

# PRODUCT Portfolio

---

## Biovista Bangladesh Ltd.



Sheltech Rubynur



House No. 115 (9th Floor), Senpara Parbata,  
Mirpur-10, Dhaka-1216, Bangladesh.



+88-02 41002365



+8801552355031, +8801711900154



info@biovistabd.com, rakib@biovistabd.com



www.biovistabd.com

**B**iovista Bangladesh Ltd (BBL) was founded in 2009 by a group of enthusiastic young scientists or science graduates. For over 15 years we have designed and developed instrumentation and scientific methods that are being used by major pharmaceutical industries, diagnostic and hospitals, and food and beverage industries in Bangladesh.

We are a private biotechnology company with the main office in Dhaka, Bangladesh, along with overseas offices in the Netherlands, and Australia. Our multi-national team has diverse academic backgrounds, including analytical chemistry, clinical biochemistry, molecular biology, synthetic chemistry, biochemistry, immunology, bioinstrumentation, and nanotechnology, and is on a continuous hunt for new technologies for end users in Bangladesh.

We provide unique solutions for purifying water for industry, government building, hospital and household uses. To date, we have supplied and installed portable generation and water disinfection UV systems to the top pharmaceuticals, government building, hospital and private residences. We provide a successful and reliable growth platform for our customers, suppliers and team. Moreover, we ensure the best quality products complying WHO guidelines and give the best customer services throughout the country anytime our customers need assistance.

## OUR SERVICES & SUPPLIES

### A. Pharmaceutical industries:

- Bio-Pharmaceuticals- process development, production and consulting.
- QC test protocol development and package delivery.
- Pharmaceutical Laboratory Equipment & Instrument supplies.
- Active Pharmaceutical ingredients- sourcing, analysis and validation.
- Generation of potable water, purified (PW) water, highly purified water (HPW), purified steam (PS) and water for injection (WFI).
- Waste water treatment plant.
- Water, air and surface UV Disinfection for the potable, PW, HPW etc.
- Water UV for de-chlorination and TOC removal plant.

### B: Diagnostics and Hospitals:

- Reagents, medical devices and equipment supplies.
- Protocol development and package delivery.
- Pure water generation for general use.
- Ultra-pure water generation for Dialysis and other special use.

### C. Food & Beverage industries:

- Drinking water generation plant.
- Purification of process water for the generation of food & beverage.
- Waste water treatment plant.
- Water & Sugar UV Disinfection plant.
- Water UV for de-chlorination plant.

### D. Home, Pool & Aqua Culture Water plant:

- Drinking water: Generation of drinking water quality water for total use residential apartment blocks, hotels, offices and restaurants.
- Purification of swimming pool water.
- UV Disinfection system supplies.
- Purification of aquaculture water.

### E. Water less firefighting:

- Fire proof paints attaining up to 120 minutes protection against matured fire for pre-fabricated structures.
- Aerosol (DSPA) and powder (TUNGUS) based solution for fire-fighting: automated, manual, mobile and fixed systems.

### F. Spare parts & Consumables:

- Spare parts and consumables for the potable water, PW, HPW, PS, WFI generation, distribution plant and UV System.



**POTABLE WATER  
GENERATION PLANT**

**SOFT WATER  
GENERATION PLANT**





**PURIFIED WATER  
GENERATION PLANT**

**PURIFIED STEAM  
GENERATION PLANT**





**WFI GENERATION PLANT**

**PW/WFI  
DISTRIBUTION SYSTEM**

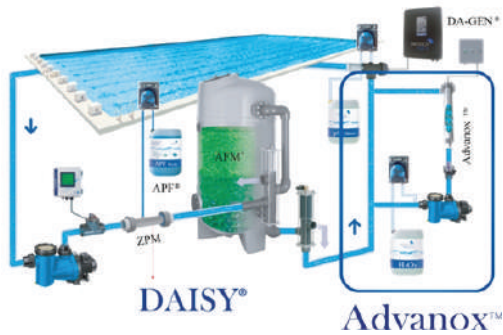




**CONTINUOUS  
ELECTRODEIONIZATION (CEDI)**

**HOME BASE DRINKING  
WATER GENERATION PLANT**

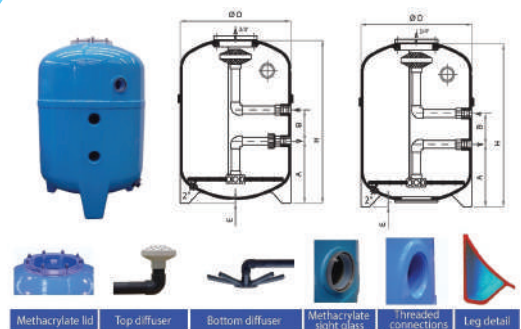




## DAISY + SWIMMING POOL WATER TREATMENT PLANT

### MAJOR COMPONENTS OF WATER TREATMENT SYSTEM

## CALPLAS FILTER VESSELS





## CALPLAS & AFM

Calplas filters have been using AFM for more than 15 years. Since water quality is the target for both calplas and AFM customers, many projects include today a CALPLAS-AFM filtration system. Calplas filters design allow the complete use of the filtration surface. On the other hand, Calplas filters assure optimal backwash process even for backwash velocities of 50m/h. As a result, AFM filtration media very efficient, and is able to remove particles, heavy metals and so on. Calplas design has proven to Help AFM to do it, job, compared to other filters where the lack of internal calculations do not allow a good performance of the AFM.

## FILTER VESSEL

PRODUCT INFORMATION	
Name	Calplas Filter
Compositions	Fiber glass, polyester, Polypropylene, and Methacrylate
Usage	Vessels for AFM and Sand media
Manufacturer	Calplas, Spain

## TECHNICAL DESCRIPTION OF CALPLAS FILTER

MATERIALS	
Body	Laminated polyester reinforced with fiberglass
Top distribution	ABS
Inlet/Outlet	Laminated polyester reinforced with fiberglass GAS threads
Bottom distribution	Polypropylene
Top lid	Methacrylate
Bottom lid	According to model
MANUFACTURING & DESIGN CODE	
Laminated polyester	
Design code	



**ACTIVATED FILTRATION MEDIA (AFM):** Used as filtration media of the potable water generation, drinking water generation and industrial process water generation in different industries.

PRODUCT INFORMATION	
Compositions	Green & amber up-cycled glass. Optimized mechanical filtration performance with activated mesoporous surface
Usage	Replaces sand in all media filtration applications
Unique features	Bio-resistant, self-sterilising, predictable performance, filtration down to 1 micron (Grade 0), 4 microns (Grade 1)
Application	Removal of Iron, Manganese, Arsenate and some priority chemicals, Organic pollutants & oils, Colours and fine fibers, Residual mineral oils and microorganisms
Manufacturer	Dryden Aqua Ltd., UK

## KEY FEATURES OF AFM

- ★ Electro-mechanical filtration media.
- ★ Does not bio-foul and is not subject to wormhole channeling.
- ★ At least 50% better performance than sand, confirmed by nation government organizations.
- ★ Will help reduce THM precursors in drinking water systems.
- ★ High performance removal of crypto oocysts, especially when combined with ZPM.
- ★ Should never need to be changed, will last for the life of the filter.
- ★ Lower running cost and better performance.

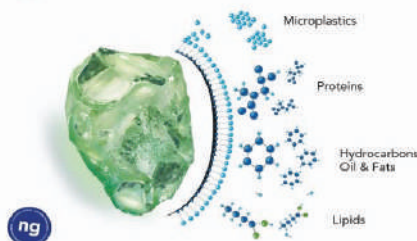
## PRODUCT INFORMATION

- ★ Electro-mechanical filtration media.
- ★ Does not bio-foul and is not subject to wormhole channeling.
- ★ At least 50% better performance than sand, confirmed by nation government organizations.
- ★ Will help reduce THM precursors in drinking water systems.
- ★ High performance removal of crypto oocysts, especially when combined with ZPM.
- ★ Should never need to be changed, will last for the life of the filter.
- ★ Lower running cost and better performance.

## AFM®ng: HYDROPHOBIC SURFACE

Hydrophobic, neutrally charged surface  
Superior mechanical filtration performance, combined with efficient removal of hydrophobic contaminants such as hydrocarbons (oil & fats) organics and microplastics in both hard and soft water.

