**WATER PURIFICATION**

The Water Purification range has been designed and developed to allow study of the theory and practical application of different Water Purification and Waste Water Treatment methods. These include Turbidity, Reverse Osmosis for desalination and industrial waste water treatment, flocculation, coagulation, aerobic and anaerobic digestion for sewage and waste water treatment, and the use of activated sludge.

Students can pursue careers in many different industries and the Water Purification range will help students to gain knowledge and experience of typical Water Purification Technologies and their applications.

The Water Purification range is suitable for use in universities, colleges, polytechnics, industrial and vocational training centres.

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WWW.HFT-GLOBAL.COM/EDUCATION
### Subjects
- Activated Sludge
- Aerobic Purification
- Anaerobic Purification
- Biomass
- Chemical Filtration
- Chlorination
- Coagulation and Coagulants
- Colloids
- Dead-End Filtration
- Desalination
- Filter Press
- Flocculation and Flocculants
- Mechanical Filtration
- Microfilter
- PID Control
- Plant Supervision
- Reverse Osmosis
- Settling
- Sewage
- Sewage Treatment
- Sterilization using UV Light
- Tangential Filtration
- Turbidity
- Water and Wastewater

### Career Paths
- Facilities Engineer
- Field Service Engineer
- Hydrologic Technician
- Plant Manager
- Plant Operative
- Plant Technician
- Process Engineer
- Process Operative
- Research Engineer
- Research Technician
- Water Chemist
- Water or Environmental Scientist
- Water Resources Technician
- Water Treatment Engineer
- Wetland Hydrologist

### Industry Applications
- Agriculture
- Bioengineering
- Biopharmaceuticals
- Bioprocess
- Chemicals
- Dyes and Pigments
- Food and Drink
- Fuel and Energy
- Iron and Steel
- Mining and Minerals
- Nuclear
- Oil & Gas
- Paints
- Paper
- Pesticides
- Petrochemical
- Pharmaceuticals
- Polymers and Plastics
- Quarries
- Soaps and Detergents
- Water and Wastewater
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### WATER PURIFICATION

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- **WPN10** Manual Water Filtration Plant
- **WPN20** Automated Water Filtration Plant

#### REVERSE OSMOSIS & DESALINATION
- **WPN30** Manual Reverse Osmosis Pilot Plant
- **WPN40** Automated Reverse Osmosis Pilot Plant

#### COAGULATION, FLOCCULATION, SETTLING
- **WPN50** Manual Coagulation, Flocculation and Settling Pilot Plant
- **WPN60** Automated Coagulation, Flocculation and Settling Pilot Plant

#### FILTRATION
- **WPN80** Automated Filtration Pilot Plant

#### MODULAR AEROBIC AND ANAEROBIC WATER TREATMENT
- **WPN90** Water Purification Pilot Plant Base Unit
- **WPN90A** Aerobic Water Purification System
- **WPN90B** Anaerobic Water Purification System

#### AEROBIC WATER TREATMENT / SEWAGE
- **WPN100** Manual Aerobic Water Purification System
- **WPN110** Automated Aerobic Water Purification System
- **WPN120** Aerobic Water Purification System

#### ANAEROBIC WATER TREATMENT / SEWAGE
- **WPN140** Manual Anaerobic Water Purification System
- **WPN150** Automated Anaerobic Water Purification System
**WPN10**

**MANUAL WATER FILTRATION PLANT**

A Water Filtration Plant for in-depth study of theory and processes for mechanical and chemical filtration, including turbidity in water. The unit includes a sand and activated carbon filter.

**+ RECOMMENDED ACCESSORIES**

- WPN900 Turbidity Meter

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**WPN20**

**AUTOMATED WATER FILTRATION PLANT**

A Water Filtration Plant for in-depth study of theory and processes for mechanical and chemical filtration, including turbidity.

The unit includes a sand and activated carbon filter, an in-line turbidimeter to measure the turbidity of the water flowing into and out of the filters, a PID controller and supervision software.

Filtered water samples can be taken from the collecting tank for further investigation and analysis.

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**WPN30**

**MANUAL REVERSE OSMOSIS PILOT PLANT**

A Reverse Osmosis Plant for in-depth study of theory and processes for desalination and to filter wastewater using osmotic pressure through semi-permeable membranes.

The effect of operating pressure, feed flow rate, UV light treatment (sterilization of the permeate), concentrate and permeate ratio can be studied.

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**WPN40**

**AUTOMATED REVERSE OSMOSIS PILOT PLANT**

A Reverse Osmosis Plant for in-depth study of theory and processes for desalination and to filter wastewater using osmotic pressure through membranes. Includes a PID controller and software.

The effect of operating pressure, feed flow rate, UV light treatment (sterilization of the permeate), concentrate and permeate ratio can be studied.
WPN50
MANUAL COAGULATION, FLOCCULATION AND SETTLING PILOT PLANT

A Coagulation, Flocculation and Settling Plant for in-depth study of theory and processes to speed up the settling process for removal of colloids from wastewater, by using coagulation and flocculation.

Investigations and experiments include co-current and counter-current settling and characteristics of coagulants and flocculants.

WPN60
AUTOMATED COAGULATION, FLOCCULATION AND SETTLING PILOT PLANT

A Coagulation, Flocculation and Settling Plant for in-depth study of theory and processes to speed up the settling process for removal of colloids from wastewater, by using coagulation and flocculation. The unit includes PID controller and supervision software.

Investigations and experiments include co-current and counter-current settling and characteristics of coagulants and flocculants.

EXPERIENCED STAFF AND CONSULTANTS

The HFT Education Water Purification range is a flexible series of products that can be selected to suit your curriculum requirements. Our experienced staff and consultants will recommend modules that will suit your specific needs.

For more information please contact us on: SALES@HFT-GLOBAL.COM

PRODUCTS FOR CHEMICAL ENGINEERING

HFT Education has a comprehensive range of products for studying different Chemical Engineering Processes. The range includes products for studying Distillation, Extraction, Filtration, Reaction, Evaporation, Cooling Towers, Drying and Absorption.

Please visit our website at WWW.HFT-GLOBAL.COM/EDUCATION or contact us to request a catalogue.
WPN80
AUTOMATED FILTRATION PILOT PLANT

A Filter Press and Microfilter Plant for in-depth study of theory and operations of different types of filtration processes including dead-end filtration and tangential filtration.

The unit includes a PID controller and control supervision software.

WPN90
WATER PURIFICATION PILOT PLANT BASE UNIT

The Water Purification Pilot Plant Base Unit provides the electrical and hydraulic services for the WPN90A Aerobic Purification System and the WPN90B Anaerobic Purification System.

The unit includes two variable speed peristaltic pumps and a compressor with flowmeter for coupling to the purification systems.

WPN90A
AEROBIC WATER PURIFICATION SYSTEM

An aerobic water purification system for studying the theory and process of using activated sludge for waste water treatment. The unit includes an oxidation tank and settler.

Students use the system for study, simulation, sizing and optimisation of the process with variation of the hydraulic residence time, biomass volume, air flow rate and recycle ratio.

WPN90B
ANAEROBIC WATER PURIFICATION SYSTEM

An anaerobic water purification system for studying the theory and processes for the anaerobic waste treatment of biomass, sewage and sludges. The unit includes an anaerobic digester and settler.

Students use the system for study, simulation, sizing and optimisation of the process with variation of the hydraulic residence time, packing and recycle ratio.
WPN100
MANUAL AEROBIC WATER PURIFICATION SYSTEM
An Aerobic Water Purification Plant using activated sludge for studying the aerobic water purification process for treating sewage. The unit includes an oxidation reactor, settler and chlorination tank. This system represents a single-stage sewage treatment process.

Experiments include purification efficiency with variation of composition of water to be treated, residence time, organic load, pH in oxidation tank and concentration of dissolved oxygen.

