

MANN+HUMMEL ULTRA-FLO



CONTENT



▶▶ Introducing MANN+HUMMEL ULTRA-FLO

- **About MANN+HUMMEL ULTRA-FLO (MUSG)**
- **Our Products + Services**
 - Membrane
 - Systems
- **Market Application**



MANN+HUMMEL takes over membrane specialist Ultra-Flo in Singapore

Strengthening of non-automotive activities

Strategic acquisition: With the takeover of Ultra-Flo, MANN+HUMMEL is expanding its technological base and market access in the field of water filtration. Ultra-Flo employs 60 people in R&D, sales and production of membranes for filtration systems and will have a turnover of approx. EUR 10 million in 2010.

Ludwigsburg/Singapore, 29th July 2010 – On 1 September 2010, MANN+HUMMEL FILTER TECHNOLOGIES (S.E.A.) Pte. Ltd will acquire a 100% holding in the Singapore-based company Ultra-Flo Pte. Ltd. from Oilfield Technical Services Pte. Ltd. Ultra-Flo develops and produces membranes and membrane systems for water, waste water and process water. The regional focus of the company's business activities is in South East Asia. Customers come from industry, the communal sector and trade businesses.

"With Ultra-Flo we are expanding our technological base and our product portfolio. With the new reference products we are accelerating our market access in the field of water filtration", says Ulrich Winter, managing director of MANN+HUMMEL Singapore, with responsibility for the new company. "This acquisition is an important strategic step for the expansion of our water business."

In 2009, MANN+HUMMEL founded its Water Division, with headquarters in Singapore. The global market volume for products and solutions for water treatment is approx. EUR 18 billion and is continually growing. Industry, agriculture and households all need clean water in large quantities and also produce waste water. Given the rise in the world's population, innovative technologies are required for the treatment of water. Membranes such as those from Ultra-Flo form the core of MANN+HUMMEL water filtration solutions. They eliminate germs, bacteria and viruses by purely physical methods.

MANN+HUMMEL, development partner and series supplier to the international automotive and mechanical engineering industries has set itself the target of a disproportionate expansion of its activities in the non-automotive field, in order to reduce its dependency on the automotive sector. The expansion of the Water Division, initially in South East Asia, is a step in this direction. In the medium term, MANN+HUMMEL will also offer solutions for water treatment in other regions, such as in the NAFTA countries, which also have high rates of growth in this field.

(approx. 2,400 characters including spaces)

About MANN+HUMMEL

The MANN+HUMMEL Group is a development partner and original equipment supplier to the international automotive and mechanical engineering industries. Employing 11,800 people at 41 locations world-wide, the company achieved turnover of 1.67 billion Euros in 2009. The Group's product portfolio includes air filter systems, intake manifold systems, liquid filter systems, cabin filters and cylinder head covers made of plastic with many integrated functions for the automotive industry, as well as filter elements for vehicle servicing and repair. For general engineering, process engineering and industrial manufacturing sectors the company's product range includes industrial filters, a series of products to reduce carbon emission levels in diesel engines, membrane filters for water filtration, filter systems and complete lines as well as units for conveying, dosing and drying of free flowing plastics.



Mann+Hummel acquires Ultra-Flo

[Ulrich Winter](#)
(JPG, 90 KB)

A new beginning for MUSG



▶▶ A water solution provider.



- Headquartered globally in Singapore
- Market presences in S.E.A and Australia
- 71 staff strength
- Develop and manufacture of proprietary membrane fibers, cartridges and systems for the treatment of water and wastewater
- Provider of water and wastewater treatment services

Water is life. We make water clean and safe.



- ▶▶ MANN+HUMMEL ULTRA-FLO Water Filtration solutions:
customer / operator orientated and reliable.



- MANN+HUMMEL ULTRA-FLO (MUSG) offers high quality membrane and systems covering a wide range of application
- With a team of dedicated engineer and sales personnel, we strive to give our utmost service to every customer

**The future poses many questions.
Our specialists are working on the
answers.**



- ▶▶ From idea to product launch. More than 700 people at MANN+HUMMEL Research participate in developing fully integrated outfit

