



## TECHNICAL INFORMATION

### ADVANTAGES

- Radiation is flexible and adapted to requirements
- Optimal efficiency
- Very economical
- Hydrodynamic chamber
- Ergonomic design
- Extremely low pressure loss
- Long service life of the UV lamps and components
- Lamp efficiency independent of water temperature
- Simple installation
- Freely selectable installation position
- Simple maintenance and cleaning
- Powerful wiper mechanism available as option
- Cleaning possible during operation
- UV sensor
- For flow rates of up to 1000 m<sup>3</sup>/h
- Integrated disinfection monitoring feature

## UV ASTRON

### WALLACE & TIERNAN UV TECHNOLOGY

The **UV Astron** was primarily designed for the treatment of drinking water, swimming pool and process water with flow rates ranging from 10 to 1000 m<sup>3</sup>/h. It is equipped with special **Wallace & Tiernan** lamps, type WTL, in accordance with the medium pressure principle. These emit a UV-C wave length spectrum which is absorbed by micro-organisms in the water. The radiation spectrum of 200 to 300 nm attacks both the DNA as well as the cell wall, proteins and enzymes. The repair mechanisms of the micro-organisms are therefore also destroyed. Furthermore the **UV Astron** is characterised by its optimal hydrodynamics as well as a low pressure loss, which ensures the economical efficiency of this system.



### GENERAL INFORMATION

Since UV radiation is not harmful to the environment, it is increasingly employed as an alternative to chemical disinfection methods, especially for applications in which a depot effect is not required. The advantages are evident:

- There are no by-products
- The taste and smell of the water remain neutral
- Possible resistance of certain micro-organisms to UV radiation is unknown to date
- UV radiation is non-corrosive
- Very effective against parasites, cryptosporidia and legionellae

In combination with the development of powerful and durable components, these advantages are responsible for the fact that UV technology is now used around the world for many applications.

### APPLICATIONS

The **UV Astron** works independently of the temperature of the water to be treated and is suitable for disinfection in swimming pools and also for breaking down combined chlorine. In addition UV radiation is used in combination with ozone and hydrogen peroxide for oxidation. Suitable applications for the **UV Astron** include fish farms, the beverage industry, dairies, the pharmaceutical and chemical industries as well as the semiconductor industry.

### REQUIREMENTS

Selection of a suitable UV disinfection unit depends on the properties of the water to be treated. Special attention must be paid to transmission, which is defined as the penetration of UV light through a water sample of a certain thickness and which is given in percent. It also depends, for example, on the turbidity of the water. Alternatively, the spectral absorption coefficient SAC can be used as the design basis for a UV disinfection unit.

### DESIGN AND PRINCIPLE OF OPERATION

The heart of the **UV Astron** is the radiation chamber with the WTL high-performance lamps. These are optimally arranged in the chamber to suit each individual application and must be mounted in a horizontal position to ensure regular radiation. The radiation chamber can, however, be mounted either horizontally or vertically as well as rotated around its own axis.

The chamber is designed to ensure optimal disinfection of the water to be treated. The pressure loss in the device is extremely low due to the hydrodynamic design of the chamber. Emphasis was also placed on service functions when the device was designed. Each individual lamp is automatically monitored and its operating status indicated with LED's on the control cabinet. Maintenance accessibility also played an important role in its design. As an example, service technicians can replace the lamps easily and without special tools.

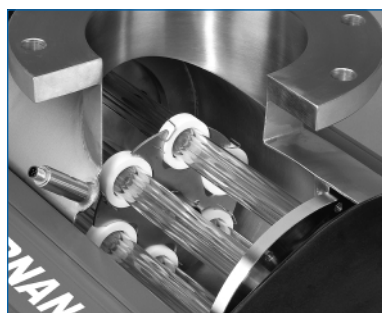
### CONTROL CABINET

The **UV Astron** control unit can be installed in a sheet steel or stainless steel housing. Optionally the UV lamp power can automatically be adapted via the control unit to the conditions in the chamber. The optional cleaning mechanism is controlled by set times and by a decrease in UV intensity. The settings and important system data are displayed on the operating panel. Operational and error messages are additionally visualised with LED's.

## WALLACE & TIERNAN

[www.wallace-tiernan.de](http://www.wallace-tiernan.de)

# TECHNICAL DATA



Optional cleaning mechanism, manual and automatic versions available

## UV CHAMBER

- Max. Operating Pressure:**  
10 bar
- Enclosure:**  
IP 54
- Material:**  
Stainless steel 316 Ti or 1.4571
- Temperature Monitoring:**  
With Pt 100

## CONTROL CABINET

- Material:**  
Steel, powder coated RAL 7035 or stainless steel 304 or 1.4301
- Cable Length:**  
5 m to UV chamber (10, 20 or 50 m optionally)
- Max. Air Humidity:**  
60 %
- Miscellaneous:**  
Control cabinet temperature monitor, integrated elapsed time clock

## OPTIONS

- Manual or automatic (Astron 80 or higher) cleaning mechanism
- Mounting frame for chamber and /or control cabinet at each required position

## UV SENSOR

The UV intensity in the chamber is continuously monitored by the UV sensor and shown on the control cabinet display as a status message.