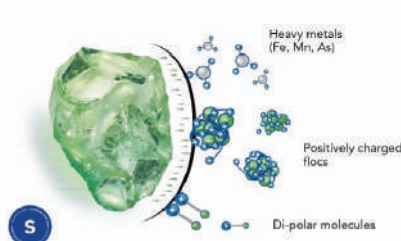
✓ Best filtration performance & organics removal



## AFM®s: HIGH NEGATIVE SURFACE CHARGE

High negative surface charge  
Robust and stable, high filtration performance media with a 20 year track record. Best suited for the removal of positively charged particles such as heavy metals (e.g. Iron, Manganese and Arsenic).

✓ Best for heavy metals removal



## ACTIVATED FILTER MEDIA (AFM)

**ZETA POTENTIAL MIXER (ZPM):** Cavitates the water and increases oxidation potential as well as amplifies the coagulation & flocculation reaction.

PRODUCT INFORMATION	
Materials	Stainless steel 316
Usage	Mechanical coagulation and oxidation reactions and as injection point for coagulants, flocculants, oxidizing agents or gas (CO <sub>2</sub> , O <sub>3</sub> , O <sub>2</sub> )
Unique features	Aggressive mixing and cavitation of the water, can increase redox potential and drop Zeta Potential, stresses oocysts and parasites such as sporidians, rendering them more susceptible to oxidation
Manufacturer	Dryden Aqua, UK



## ZETA POTENTIAL MIXTURE (ZPM)

### MAIN BENEFITS:

- ★ Increase oxidation potential by up to 100 mv, therefore initiating disinfection without chemical
- ★ Improves coagulation/flocculation by at least 30%
- ★ Flanges directly into the pipework.

**ALL POLY FLOC (APF):** APF is a multi-spectrum coagulant and flocculant that can remove pollutants from solution and flocculate fine suspended solids into large particles that are easily removed by AFM® (Activated Filter Media).

PRODUCT INFORMATION	
Compositions	Poly Aluminum Chloride (PAC), 6 different electrolytes, poly electrolytes and NoPhos
Usage	Coagulation and flocculation reactions, phosphate reduction
Manufacturer	Dryden Aqua, UK

## ALL POLY FLOC (APF)



### KEY FEATURES OF APF:

- ★ Focused coagulation and flocculation
- ★ APF® contains NoPhos and will actively prevent bacteria and algae from growing
- ★ Remove cryptosporidium oocysts when combined with ZPM and AFM®
- ★ Chlorine consumption and the production of unwanted chlorine by-products are reduced by up to 80 %.
- ★ Helps prevent by-products such as Trichloramine & THM makes the water safer.



## DRYOX: It is an effective solution against biofilm and pathogens

Name	DryOx
Compositions	Chlorine Dioxide (ClO <sub>2</sub> )
Usage	Disinfection for filter media, pipe systems, channel systems, storage tanks and swimming pools. Elimination of biofilm from tanks and pools.
Unique features	DryOx removes biofilm easily and economically
Manufacturer	Dryden Aqua, UK

## DISEASE UNDER CONTROL WITH DRYOX

Microorganisms	Diseases
Norovirus	Infection usually start 12 to 48 hours after exposure. The first symptom is a sudden onset of nausea followed by projectile vomiting and diarrhoea.
E. Coli	An indicator bacteria that there is faecal or sewage contamination of the water and insufficient chlorine. Check water supply, balance tank overflow and back-wash line. Can cause gastroenteritis and is sometime fatal
Legionella	Legionella disease is very serious and fatal in up to 15% of cases. There are around 75 different Legionella species, most of them just cause a nasty flu. Present in around 30% of all pools.
Pseudomonas	Can cause skin, ear and eye infections when present in large numbers. Probably in 100% of pools.
Staphylococcus	MRSA multi drug resistant Staphylococcus aureus, a common bacteria can cause minor skin infection through to life threatening and fatal disease. 30% of pools
Mycobacteria	Chronic skin disease, tuberculosis infection levels seems to be increasing rapidly
Vibrio	Can cause gastroenteritis and septicaemia, now being found in some pools. Cholera is a Vibrio bacteria species.
Cryptosporidium & Giradia	Very debilitating parasitic disease casing vomiting and diarrhoea. 3500 cases every year attributed to public pools in the UK, fatality rate approx. 1 in 400. Found in approx. 10% of pools.
Algae	Any staining of a surface green, brown or even pink may be due to algae and bacteria, it is an indicator of serious biofouling and represents a Legionella and disease risk.

**ACTIVATED CATALYTIC OXIDATION (ACO):** Protect chlorine from sunlight without reducing its effectiveness. It is ideal for swimming pool.

Compositions	Consists of a mixture of poly silicate and metal oxides
Unique features	ACO protect chlorine from sunlight
Applications	For the Private swimming pools, Public swimming pools, Aquatic features, fountains and displays and Public aquaria & aquaculture
Manufacturer	Dryden Aqua, UK

## KEY BENEFITS

1. Protects chlorine from sunlight and UV light and reduces the chlorine consumption
2. Amplifies oxidation reactions by creating free radicals in presence of UV light. Helps to replace chlorine in private pools
3. Coagulates dissolved organics and helps to remove ammonia & urea.



## ACTIVE CATALYTIC OXIDATION (ACO)

## AIR DIFFUSER: Fine bubble air diffuser used for water aeration, oxidation and mixing action

Name	Dryden Aqua Air Diffusers
Usage	Water aeration, oxidation and mixing action
Unique features	Fine bubble air diffusers, semi-flexible, self-ballast
Applications	<ul style="list-style-type: none"> <li>• Landfill leachate SBR Biological treatment</li> <li>• Agriculture Waste Water treatment</li> <li>• Destratification of lakes, lagoons and reservoirs</li> <li>• Reduction of THM's in lagoons and reservoirs</li> <li>• Aquaculture aeration</li> <li>• Extended diffused aeration of lagoon, lakes and wetlands</li> </ul>
Manufacturer	Dryden Aqua, UK

## MAIN BENEFITS:

- ★ Tubular diffuser, up to 3m in length
- ★ Semi flexible construction allows variations in design and implementation
- ★ Perfect aeration and mixing of wastewater in reservoirs, lakes and lagoons, for example, for algae minimization
- ★ Very efficient aeration of plastic lined excavated lagoons biological processes for example - Sequential Batch Reactors
- ★ Less than 3psi pressure differential
- ★ Oxygen transfer up to 5 kg/kW hr.
- ★ Very easy to clean and maintenance.

## DRYDEN AQUA AIR DIFFUSER



## SERVICE & BACKWASH PUMP

PRODUCT INFORMATION	
Name	Speck Badu Eco Touch
Usage	Service & Backwash pump
Unique features	Self-priming, low energy consumption, low speed motor and in-built VFD with auto speed control during production and backwash
Manufacturer	Speck Pumps, Germany

The Speck Badu Eco Touch Pro self-priming circulation pump is revolutionizing energy consumption, operating costs and water quality proves to be a superb choice for low speed filtration system. Every pump has three motor speed fields that can be set individually. This guarantees the most effective use and maximum energy saving in all performance ranges. Operation is intuitive.

## PRODUCT KEY FEATURES:

- ★ Corrosion-resistant due to the high-quality plastics used which is also 100%recyclable.
- ★ Self-priming which gives a steady circulation and uncomplicated installation.
- ★ Electrically safe, because of the total electrical separation between the water and the pump shaft.
- ★ Temperature stability up to 60°C.
- ★ German design mechanical seal using carbon to ceramic sealing surfaces.
- ★ Stainless Steel shaft.

## SERVICE & BACKWASH PUMP





## DOSING PUMP

The Econ LD is a robust and compact peristaltic pump specifically designed for metering low volumes when reliability and accuracy are a must.

### PRODUCT INFORMATION

PRODUCT INFORMATION	
Name	Stenner Pump
Usage	APF & ACO dosing
Unique features	Self-priming & can run dry
Manufacturer	Stenner, USA

## KEY FEATURES:

- ★ Manually adjustable flow rate
- ★ Enclosed housing
- ★ Pumps off-gassing solutions and can run dry
- ★ Tube replacement without tools
- ★ Output reproducibility
- ★ Tube lubrication not required
- ★ Continuous dosing for better performance.

## DOSING PUMP



## FLOWVIS FLOW METER

The Flow Meter FlowVis® from H2Flow can be installed in every direction. DN 40 and 50 has included a NRV (not return valve). The average accuracy is 98%. The product is NSF 50 certified and a product of high quality. Scale in m3/h. Made in the USA.



FLOWVIS FLOW METER



H2FLOW MONITOR

## DA-GEN

DA-GEN is an innovative disinfection solution for swimming pool. It is a Hydrolyser that uses advanced oxidation technology to generate free radicals ( $\text{OH}\cdot$  and  $\text{O}\cdot$ ). Free radicals are highly efficient oxidants with the great advantage they do not form any harmful disinfection by-products. **In combination with our Dryden DAISY®, you get pool water in drinking water quality - crystal clear and with no chlorine smell!**



DA-GEN

## MEDIA TRAP

In case of any reason when media (sand, AFM etc) comes out from the media vessels media trap keep the media to protect loss of media. It is installed in the filtered water product line.

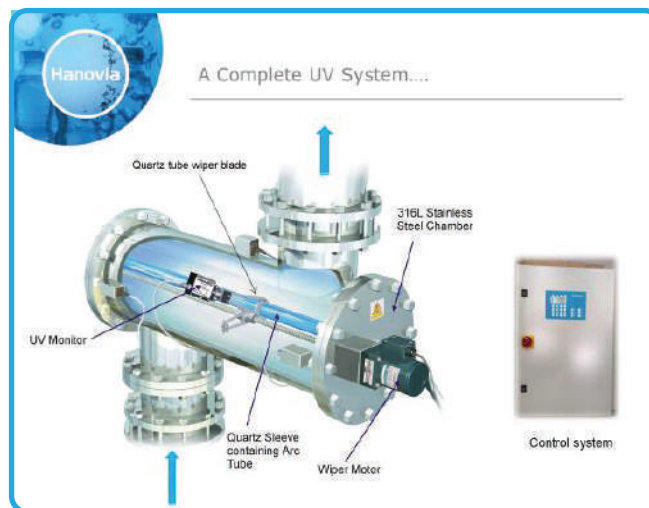
SPECIFICATIONS	
Body	Laminated polyester reinforced with fiberglass
Body union	Laminated polyester reinforced with fiberglass
Sight glass	Methacrylate
Arms slots	Customer selection
Inlet/Outlet	PVC flanges
Screw	Stainless Steel
Design pressure	6 kg/cm <sup>2</sup>
Manufacturer	Calplas, Spain



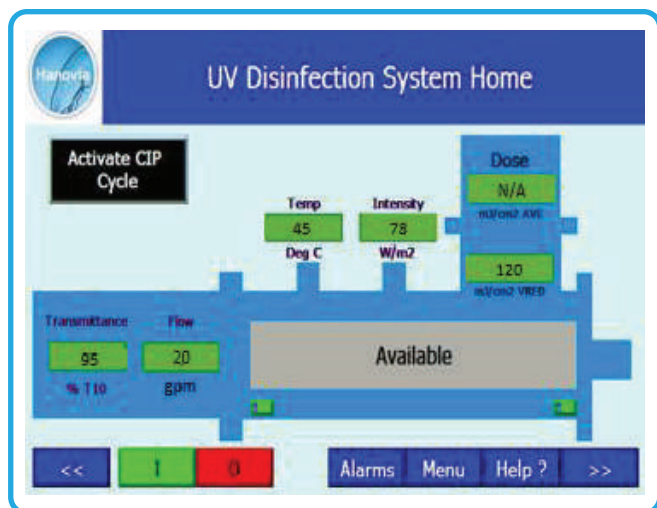
**MEDIA TRAP**



**MICROPROCESSOR BASED UV CONTROL PANEL**



**MEDIUM PRESSURE LAMP UV SYSTEM**



**PLC BASED UV CONTROL PANEL**



**LOW PRESSURE LAMP UV CHAMBER**

## UV APPLICATION FOR DIFFERENT MARKET

### Food & Beverage

#### PureLine, UVPro Air, UVPro Surface

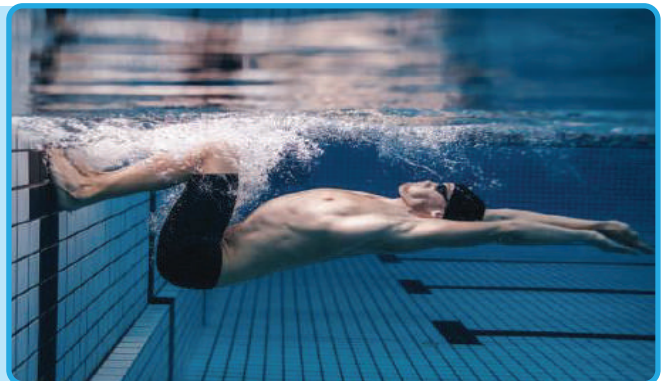
UVPro Water Protect your products, processes and surfaces from harmful contamination such as bacteria, viruses, moulds, Chlorine Dioxide and Ozone.



### Pools & Leisure

#### UV Swim and SwimLine

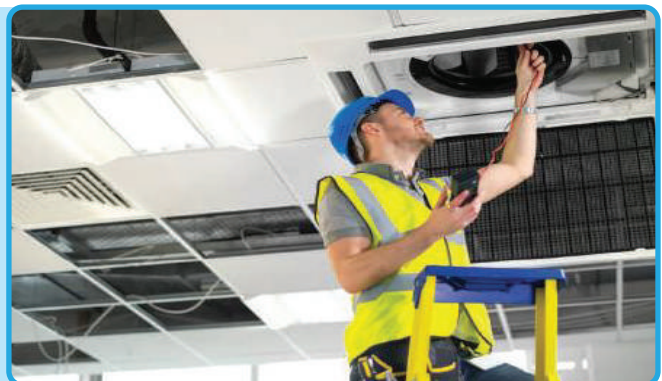
Used as both a secondary disinfection system and for the removal of Chloramines a UV system is the ideal partner for a chlorinated pool.



### Building Services

#### ProLine, Pureline, UVPro Air, UVPro Surface

Legionella bacteria and biofilms are found in various purpose-built systems hence, each building needs clean air, surfaces and water supplies. Our full-facility services cover each of these areas and ensure a bacteria and virus-free environment.



### Pharmaceutical

#### PharmaLine, UVPro Air, UVPro Surface

#### DCLine, TOCLine

Filtered water used in pharmaceutical production must meet rigorous quality standard. Pharmaline is to safeguard processes and products from bacteria, viruses, Chlorine and TOC, all without use of Chemicals.





## Healthcare

### UVPro Air, UVPro Surface

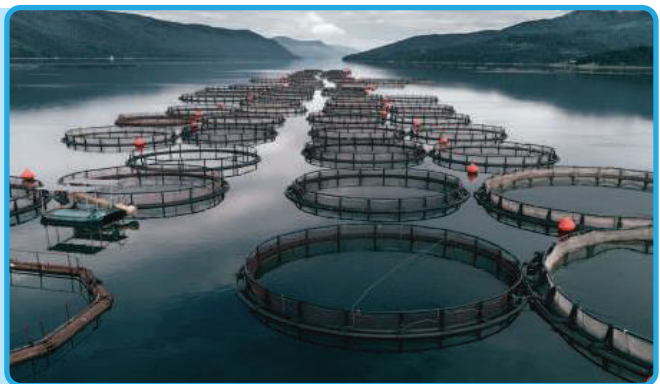
UV light is an excellent disinfectant when applied appropriately. It provides superior disinfection across hospitals, biotechnology facilities, laboratories and research and development environments.



## Aquaculture

### RasLine

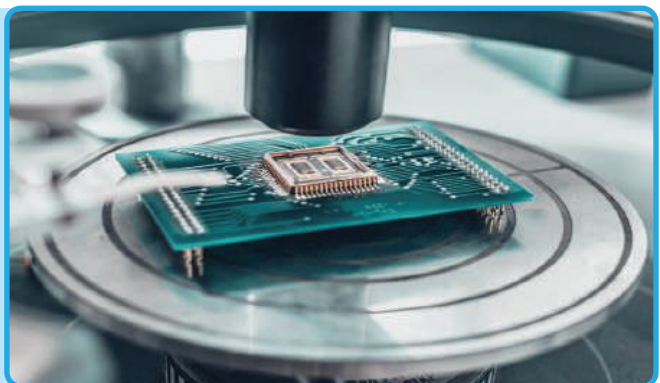
Characterized by rapid growth, increasing stock densities and tighter environmental regulation, the need for a chemical free disinfection process to control fish diseases and manage environmental impact has never been higher.



## Semiconductor

### TOCLine

UV treatment is an effective process steps for the breakdown and reduction of TOC, dechlorination, and killing bacteria in the water to create ultrapure water used in microelectronics and semiconductor industries.



## Power

### TOCLine

The demineralized water system is an essential component in thermal power facilities, and the use of ultrafiltration membranes, RO membranes, and EDI devices has made residual chlorine management challenging. Our UV solutions protect process preventing harmful contamination from microbes, chlorine, and TOC.



## Drinking Water

### ProLine and PureLine

Our UV solutions has been protecting people from harmful contamination from bacteria and viruses for decades. Purifying contaminants in our water can prevent the cause of gastrointestinal disease, reproductive problems, and neurological illnesses.



## Marine

### MarineLine

Protecting the environment of our seas, our optimised UV solution can deliver reliable water security for the ballast water, and black water treatment systems, as an effective microbial control and environment-friendly solution.



## Reuse Water

### ProLine and OpenLine

UV is growing in popularity in this application as it provides a proven alternative to Chlorination, avoiding the generation of potentially harmful by-products. This is particularly useful when the waste water is discharged into sensitive environments of critical reuse applications.



## Waste Water

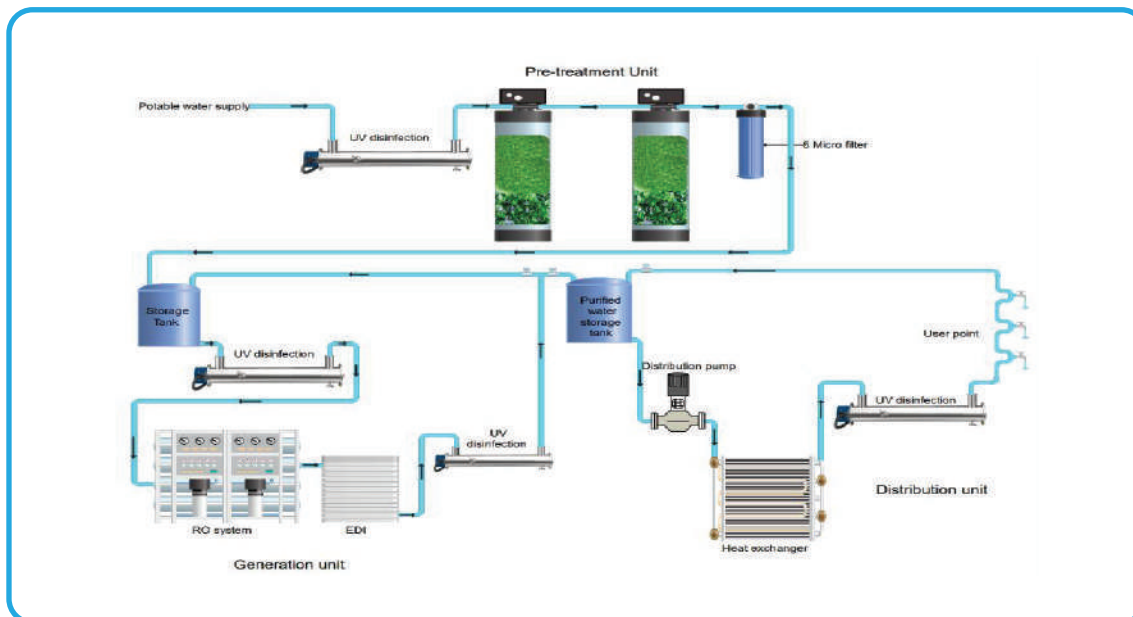
### ProLine and OpenLine

With increasing urbanization and water stress, the need for tertiary treatment and disinfection of waste water is growing, UV technology is the preferred treatment process, particularly for discharge to sensitive environments.

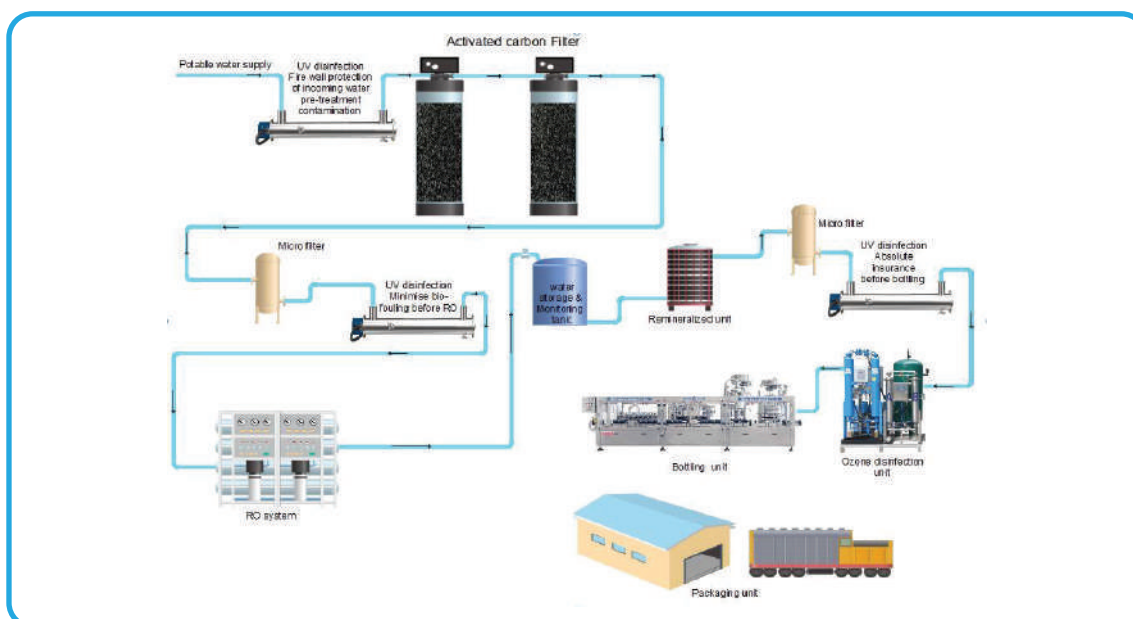




**WATER UV DISINFECTION:** UV technology as an effective chemical free way of disinfecting water from microorganism in the different industries and home water system.

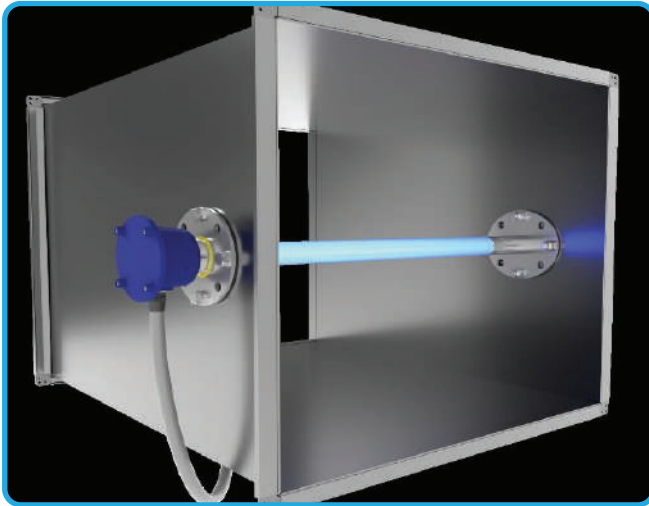


## POSSIBLE LOCATION OF UV DISINFECTION SYSTEM IN PHARMACEUTICAL INDUSTRIES



## POSSIBLE LOCATION OF UV DISINFECTION SYSTEM IN FOOD & BEVERAGE INDUSTRIES

**AIR AND SURFACE DISINFECTION:** Reduce bacterial count in HVAC, Evaporators, Cooling coils, Air ducts, Air coolers, Recirculation devices, Upper air, Storage rooms and warehouses, Drying rooms, Cold stores, Cooling towers, Spiral cooling & freezing etc.



