

WHY CHOOSE atg UV Technology

- . International distributor & service network
- . Over 1500 units in operation
- . ISO9001 Certified
- . Queens Award Winners
- . Manufactured on-site in Wigan, UK
- . Validated system performance
- . Unrivalled pool heritage
- . Industry Exclusive 5 year Warranty
- . Cutting edge design
- . Leading UV technology
- . Embedded pulse technology wiping
- . Dedicated spares & service division

“All together a safer, cleaner, chemical free environment”



THE QUEEN'S AWARDS FOR ENTERPRISE

ECP UV SYSTEMS | Small, compact and economical, Flow range 50 - 176 gpm, 1.0kW-1.3kW medium pressure lamp, ANSI flange size 2 1/2"-3", 316L SS Chamber, Simple, easy to read display, Includes temperature probe, UV monitor, automatic wiper system & half power operation.



ECF UV SYSTEMS | State-of-the-art design offering vertical or horizontal installation, flow range 560 - 4500 gpm. Multiple lamp medium pressure 1.5kW-3.3kW lamps, ANSI flange size 6"-14" (larger custom models available). Simple, easy to read display, Includes temperature probe, UV monitor & automatic wiper system. Significantly reduced installation and service area.



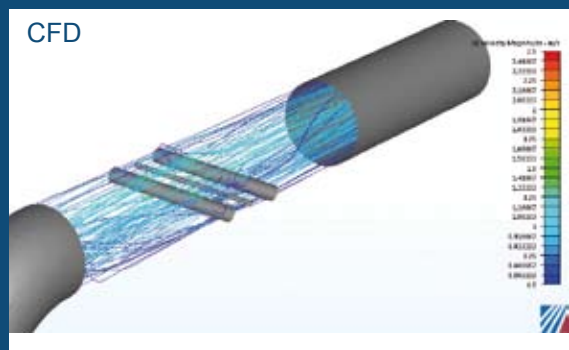
SP UV SYSTEMS | Traditional look with inlet and outlet branches, flow range 100-500 gpm, ANSI flange size 2"-16", 1.3kW-7.3kW medium pressure lamps, Includes temperature probe, UV monitor, automatic wiper system.



LEADING CONTROL SYSTEM | Using microprocessor technology, SPECTRA combines many innovative features such as fully automatic start-up and shut down, multiple lamp monitoring, process interlocks and automatic quartz cleaning. SPECTRA's on board data logger easily allows performance data to be downloaded a PC or Laptop for review. MODBUS and PROFIBUS compatible.



DESIGN | Advanced 3D CAD is used to develop new products and to support CFD model production.



TECHNICAL INFORMATION UV DISINFECTION FOR AQUATIC APPLICATIONS

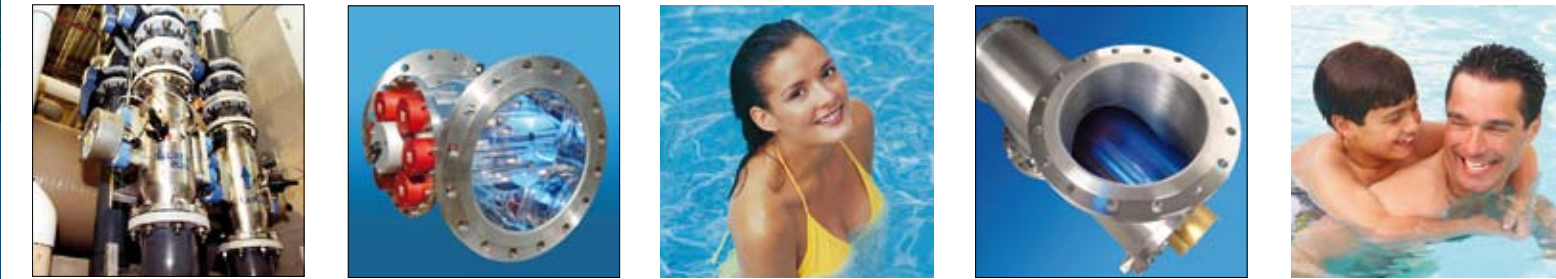


swimming pools, water parks, municipal aquatic centres, spas, splash pads & therapy pools





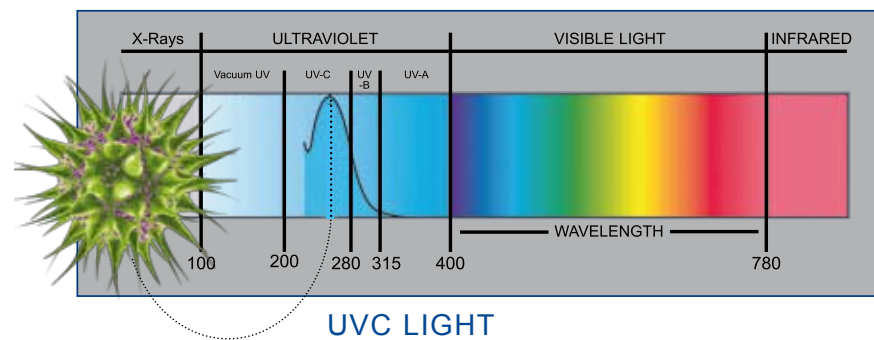
UV for Photolysis ⇒ Improving the Bathing Environment



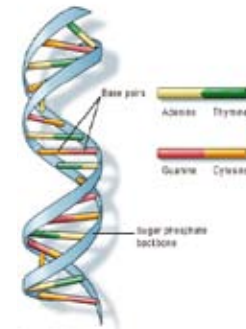
UV for Disinfection ⇒ Clean, Safe Environments

ULTRAVIOLET LIGHT | UV light is electromagnetic radiation found between the visible spectrum and X rays. It is not visible to the naked eye.

UV light is split into four main categories : UV-A, UV-B, UV-C and Vacuum UV. The wavelengths between 240nm and 290nm are in the UV-C range and have germicidal properties. UV light at 265nm causes the most damage to the DNA, effectively preventing replication of the organism, and rendering it non viable. Unlike with chemical disinfectants, no organism can develop any resistance to UV light.



VALIDATION | Where Ultraviolet technology is used for disinfection, systems are validated to demonstrate they can deliver the correct performance. **atg UV** systems are validated in accordance with the USEPA UV Guidance Manual (Nov 2006) disinfection guidelines. **atg UV** swimming pool units are validated to this standard, providing users with the confidence that the equipment will always perform.



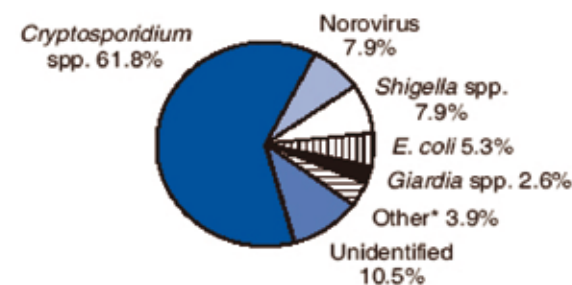
ORGANISM	UV Dose m J cm-2 1 log	UV Dose m J cm-2 3 log
Salmonella typhi - ATCC 19430	1.8	6.4
E-coli 0157:H7 - ATCC 43894	1.5	4.1
Shigella dysenteriae - ATCC 29027	0.5	2.0
Vibrio cholerae - ATCC 25872	0.8	2.2
Giardia lamblia	2.0	4.0
Legionella pneumophila - ATCC 33152	1.9	5.8
Norovirus	11.2	25.0
Cryptosporidium parvum	2.4	5.2

THREATS TO POOL USERS



E Coli (x 10,000) Giardia Lamblia (x200) Cryptosporidium Parvum (x300)

INCIDENCE OF INFECTION



UV FOR PHOTOLYSIS | Bathers introduce a variety of organic compounds into the pool environment; Creatinine (C₄H₇N₃O), Urea (NH₂)₂CO, Fats and Amino Acids are compounds of sweat that combine with chlorine to produce combined chlorine. Combined chlorine is an irritant that produces an offensive odor (linked as a probable cause of asthma), itchy skin, red burning eyes and corrosive condensation. Treatment with Ultraviolet light with enhanced outputs effectively eliminate combined chlorine..

LAMP TECHNOLOGY | **atg UV** uses medium pressure lamps with a polychromatic output, specifically enhanced to remove the nuisance mono-, di- and tri- chlorine species. Low pressure lamps are monochromatic, and only emit a single UV wavelength at 254nm. They are not often used in pool environments.

SYSTEM SIZING | Sizing Parameters include; pool size, shape, use, filtration, turnover and water transmittance. Benefits achieved include: -

- Total/band chlorine >4:1
- Combined chlorine <0.2mg/l
- Improved water clarity
- Improved air quality
- Oxidation of organics
- Cannot be overdosed and is fully automatic.
- Reduces the need of 'Shock Treatments' to combat combined chlorine levels
- Greatly improves water quality, reducing the frequency of backwashes
- Reduced wear on the building and ventilation due to corrosive condensation
- Less expensive dilution

MONO-CHLORAMINE FORMATION
 $NH_3 + H_2O \leftrightarrow H_3O^+ + NH_3$
 $NH_3 + Cl_2 \xrightarrow{UV} NH_2Cl$

MONO-CHLORAMINE
 $2NH_2Cl + HOCl \xrightarrow{UV} N_2 + 3HCl + H_2O$ (254nm)

DI-CHLORAMINE
 $NHCl_2 + OH^- \xrightarrow{UV} Cl_2N^- + H_2O$
 $Cl_2N^- + NHCl_2 \xrightarrow{UV} Cl_2N-NHCl + Cl^-$
 $Cl_2N + NHCl-HCl \xrightarrow{UV} Cl-N=N-Cl \xrightarrow{UV} N_2 + 2Cl^-$ (297nm)

TRI-CHLORAMINE
 $2NCl_3 + 6OH^- + HOCl \xrightarrow{UV} N_2 + 4OCl^- + 3HCl + H_2O + 2OH^-$
 $2HOCl \xrightarrow{UV} 2HCl + O_2$ (260 & 340nm)