WPN110
AUTOMATED AEROBIC WATER PURIFICATION SYSTEM
An Aerobic Water Purification Plant using activated sludge for the in-depth study of the process for treating sewage. Includes oxidation reactor, settler, chlorination tank, a PID controller and control and supervision software. The system represents a single-stage sewage treatment process.

Experiments include purification efficiency with variation of composition of water to be treated, residence time, organic load, pH in oxidation tank and concentration of dissolved oxygen.

WPN120
AERobic WATER Purification System
An Aerobic Water Purification Plant using activated sludge for the in-depth study of the aerobic water purification process for treating sewage. The unit includes an oxidation reactor and settler. The system represents a single-stage sewage treatment process.

Biomass is oxidised in the reactor with an agitator that is driven by air supplied by a compressor. Three overflows in the oxidation reactor allow for variation of the reactor volume.

HFT Education teaching products are manufactured in Europe under an ISO 9001 quality manufacturing system, using state-of-the-art production techniques and equipment. Our robust industrial standard components, high quality materials and skilled production staff make sure that our equipment has a long working life.

All HFT education products are supplied with a 2 Year Warranty.
WATER PURIFICATION
ANAEROBIC WATER TREATMENT / SEWAGE

WPN140
MANUAL ANAEROBIC WATER PURIFICATION SYSTEM

An Anaerobic Water Purification Plant for in-depth study of theory and processes for the anaerobic waste treatment of biomass, sewage and sludges. The plant includes a reactor with built-in settler and floating head to act as a hydraulic guard.

Sludges are fed and recycled by two gear pumps. A compressor is used to stir the biomass by recycling air from the top to the bottom of the reactor. Biomass is heated by a heat exchanger included in the digester and connected to a diathermic-oil heating unit.

WPN150
AUTOMATED ANAEROBIC WATER PURIFICATION SYSTEM

An Anaerobic Water Purification Plant for in-depth study of theory and processes for the anaerobic waste treatment of biomass, sewage and sludges. The plant includes a reactor with built-in settler and floating head to act as a hydraulic guard, a PID controller and control and supervision software.

Experiments include purification efficiency with variation of recycle ratio, residence time, digester temperature, organic load and pH and rH.

VISIT OUR WEBSITE
> TO DOWLOAD OUR TECHNICAL DATASHEETS

For more detailed technical information about our teaching products and to request a quotation, please visit our website at:

WWW.HFT-GLOBAL.COM/EDUCATION

WPN40
AUTOMATED REVERSE OSMOSIS PILOT PLANT

DESCRIPTION - WPN40

An Automated Reverse Osmosis Pilot Plant for in-depth study of the reverse osmosis process.

The WPN40 has been designed for students to gain theoretical and practical knowledge of the varying operating parameters.

The equipment has been designed and manufactured to incorporate all current safety standards.

The WPN40 demonstrates that if a solution comes into contact with a semi-permeable membrane at a pressure higher than its osmotic pressure then some of the solution will cross the membrane. This is particularly useful in seawater desalination or to purify wastewater.
OUR SERVICE PROMISE

WE PROMISE TO PROVIDE INFORMATION AND SUPPORT QUICKLY AND WITH A HIGH LEVEL OF EXPERTISE AND TECHNICAL KNOWLEDGE

WE UNDERSTAND
If your teaching equipment is not working as you expect, your students will not be able to complete their studies.

INDUSTRIAL QUALITY
That’s why our products are built to the highest European standards using industrial quality components.

TWO YEAR WARRANTY
This commitment to quality is supported by our two year warranty, which covers all HFT Education products.

IF YOU NEED SUPPORT

To help us to deliver the high level of service that you expect, please provide us with the following important information with your support requests:

• Equipment Model Number
• Equipment Serial Number
• Details of your request, enquiry or question

EXPERIMENT
Details of the experiment or process that was being performed when you noticed a change in the equipment.

RESULTS
What results were you obtaining from the experiment?
Please send us the actual data readings.

PHOTOGRAPHS
Digital photographs of the equipment will help us to make a quicker and more accurate diagnosis.

We request that the information provided is as detailed and accurate as possible, to help us make a quick and accurate diagnosis and identify the best solution.

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