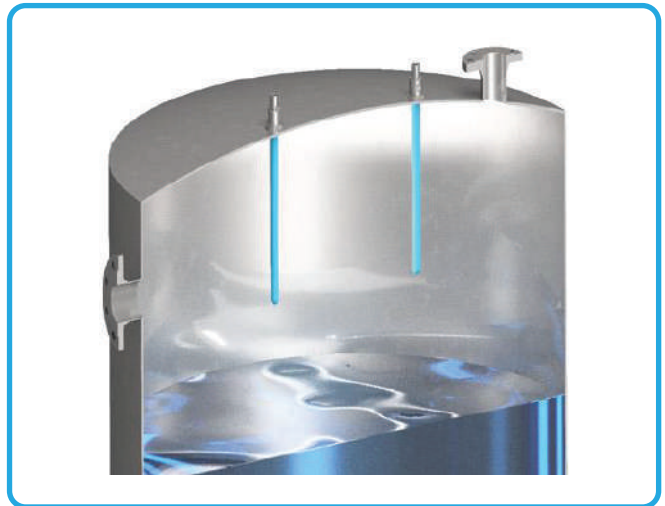
**UV IN HVAC DUCT**



**UV IN CONVEYOR BELT TREATMENT UNIT**



**UV IN DISINFECTION BOX**

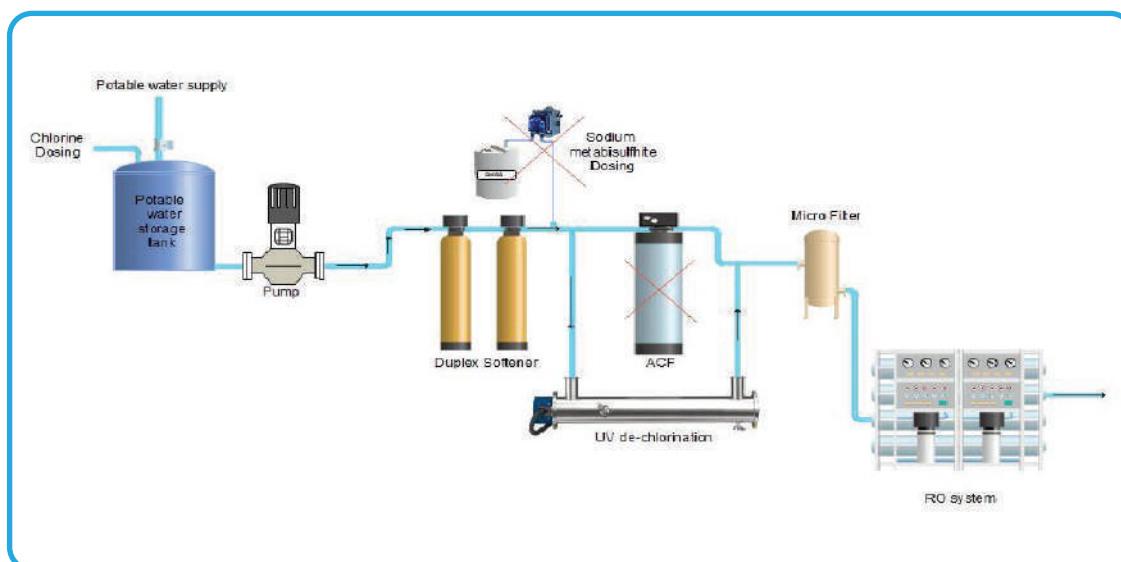


**UV IN WATER STORAGE TANK**

## DE-CHLORINATION UV SYSTEM

Hanovia UV dechlorination systems reduce free and total chlorine in process lines to levels below the requirement for RO and DI / EDI. It provides distinct advantages over traditionally technologies such as Activated Carbon bed filtration (AC) and Sodium Meta-Bisulphite dosing (SMBS) which are proven chlorine removal technologies however are prone to potential microbial contamination and require significantly more operator involvement and plant-room space leading to higher lifetime costs.

- ★ AC provides a breeding ground for bacteria and requires regular heat or chemical sanitisation to maintain microbial control.
- ★ AC needs media replacement, incurring significant cost.
- ★ SMBS requires regular chemical handling and introduces a higher loading onto the downstream RO membranes.
- ★ Both AC and SBS have a significant footprint occupying valuable factory space, which may be particularly important for skid mounted equipment.



## UV DE-CHLORINATION SYSTEM IN DIFFERENT INDUSTRIES

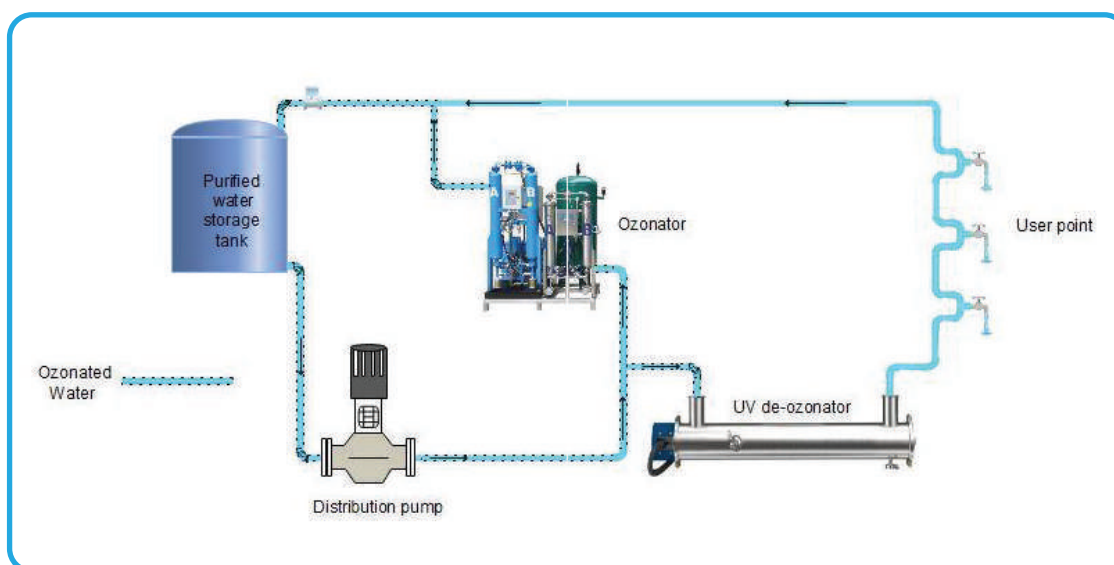
Hanovia's UV technology with its unique combination of chlorine destruction and disinfection provides a very attractive alternative to AC and SMBS and provides:

- ★ Chemical-free clean technology
- ★ Small footprint
- ★ RO and EDI protection
- ★ Minimal pre-treatment bio-fouling
- ★ Elimination of chlorine –resistant bacteria such as cryptosporidium and Giardia
- ★ Reduced maintenance frequency and operational costs
- ★ Reduced water usage
- ★ On-line performance monitoring.

## DE-OZONATION UV SYSTEM

De-ozonation UV systems are designed for hygiene based on cGMP principles to provide ozone destruction for pharmaceutical purified water distribution loops.

In the food and beverage industry it aims at providing ozone removal and treatment for product and process waters. When installed in a distribution loop it will remove residual ozone dosed into the water to maintain microbiological integrity.



## UV DE-OZONATION SYSTEM IN PURIFIED WATER DISTRIBUTION LOOP

## TOC REDUCTION UV SYSTEM

Total Organic carbon (TOC) is found in all water supplies as naturally occurring organic matter. UV treatment is very effective process step in the breakdown and reduction of TOC in water to make ultrapure water used in micro-electronics applications. By dissociation of molecular bonds and the generation of aggressive hydroxyl radicals from water TOC UV break down organic compound.

## SPARE PARTS & CONSUMABLE ITEMS OF UV SYSTEM

We maintain our regular stock of fast moving spares & consumables such as UV Lamp, Sleeve, Seal Kit, Ballast, UV Sensor, Wiper Service Kit, Leads, etc. of the UV system to support customer as a regular and emergency basis. We have a team of skill trained engineers to support and perform after sales service.

## USEFUL DEVICES FOR UV SOLUTION



### In field Reference Sensor kit

The in-field reference sensor kit is designed to allow plant operators to check that the UV duty sensors of Nuvonic PQ UV systems are operating within acceptable limits.

## IN-FIELD SENSOR VERIFICATION METER



### UV Transmittance Analyzer (TX Meter)

The TX Online is manufactured using microprocessor technology making it the most reliable and cost-efficient instrument for monitoring the % transmittance of drinking water UV disinfection systems in food & beverage industries.

## TX ONLINE ANALYZER



### Lamp Tester

Lamp Tester LT1 is a device used for the testing the integrity of UV lamps.

## HAND-HELD LAMP TESTER

## BIOLOGICAL TREATMENT PROCESS



Industrial, hospital and municipal Effluent generated from different processes, are treated by Biological (Anaerobic, Anoxic & Aerobic) reaction to remove or neutralize the toxic materials present in it, before discharging to surface.

### OBJECTIVES OF THE BIOLOGICAL TREATMENT PROCESS

**Biological (Anaerobic, Anoxic & Aerobic) Treatment process** for waste water treatment is able to achieve multiply and following results:

1. Minimum plant operation cost by means of energy saving technologies and minimize the demand of manpower for plant operations.
2. Long time constant plant efficiency through installation of high quality and non-corrosive equipment and material.
3. Plant flexibility and its capacity of being suitable to substantial variations of both hydraulic, Inorganic and organic load at the inlet. Technical reliability of the plant supported by Biovista.
4. Assistance in order to achieve a perfect plant running to customer's full satisfaction according to DOE and other outside requirements.
5. Management easiness and simplicity.
6. Working stability of the plant and its capacity to adapt to the variations of quality and quantities of pollution.
7. Low quantity of sludge.

### ADVANTAGES OF BIOLOGICAL TREATMENT PROCESS

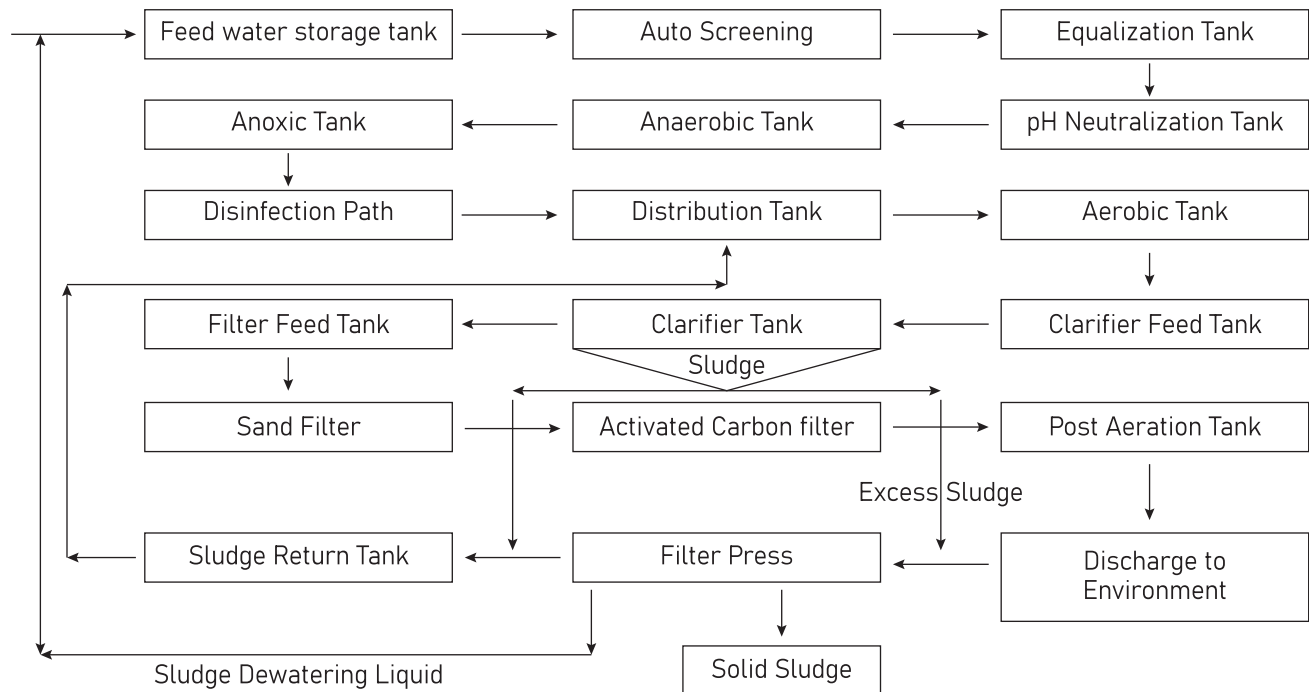
1. Very low running cost
2. Minimum quantity of sludge
3. High quality of treated water, maintain water quality using for washing.
4. Easy operation of the plant
5. Very negligible maintenance cost
6. No toxic sludge

### APPLICATIONS OF BIOLOGICAL TREATMENT PLANT

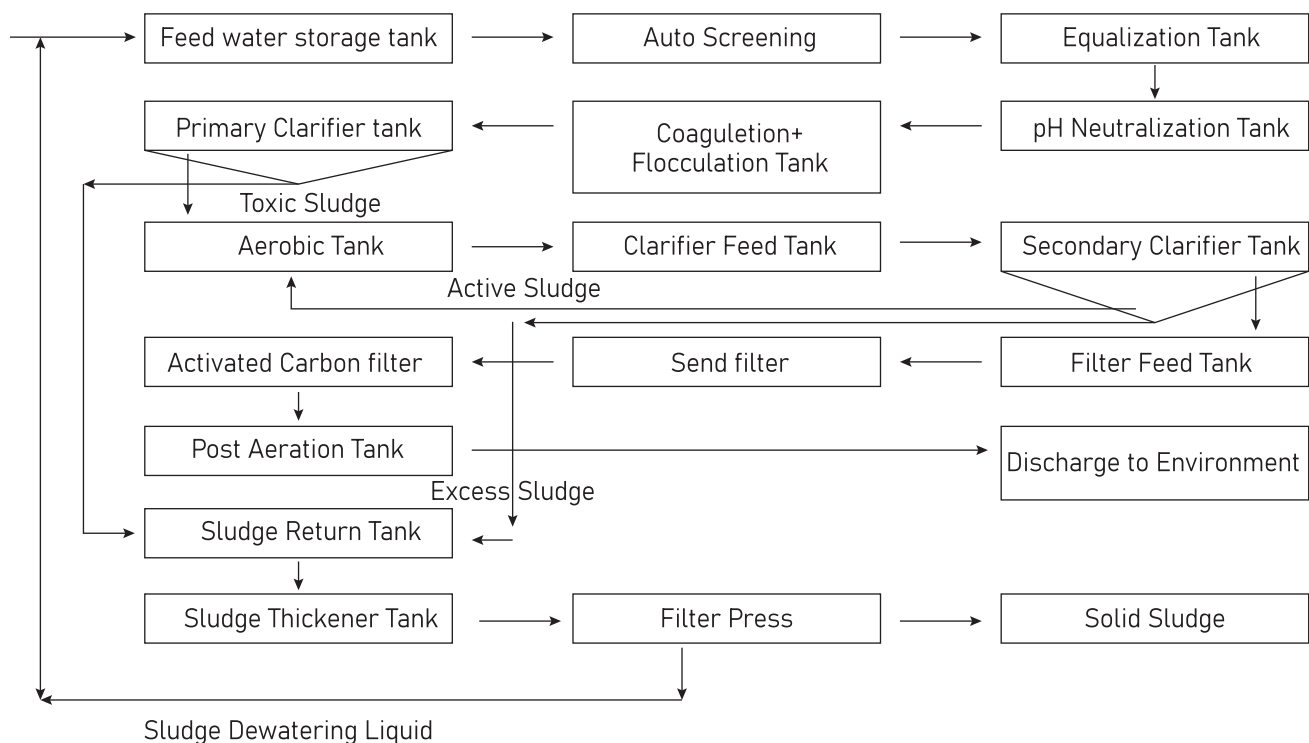
1. Municipal Wastewater Treatment: Used extensively in urban sewage systems to treat domestic wastewater.
2. Industrial Effluent Treatment: Ideal for industries such as food and beverage, textiles, paper and pulp, and pharmaceuticals.
3. Decentralized Systems: Useful in rural or remote areas where centralized treatment systems are not viable.