The sensor is equipped with reliable filter technology to ensure reliable monitoring, and has a 4–20 mA output. The sensor has category IP 65 protection. The housing is made of stainless steel.

## DISINFECTION MONITORING

The intensity of the lamps can be adjusted in four stages and depends on the transmission and the flow rate. The age of the lamps and possible deposits on the quartz tubes also have an influence. It is therefore possible to adapt the radiation intensity optimally to suit requirements. This permits power-saving operation.

## CLEANING MECHANISM

Wallace & Tiernan supplies an optional manual cleaning mechanism on all models and an automatic cleaning mechanism for **UV Astron 80** and larger, for removing deposits from the quartz tubes. Both cleaning types can be actuated during operation. The manual cleaning mechanism is easy to operate by the plant operator. The automatic self cleaning version is controlled over the UV intensity with a minimum cleaning interval set by a timer.

Type	UV lamp	Maximum flow rate <sup>(1)</sup> [m³/h]	Connections to DIN 2576	Dimensions UV chamber I x W x D <sup>(2)</sup> [mm]	Weight of UV chamber [kg]	Power consumption [W] <sup>(3)</sup>	Dimensions of control cabinet H x W x D [mm]	Weight of control cabinet [kg]	Electrical connection	Installation
UV Astron 35	1 x WTL 1000	35	DN 80	300 x 214 x 622	14	900	760 x 760 x 300	30	1/N/PE AC 230 V, 50 Hz	wall
UV Astron 80	1 x WTL 1000	80	DN 125	350 x 306 x 1021	59	900	760 x 760 x 300	55	1/N/PE AC 230 V, 50 Hz	wall
UV Astron 135	1 x WTL 2000	135	DN 125	350 x 306 x 1021	59	1820	760 x 760 x 300	65	3/N/PE AC 400/230 V, 50 Hz	wall
UV Astron 210	4 x WTL 1000	210	DN 125	350 x 306 x 1021	60	3600	1800 x 800 x 400	153	3/N/PE AC 400/230 V, 50 Hz	floor
UV Astron 275	1 x WTL 2000	275	DN 200	400 x 406 x 913	63	1820	760 x 760 x 300	65	3/N/PE AC 400/230 V, 50 Hz	wall
UV Astron 290	3 x WTL 2000	290	DN 125	350 x 306 x 1021	60	5460	1800 x 800 x 400	173	3/N/PE AC 400/230 V, 50 Hz	floor
UV Astron 350	4 x WTL 2000	350	DN 125	350 x 306 x 1021	60	7280	1800 x 800 x 400	193	3/N/PE AC 400/230 V, 50 Hz	floor
UV Astron 525	2 x WTL 2000	525	DN 200	400 x 406 x 913	64	3640	760 x 760 x 300	85	3/N/PE AC 400/230 V, 50 Hz	wall
UV Astron 700	3 x WTL 2000	700	DN 200	400 x 406 x 913	64	5460	1800 x 800 x 400	173	3/N/PE AC 400/230 V, 50 Hz	floor
UV Astron 900	4 x WTL 2000	900	DN 200	400 x 406 x 913	64	7280	1800 x 800 x 400	193	3/N/PE AC 400/230 V, 50 Hz	floor
UV Astron 1250	6 x WTL 2000	1250	DN 200	400 x 406 x 913	64	10920	1800 x 800 x 400	233	3/N/PE AC 400/230 V, 50 Hz	floor
UV Astron 1400	2 x WTL3500	1400	DN350	600 x 590 x 1043	160	6930	2000 x 800 x 500	235	3/N/PE AC 400/230 V, 50Hz	floor
UV Astron 2000	3 x WTL3500	2000	DN350	600 x 590 x 1043	160	10395	2000 x 800 x 500	290	3/N/PE AC 400/230 V, 50Hz	floor
UV Astron 2600	4 x WTL3500	2600	DN350	600 x 590 x 1043	160	13860	2000 x 800 x 500	345	3/N/PE AC 400/230 V, 50Hz	floor
UV Astron 3800	6 x WTL3500	3800	DN350	600 x 590 x 1043	160	20790	2000 x 1200 x 500	520	3/N/PE AC 400/230 V, 50Hz	floor

<sup>(1)</sup> Flow rate in m³/h at T<sub>10</sub> = 100 % and a dose of 40 mJ/cm², the hydraulic flow rate is limited to 3 m/s

<sup>(2)</sup> Installation length x width x depth in mm

<sup>(3)</sup> Base disinfection stage

# WALLACE & TIERNAN

Represented by: