
Type		LongLife PL 55			
Quantity		4	6	8	10
UV power (new)	W	80	120	160	200
after 8,000 operating hours	W	68	102	136	170

System	Unit	HYDRO WELL® B – 20 – I	HYDRO WELL® B – 30 – I	HYDRO WELL® B – 50 – I	HYDRO WELL® B – 70 – I	HYDRO WELL® B – 90 – I
Flow rate maximal at a transmission of 96% /1 cm 400 J/m² irradiation intensity	m³/h	16.1	37.8	72.5	96.9	121
Water temperature	°C	5 – 50				
Ambient temperature	°C	max. 30				
Reactor						
Connection		Flange according to DIN 2576				
Nominal size		DN 80	DN 100	DN 100	DN 125	DN 125
Connection distance A	mm	900	650			850
Installation length B	mm	1,450	1,190			1,450
Height C	mm	300	400	500		
Distance D	mm	> 500				
Dimension E	mm	200	220	324		
Empty weight ca.	kg	30	40	55	55	80
Operating weight ca.	kg	38	60	160	160	200
Material		1.4571				
Operating pressure	bar	16				
Pressure drop	bar	< 0.1				
Power supply						
Electrical connection		230 V, 50 Hz			400 V, 3 phases, 50 Hz	
Height	mm	380	380	600	760	760
Width	mm	600			760	
Depth	mm	260				
Power consumption	W	260	520	780	1,040	1,300
Housing		Steel plate, varnished, electrically ventilated				
Protection class		IP 54				
UV lamp						
Type		Ecolux 40 N				
Quantity		2	4	6	8	10
UV power (new)	W	76	152	228	304	380
after 8,000 operating hours	W	49	99	148	198	247