## BIOLOGICAL PROCESS DIAGRAM (ANAEROBIC+AEROBIC) OF WWTP



## BIO-CHEMICAL PROCESS DIAGRAM (AEROBIC) OF WWTP

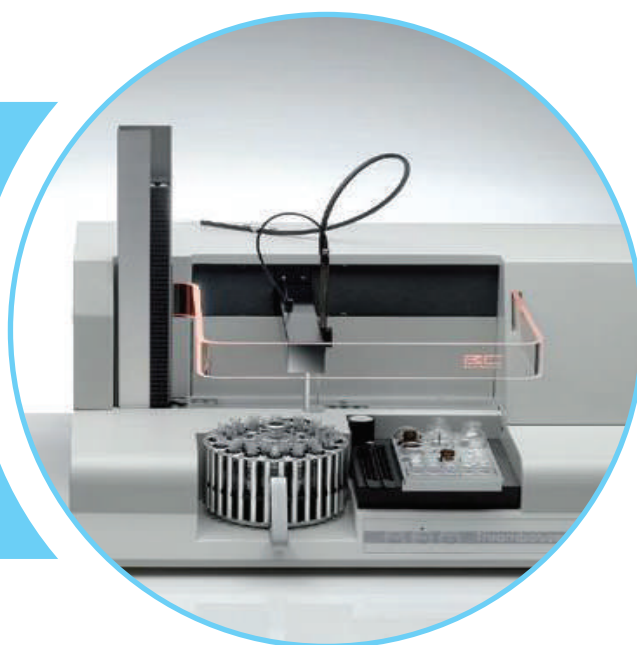






**THROMBOLYZER XRM  
ANALYZER**

**THROMBOLYZER XR  
ANALYZER**



**Thrombolyzer Analyzer:** It is an automated analyzer for automated analysis of chromogenic & clotting assay of biopharmaceutical products like Enoxaparin sodium, Heparin Sodium, Streptokinase raw material and their finished products. The combination of reliability and advantages of the most modern analysis methods makes these instruments the ideal choice for your lab.

**Comprehensive Assay Menu: Followings potency analysis to be done by the Thrombolyzer Analyzer system.**

NAME OF PARAMETERS
Potency of Enoxaparin Sodium in IU of anti-factor IIa activity (Eu. Phr. 7.0 monograph 2.2.25)
Potency of Enoxaparin Sodium in IU of anti-factor Xa activity (Eu. Phr. 7.0 monograph 2.2.25)
Potency of Fondaparinux Sodium (Arixtra) in IU of anti-factor Xa activity, INN
Measurement of potency of streptokinase (Ph. Eur. monograph 0356)
Measurement of potency of Urokinase (Ph. Eur. monograph 0695)
Assay of activity of Alteplase (tissue plasminogen activator), INN
Assay of activity of Tenecteplase (tissue plasminogen activator), INN
Assay of activity of Protamine Sulfate, INN
Assay of human coagulation factor II (Ph. Eur. method 2.7.18)
Assay of human coagulation factor VIII (Ph. Eur. method 2.7.10)
Assay of human coagulation factor VIII (Ph. Eur. method 2.7.4)
Assay of human coagulation factor IX (Ph. Eur. method 2.7.11)
Assay of human coagulation factor X (Ph. Eur. method 2.7.19)
Assay of human coagulation factor XI (Ph. Eur. method 2.7.22)
Activated coagulation factors (Ph. Eur. method 2.6.22)
Assay of human von Willebrand factor (Ph. Eur. method 2.6.21)
Test for prekallikrein activator (Ph. Eur. method 2.6.15)
Assay of human plasmin inhibitor (Ph. Eur. method 2.7.25)
Assay of heparin in coagulation factors (Ph. Eur. method 2.7.12)
Assay of heparin (Ph. Eur. method 2.7.5)
Assay of human antithrombin III (Ph. Eur. method 2.7.17)
Assay of human protein C (Ph. Eur. method 2.7.30)
Assay of human protein S (Ph. Eur. method 2.7.31)

## WHAT WE OFFER (DELIVERABLE ITEMS)

SN.	DESCRIPTION OF ITEMS
<b>A</b>	<b>Analyzer with its accessories and consumables</b>
1	Thrombolyzer analyzer incl. standard accessories and consumables
2	LCD Monitor and HP Printer
3	IQ, OQ documentations for Thrombolyzer Analyzer
4	SOP, Service & Operational manual for Thrombolyzer Analyzer
<b>B</b>	<b>USP/BP compliance kits &amp; buffer for Enoxaparin sodium</b>
1	Anti-factor IIa & Xa activity kit for Enoxaparin sodium & Heparin Sodium
2	Buffers solution for the analysis of tests
<b>C</b>	<b>USP/BP compliance kits &amp; buffer for Heparin Sodium</b>
1	Anti-factor IIa & Xa activity kit for Heparin Sodium
2	Buffers solution for the analysis of tests
<b>D</b>	<b>USP/BP compliance reagents for Streptokinase</b>
1	Set of Reagents for Streptokinase
2	Standard protocol of preparation of buffers
<b>E</b>	<b>USP/BP compliance reagents for Tenectapase</b>
1	Set of Reagents for Tenectopase
2	Standard protocol of preparation of buffers
<b>F</b>	<b>Documents, training &amp; PLA software for all assays</b>
1	Compendial test methods/protocol for performing (PQ) the potency of the assay
2	Calculation tool for statistical analysis of results of biological assay by parallel-line method
3	Full training of analysts on assay set-up, execution and statistical analysis of results



## CLEAN ROOM IN PHARMACEUTICALS



鹏锦净化

**TURNKEY  
PHARMA  
SOLUTIONS**



Shanghai Puriest Pharmaceutical Engineering Co., Ltd (Short as "SPT"), located in Shanghai city, China, is dedicated to providing Turn-key Cleanroom construction service. SPT provides turn-key service as: process layout conceptual design, detailed engineering designs for each system, manufacturing, installation, commissioning & validation. SPT provides products: GMP Cleanroom Enclosure System, Clean Equipment & Furniture, Hygienic HVAC System, Electrical System, BMS&EMS, Utilities System with Distribution (CA, PW, WFI, Steam, Chilled Water, etc.).





CHILLER



AIR DUCT LINE



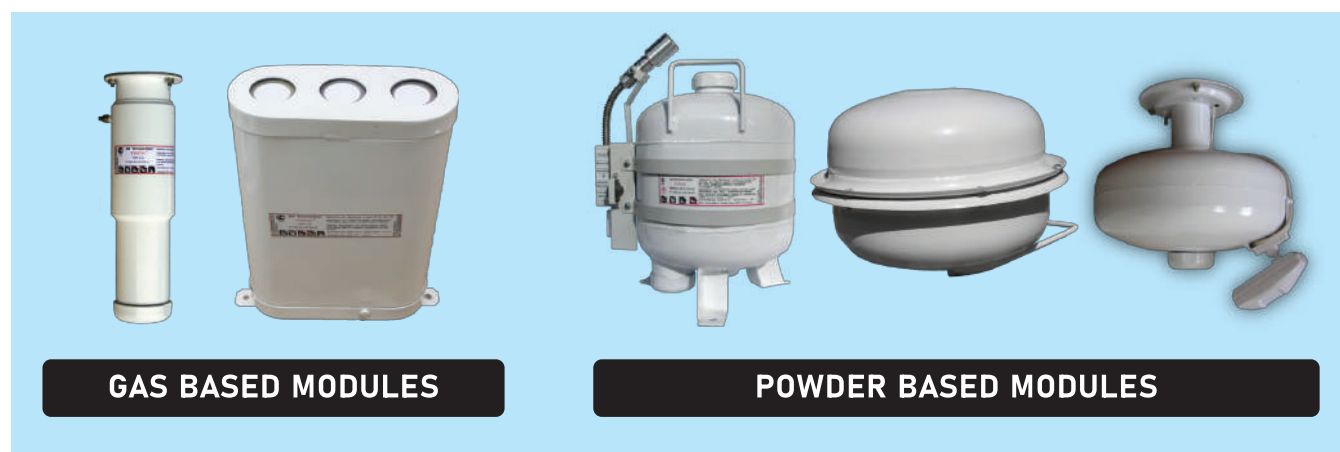
AIR DIFFUSER IN CLEAN ROOM



AIR HANDLING UNIT (AHU)

## FIRE FIGHTING TOOLS

Istochnik group, Russia has invented and introduced new technologies for advanced fire protection; firefighting and fire knock down tools under the brand name of "TUNGUS" and "GGFE TUNGUS" various part of the world. It is a very effective tools for the automated suppression of any type of fire irrespective of fire intensity.