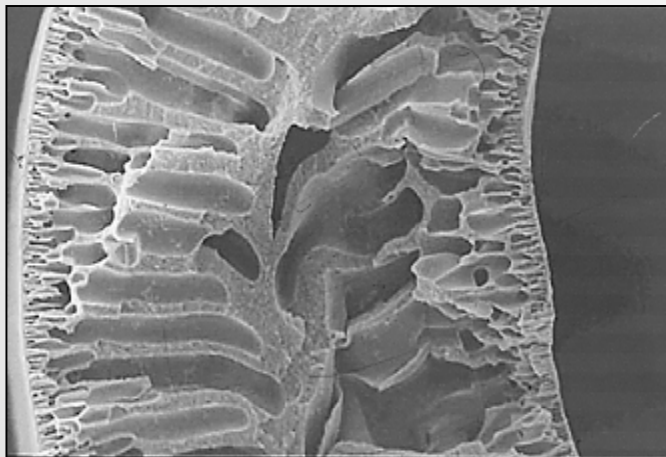
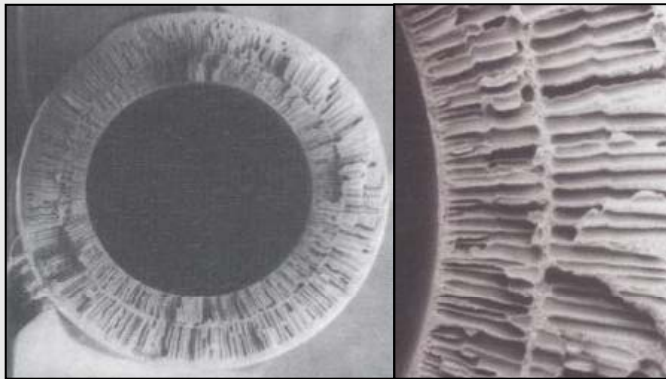


- Material Formulation
- Fibre Production
- Cartridge Assembly
- System Integration
- Technical Follow up
 - Service & Maintenance Contract
 - BOO Contract

Water is life. We make water clean and safe.



▶▶ Integrating MANN+HUMMEL ULTRA-FLO membranes

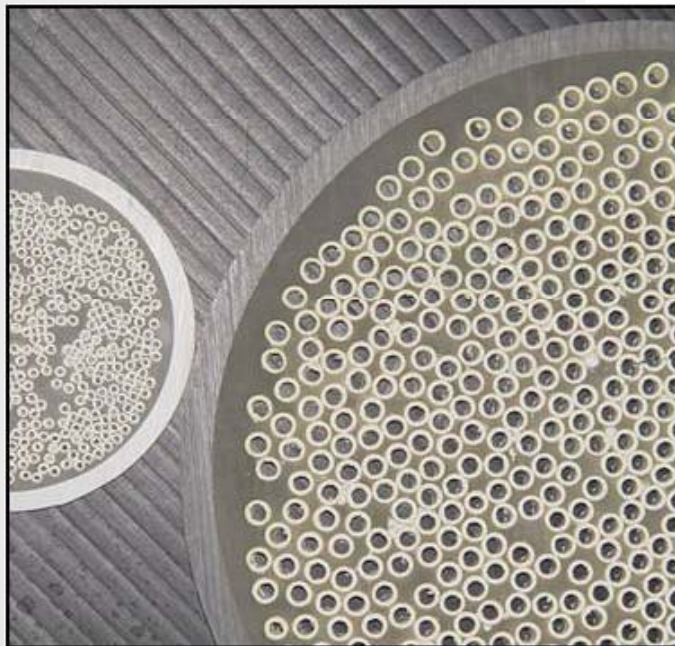


- MANN+HUMMEL ULTRA-FLO (MUSG) membrane provides additional porosity with increase voids whilst retaining the structural strength with center rib
- Chemically stable material provides the resistance to toxic and corrosive environment

Water is life. We make water clean and safe.



▶▶ Advantages of our membranes



- It allows for flexible operation in both the Cross-Flow and Dead-End mode of filtration
- Its hydrophilic surface allows low fouling tendency
- Operating at low pressure, it reduces the operating cost and energy consumption

Modified PAN vs others (in house test)

Hollow Fibre Membrane	PAN (modified)	PES	PVDF
Pore Size (D90)	~ 25nm / good	10 to 20 nm / excellent	10 to 50 nm / fair
Fouling Behavior	Relatively Less	Medium	Relatively High
Chemical Stability	Good	Good	Excellent
Mechanical Strength	Good	Fair	Good
Flux performance (clean water lmh @ 1 bar)	650 – 750	450 – 550	200 – 250
Membrane Cost	1+	2+	3.5+

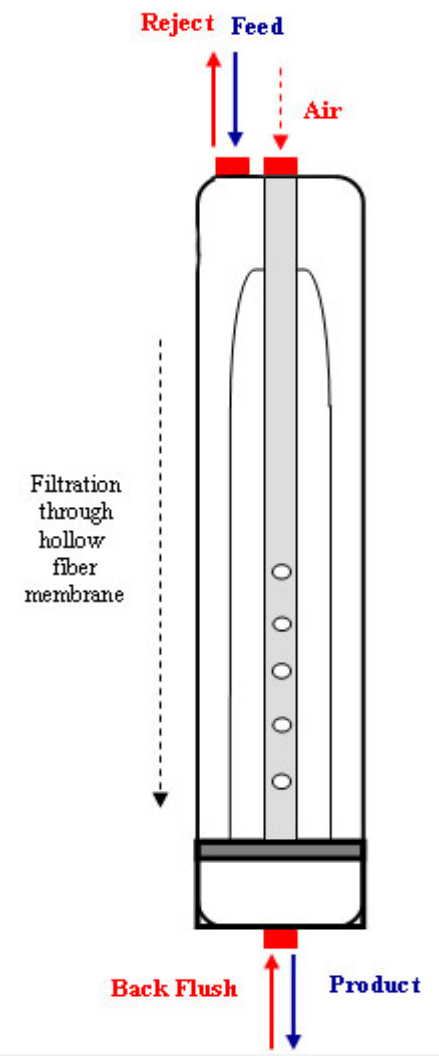
U 860 CARTRIDGE



Configuration	Hollow Fibre (Out to In Filtration)
Material	Hydrophilic modified PAN
Fibre Size	2.0mm OD
Surface Area	480 sq ft
Cartridge Housing	8 " Diameter x 60 " Length
Weight	40 kg
Operating Temperature	< 45 °C
Operating Pressure (TMP)	< 8 psi (Feed); <14 psi (Backflush)
pH	3 ~ 9 (Operating); 2 ~ 11 (Washing)
Flow/Flux Rate:	
City Water	2 - 3 m ³ /h
River/ Bore	1 - 1.5 m ³ /h
Treated Wastewater	0.5 - 1 m ³ /h

Filtration (Out to In)	Re-generation (In to Out)
Dead End Mode	Air Scouring with Backflushing

* Subject to feed water condition



Note: Ultra-Flo Pte Ltd reserves the right to make any changes to the information provided above without prior notice.

**Water is life.
We make water clean and safe.**



▶▶ MANN+HUMMEL ULTRA-FLO Water filtration systems.



Klar System (Ultrafiltration)

**Water is life.
We make water clean and safe.**



▶▶ Klar System



Klar System (Ultra filtration)

- Remove sub micron particles
- Low power consumption
- High durability and stability

Especially suitable for

- Colloidal and suspended solids removal including bacteria, spores and parasites.
- River, well, surface water clarification to potable water
- Pre-treatment of RO
- Final polishing of biologically treated water

**Water is life.
We make water clean and safe.**



▶▶ MANN+HUMMEL ULTRA-FLO water filtration systems

Mem-Bio System (Membrane Bioreactor)

- Removes suspended solids and micro-organisms using hollow fibre membranes
- Saves more than 50% space compared to conventional sludge treatment systems (STP)



Especially suitable for

- Remote, decentralise sewage treatment requirement
- High organic contaminant water

**Water is life.
We make water clean and safe.**

▶▶ MANN+HUMMEL ULTRA-FLO water filtration systems



B-5



B - 100

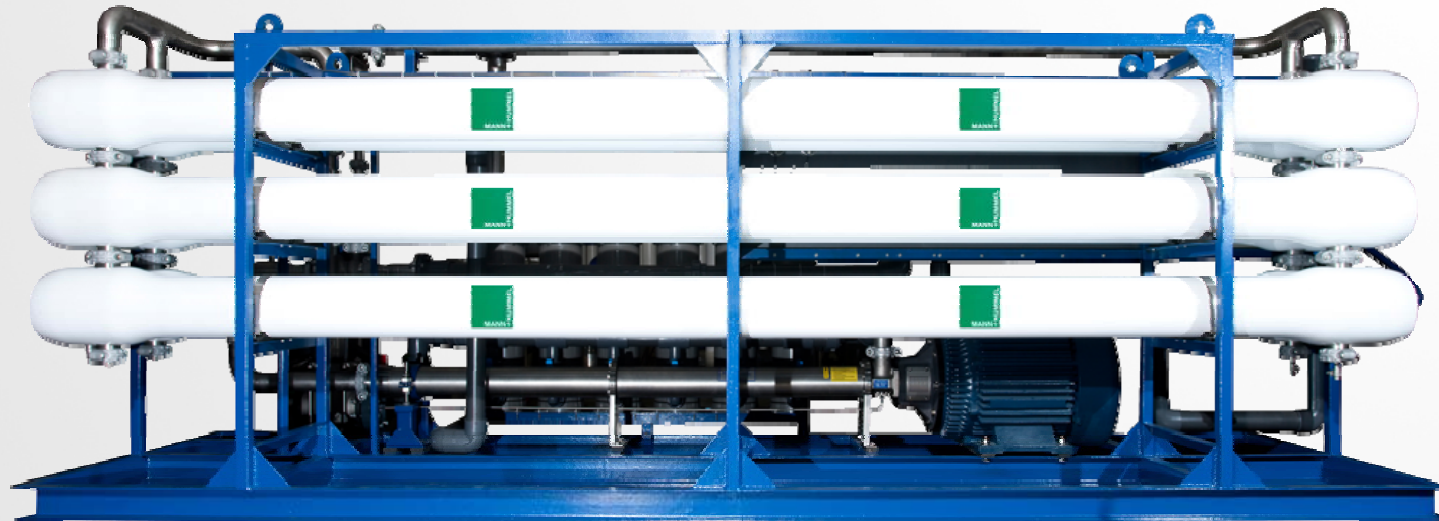
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**Water is life.
We make water clean and safe.**



▶▶ MANN+HUMMEL ULTRA-FLO Water filtration systems.



Rev-O-System (Reverse Osmosis)

**Water is life.
We make water clean and safe.**



▶▶ Rev-O System



Rev-O System (Reverse Osmosis)

- High salt rejection with high flow rates
- Using dependable reverse osmosis technology and dependable PA (Polyamide) membranes
- Energy Recovery

Especially suitable for

- Seawater, Bore Hole Water / Brackish water
- Industrial Waste Water recycling
- Industrial Process Water



UF vs Coventional

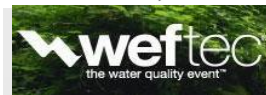
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Water Association



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UF vs Conventional (sand and multi media filter)

	UF	Conventional
Capital cost	Higher	Lower
Operating Cost	Lower power, chemical and labour cost	Higher power, chemical and labour cost
Total Cost	Same	Same
Foot print	Smaller	Larger
Technology	Improving	Stagnant
Permeate Quality	Better	Barely sufficient
Feed Water	More flexible	Not flexible



INDUSTRIAL

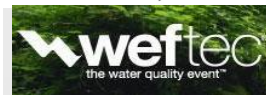
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DISK MEDIA FACTORY, SINGAPORE



WASTERWATER UPGRADING & RECYCLING 2,000 m³/day

WASTEWATER 10X CONCENTRATION FOR INCINERATION 200 m³/day



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LCD DISPLAY PLANT, SINGAPORE



800 m³/day WASTEWATER RECYCLING FOR PRODUCTION

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WIRE BONDING FACTORY, SINGAPORE



Our distributor provides BOO service to a wire bonding factory to recycle 500 m³/day of waste water for production use.



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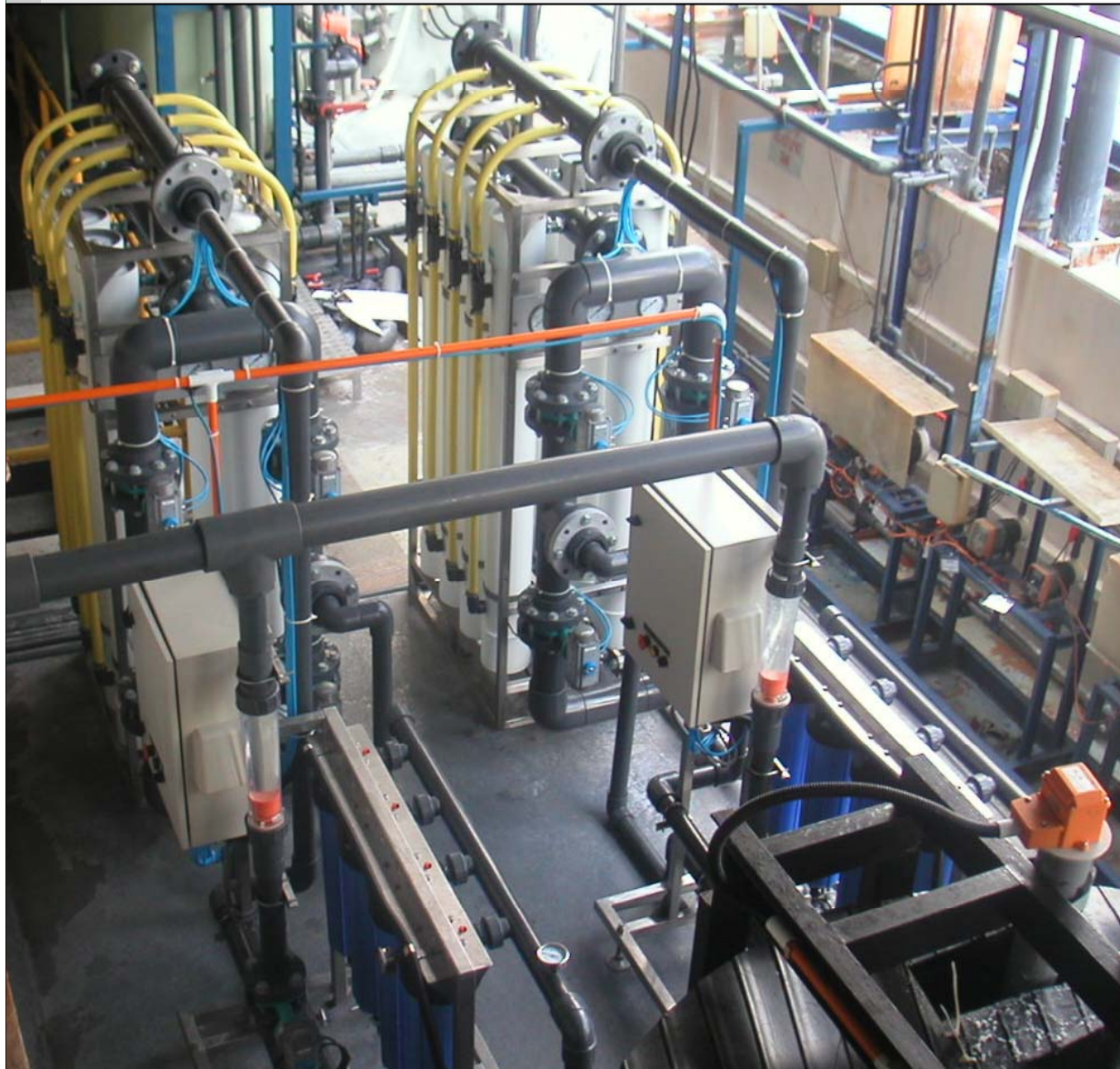
WAFER FAB PLANT, SINGAPORE



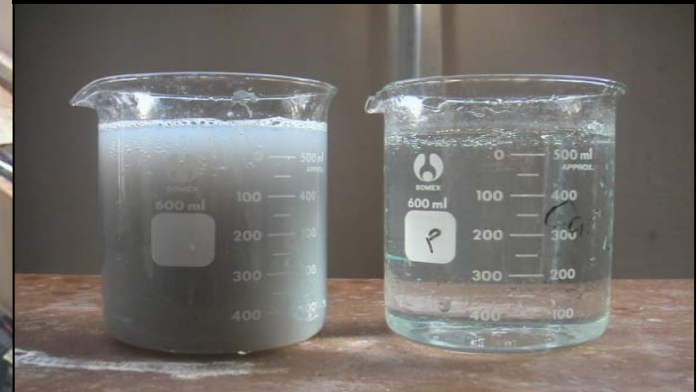
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A THIN-FILM DISK PLANT, PENANG MALAYSIA



RAW SLURRY FEED WATER



SETTLED FEED

PERMEATE

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AT SEAFOOD PACKAGING FACTORY, THAILAND



Seafood Packaging Plant in Bangkok Thailand.

3 x M20-6
Ultra-Flo system used
to clarify
1,500 m³/day of water
for the
Ice Making Plant

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LCD DISPLAY FACTORY, SHANGHAI CHINA



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POWER PLANT, AUSTRALIA



Power Station

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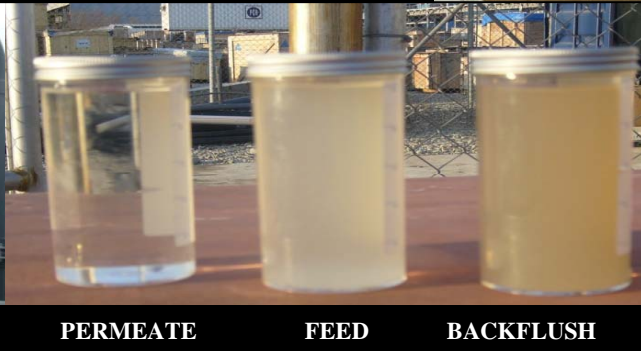


M30-6 model being incorporated into a 30m³/h water treatment plant to treat water for use in Power Station

OIL REFINERY IN BAKU, AZERBAIJAN



2 X M-20 SYSTEM PRODUCE WATER TREATMENT PLANT



PERMEATE

FEED

BACKFLUSH

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OIL REFINERY IN BAKU, AZERBAIJAN



**2,400 m³/day
of Produced
Water
being
treated for
Re Injection
into the
Ground**



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SOIL REMEDIATION, SINGAPORE



2 X MU04-8 (5m³/hr) at a PHENOL PLANT, SINGAPORE

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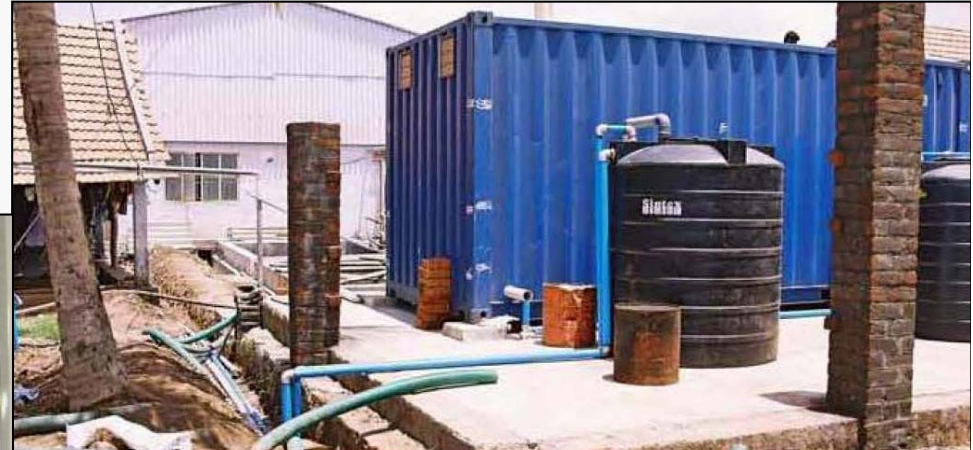
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TEXTILE DYE FACTORY, INDIA



70 m³/day LOW PRESSURE REVERSE OSMOSIS SYSTEM HOUSED IN A 20FT CONTAINER FOR TEXTILE DYE FACTORY IN TIRUPPUR, INDIA



DYE WATER TREATMENT BUILDING CONSTRUCTED AROUND THE CONTAINER



UF Feed Permeate Backflush RO Permeate Reject

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SOLAR CELL INDUSTRY, NORWAY



200 m³/day
Process Water
Pretreatment
for
Solar Wafer
Fab Plant



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SOLAR WAFER PLANT, SINGAPORE



3 x MU36-8 were used to clarify 2,000 m³/day of wafer sawing water with high COD.



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MINING INDUSTRY, GHANA AFRICA



1,900 m³ /day
Demin Water
Production
2 stage RO
containerised
system



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MINING COMMUNITY, AUSTRALIA / ASIA



Compact MBR system capable of treating 10 m³/d to 500 m³/d of sewage / grey water for cement grouting, general washing, and landscaping



Containerised UF/RO system to treat bore hole and surface water; thus ensuring the community a continual supply of fresh portable water. Capacity ranges from 10 m³/d to 5,000 m³/d.



50 m³/day MBR-50 High COD Pump Wastewater Treatment Plant

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TURBINE OVERHAUL, SINGAPORE



5 m³/day High Silt Water and 20 m³/day Fluorescent Penetrant Wastewater Treatment Plant

GSP Facilities - Southeast Asia

- Singapore
 - Singapore Part Repair Operations
 - Turbine Overhaul Services
 - Turbine Coating Services
 - Combustor Airmotive Services
 - International Aerospace Tubes Asia
 - Asian Surface Technologies
- Singapore Engine Center
 - Eagle Services ASIA
 - EcoPower® Engine Wash Services

— Select which locations you would like plotted on the map.

- GSP All Facilities
- Engine Overhaul Facilities
- Part Repair Services Facilities



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PUMP MANUFACTURER, SINGAPORE



Major pump refurbishing workshop needs to treat the high COD wash water .
MBR 50 is used to treat the water to comply with Singapore discharge standard



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METAL FINISHING INDUSTRY, SINGAPORE



**72 m³/day
Demin
Plant
Using
City Water**

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FOOD MANUFACTURER, SINGAPORE



40 m³/day of waste water from a palm oil product manufacturer has residual hexane and COD up to 3,000 mg/l. The MBR 50 is used to treat the water to well within the discharge standard

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ISO CONTAINER TERMINAL, THAILAND



High COD water up to 15,000 mg/l from the cleaning of iso containers is collected and treated for discharge. Our MU06-8 and NF unit provide the much needed final polishing of the water prior meeting discharge standards. The entire system is housed in a 40' standard container.



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CONSTRUCTION

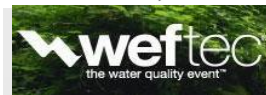
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EARTH CONTROL MEASURES FOR CONSTRUCTION SITES WORKSHOP



ULTRA-FLO® M-02 ON DEMONSTRATION

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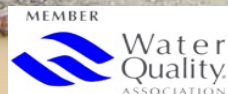
Organized by PUB to prevent silty pollution in Singapore's waterways on 6 February 2006

SYSTEM AT CONSTRUCTION SITE



M-14 System at 14 m³/hr

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PARC EMILY CONSTRUCTION SITE