## KEY FEATURES OF THE TECHNOLOGY:

- ★ No piping work is needed
- ★ Waterless powder & gas-based firefighting and no electrical connection is required
- ★ Fully automated portable and fixed type extinguisher
- ★ The modules work on all fire of all sources without affecting oxygen levels
- ★ It attacks the flames very quickly
- ★ It is non-toxic and non-corrosive, non-conductive
- ★ Ten years shelf life without any routine maintenance
- ★ Russian Technology.

## TUNGUS, A POWDER FIRE-EXTINGUISHING MODULE PROVIDES FIRE PROTECTION OF THE FOLLOWING OBJECTS:

Electro technical equipment in objects of power industry: power stations, hydropower stations, underground power plants; in industrial and transport enterprises: electrical panels, cable channels, transforming substations, switching centers, measuring devices, diesel power stations.

## GGFE TUNGUS, GENERATORS OF GAS FIRE EXTINGUISHING ARE APPLIED FOR:

Fire protection of electrical cabinets, distributive switchboards, transformer substations, server stations, enclosed spaces under false floor or behind hung ceilings, and other premises with high-priced equipment or with valuable material assets.

## AEROSOL BASED FIREFIGHTING TOOLS:

The systems developed by DSPA Netherlands can be applied for A, B, C and F type fires and are suitable for early stage fires as well as for advanced fires. The systems can be linked, so that large spaces can be protected preventively.



## KEY FEATURES OF THE TECHNOLOGY:

- ★ No piping work is needed
- ★ Waterless Aerosol based firefighting and no electrical connection is required
- ★ Fully automated portable and fixed type extinguisher
- ★ The modules work on all fire of all sources without affecting oxygen levels
- ★ It attacks the flames very quickly
- ★ It is non-toxic and non-corrosive, non-conductive
- ★ Fifteen years shelf life without any routine maintenance
- ★ UL and Alliance certified.

## CERTIFICATIONS:

All DSPA-systems are manufactured and distributed in accordance with ISO 9001:2000 standards and in this way they meet the highest quality standards. In addition, all DSPA.nl products have been tested by the following organizations: UL/ULC, RINA, ISO, BRE (part of LPCB), PrCEN/TR 15276-1, PrCEN/TR 15276-2, NFPA 2010 and TNO.

**Fire Retardant Paint:** Dutch technology-based paints attaining up to 120 minutes protection against matured fire for pre-fabricated structures.



## BIOVISTA NF SYSTEM



### PRODUCT SPECIFICATIONS OF BIOVISTA NF SYSTEM

Model	Max flow rate (L/min)
LU3A-3C	2.0
LH3-8Ad	16.7
LH3-8Cd	25.0
LH3-8Dd	33.3
LH3-8Ed	41.7
LH3-8Gd	58.3
LH3-8Hd	66.7
LH3-1060-V	106

### TECHNICAL SPECIFICATION

Filtration precision	10 nano meter
Micro-organism removal rate	99.99%
Particles removal	>10 nano meter size
Required quality of raw water	Municipal water supply/deep water
Work pressure	0.8-3.5 bar
Required temperature of feeding water	5-45 °C
Life of filter cartridge	22 years (need timely washing out)
Type of module	Portable, bench top, table top and wall mounted

**100% CHEMICAL FREE WATER PRODUCTION AND AUTO CLEANING**

A range of coagulation reagents and accompanying multiparametric calibrators and controls optimized for the Behnk Coagulation analyzers and needs to be optimized for others coagulation analyzers.

**TABLE 1: COAGULATION REAGENTS/KITS**

NAME OF THE ASSAY	NAME OF THE PRODUCTS	FORMAT
Prothrombin Time (PT)	BE PT LI Thromboplastin low ISI	Lyophilized
Activated Partial Thromboplastin Time (APTT)	BE APTT K APTT Kaolin + CaCl <sub>2</sub>	Lyophilized
Fibrinogen	BE FIB Thrombin Kaolin + Buffer	Lyophilized
Thrombin Time (TT)	BE TT Thrombin Time	Lyophilized
D-Dimer	BE D-Dimer Turbidimetric Immunoassay	Liquid
Factor II activity	BE Factor II Deficient plasma	Lyophilized
Factor V activity	BE Factor V Deficient plasma	Lyophilized
Factor VII activity	BE Factor VII Deficient plasma	Lyophilized
Factor X activity	BE Factor X Deficient plasma	Lyophilized
Factor VIII activity	BE Factor VIII Deficient plasma	Lyophilized
Factor IX activity	BE Factor IX Deficient plasma	Lyophilized
Factor XI activity	BE Factor XI Deficient plasma	Lyophilized
Factor XII activity	BE Factor XII Deficient plasma	Lyophilized
Fib Buffers	BE FIB Buffer Fibrinogen Buffer	Liquid
Owren Buffers	BE Owren Buffer Owren Koller Buffer	Liquid
D-Dimer	DIMERTEST® Latex	Liquid
FDP Latex	FDP Latex	Liquid
Lupus Anticoagulant	DVV test	Lyophilized
Von Willebrand activity	VWF activity ELISA	Lyophilized
Antithrombin III (ATIII)	Actichrome Antithrombin III (ATIII)	Lyophilized
Protein C	Anticlot Protein C	Lyophilized
Protein S	Anticlot Protein S	Lyophilized
Heparin anti IIa	Heparin anti IIa (2 stage)	Lyophilized
Heparin anti Xa	Heparin anti Xa (2 stage)	Lyophilized
Buffer at PH 8.4	Tris EDTA-NaCL-PEG, PH 8.4	Liquid
Buffer at PH 7.4	Tris-NaCL-BSA, PH 7.4	Liquid
Plasminogen	Glu-plasminogen	Lyophilized
Substrate	Chromogenic Substrate	Lyophilized

## OVERSEAS BUSINESS PARTNERS



	<p>Behnk Elektronik GmbH &amp; KG, Germany: Manufacturer of Pharmaceuticals and diagnostics QC equipments.</p>
	<p>Biomedica Diagnostics, Canada: Manufacturer of Diagnostics &amp; Pharmaceuticals QC reagents, kits &amp; chemicals.</p>
	<p>Nuvonic (Former Hanovia), UK: Manufacturer of water, air and surface disinfection UV system.</p>
	<p>Grundfos, Italy: Manufacturer of water Pre-treatment plant &amp; RO for dialysis system in Hospitals &amp; Clinics.</p>
	<p>Shanghai Puritest Pharmaceutical Engineering Co., Ltd (SPT), China: Provide turn-key GMP project solution of Clean room and HVAC technology.</p>
	<p>Dryden Aqua, Scotland: Manufacturer of Filtration system of portable water and waste water treatment plant.</p>
	<p>Sychem S.A. Greece: Manufacturer of water Pre-treatment plant (WTP), pure water generation (PW), effluent water treatment plant (ETP) &amp; RO plant.</p>
	<p>Calplas SA, Spain: Manufacture of special vessels for the use of water treatment plants.</p>
	<p>ISTOCHNIK PLUS (TUNGUS), RUSSIA: Manufacturer of Powder &amp; Gas based Fire Extinguishing systems.</p>
	<p>AFG Group, The Netherlands: Manufacturer of Fire retardant/resistant paint and Fire Extinguishing systems.</p>
	<p>Chongyang, China: Manufacturer of Pure water generation &amp; loop distribution, Water for injection generation &amp; loop generation, Pure stream generation &amp; distribution system etc.</p>
	<p>LITREE, China: Company provide household UF water purifier with our own membrane since 1998, and become the leading brand in water purifying industry</p>