MU-04 SYSTEM (6 m³/hr) IN 10FT CONTAINER AT CONDOMINIUM SITE FOR EASY RELOCATION



IMPROVEMENT WORK TO SITE DISCHARGE WATER

TOTAL SUSPENDED SOLIDS (TSS) LEVELS

PUBLIC DRAIN WATER (15/10/2005)*	SITE WATER RUN-OFF (06/04/2005)*	COAGULANT TREATED WATER DISCHARGE (13/04/2005)*	WRP TREATED WATER DISCHARGE (04/10/2005)*
7600 mg/l	115 mg/l	14 mg/l	9 mg/l

* Water sample tests conducted by Analytical Laboratories

WRP WATER CONSUMPTION



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MEMBER



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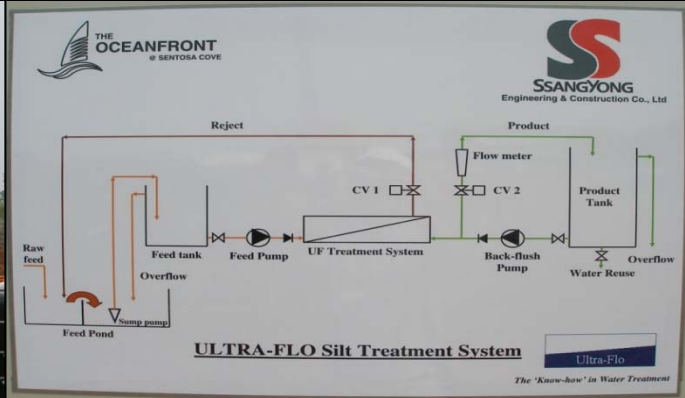
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SENTOSA COVE, SINGAPORE



Recycling of silty water with MU02-8 System at 8 m³/hr



Visit by Mr. Kim Suk Joon, Chairman & CEO of Ssangyong, Korea on 6 Nov 06

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GARDEN BY THE BAY, SINGAPORE



When it rains silty water accumulates at the work site and threatens to flow into the Marina Barrage. Using Ultra-Flo filtration systems the treated water is clean enough for vehicles and site washing - thus saving the contractor from hefty water bills.



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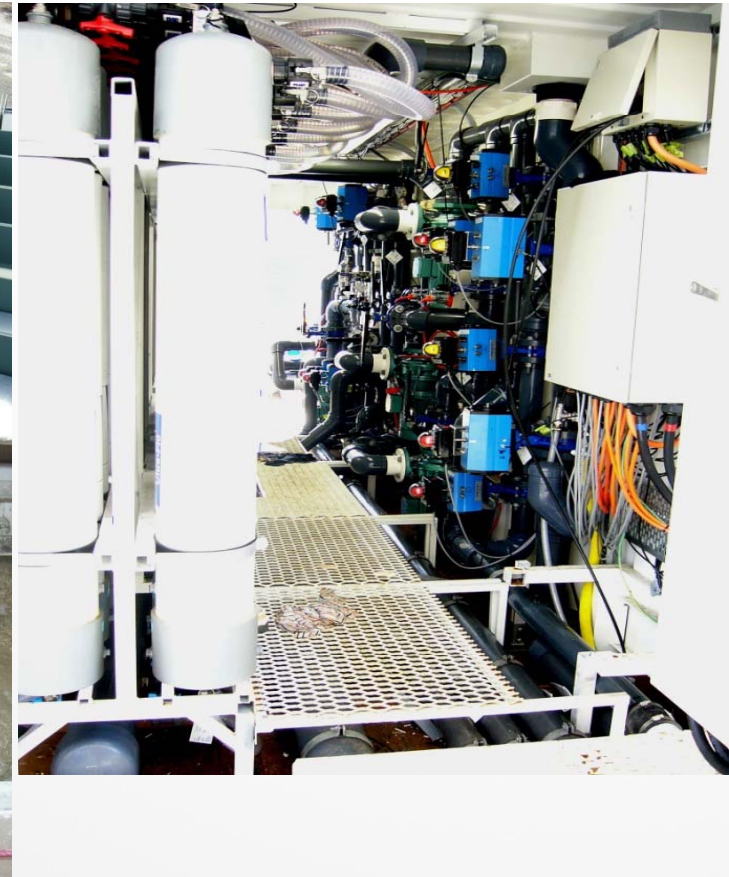
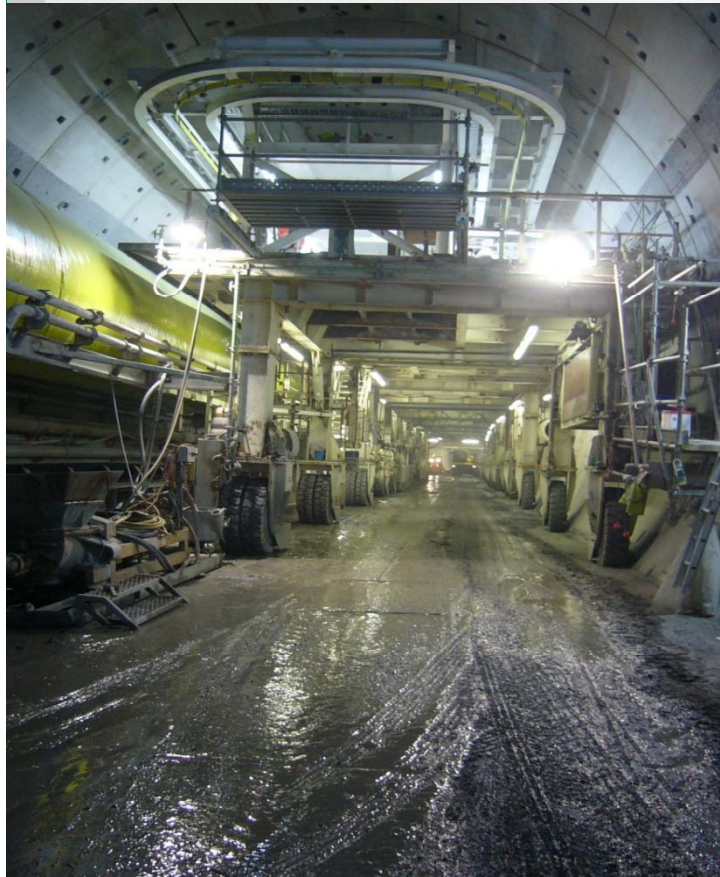


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TUNNEL PROJECT, BRISBANE



Tunnel Seepage Water Treatment (>5,000m³/day)
and
Sea Water Desalination (600 m³/day)
for
Use in Concrete Grouting

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of the
Marina Barrage

Earth Control Measures

Ultra-Flo Membrane Technology System For Construction Sites



2 x MU-04
Kitchener Rd
8 m³/hr



Singapore CleanSeas Pte Ltd
Victor Pang
Manager
96880997
victorp@ultra-flo.com.sg





MU-04 Draycott Drive
8 m³/hr

MU-04 at Kampong Kayu Rd
4 m³/hr



M-14 at Chua Chu Keng
14 m³/hr

Singapore CleanSeas Pte Ltd
Victor Pang
Manager
96880997
victorp@ultra-flo.com.sg



M-04 at Tanglin Halt Close
6 m³/hr



Singapore CleanSeas Pte Ltd
Victor Pang
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victorp@ultra-flo.com.sg



The Ultra-Flo membrane technology systems are designed for treating construction site sity water to reduce the suspended solids content to below 50mg/litre so that the treated water can be discharged into the public drainage system.

For more information on Ultra-Flo, visit - Singapore Cleanseas Pte Ltd, 452 Tagore Industrial Avenue, Singapore 707023, Tel: 64577533, Fax: 64577517, Lccal rep : Mr Joseph Foo Tel: 97382121 or e-mail: joefco@ultra-flo.com.sg, URL address: www.ultra-flo.com.sg

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For water, sewerage and drainage matters, please call PUB's 24 hour contact centre, PUB One
Tel: 1800-2046600, Email: PUOne@singnet.com.sg, SMS: 90343430
Application / Enquiry on accounts or billing matters, please call [SP Services Ltd](#): 1800-2222 333
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M-02 at Sungei Pandan
3 m³/hr

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SURFACE WATER CLARIFICATION

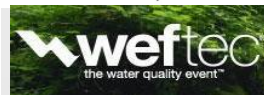
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POND CLARIFICATION AT PALM OIL PLANTATION IN MEDAN, INDONESIA



Parameter	Units	Influent	Effluent
Total Coliform	Colony/100 ml	24	0
Suspended Solids	ppm	21	0
Color	TCU	530.7	0
Turbidity	NTU	261	1.08
Fe	ppm	1.94	< 0.04
Ammonia	ppm	3.65	0.345



ULTRA-FLO® M-02 supplying of clear and bacteria-free filtered water to 40 families working in the plantation

Samples containing:

1. Feed water
2. Filtered water
3. Bottled water
4. Backflush water

Water Analysis conducted by SUCOFINDO (Indonesian Independent Test Laboratory)

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POND CLARIFICATION AT KALASIN PROVINCE, THAILAND



Back-flush Feed Cross-flow Permeate

PROVINCIAL WATER AUTHORITY PROJECT USING ULTRA-FLO® UF & CARBON CARTRIDGE TO PROVIDE FOR RURAL AREAS

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RIVER WATER CLARIFICATION AS PRETREATMENT TO REVERSE OSMOSIS USING 2X M-24 AT 40 M³/H IN JAKARTA, INDONESIA



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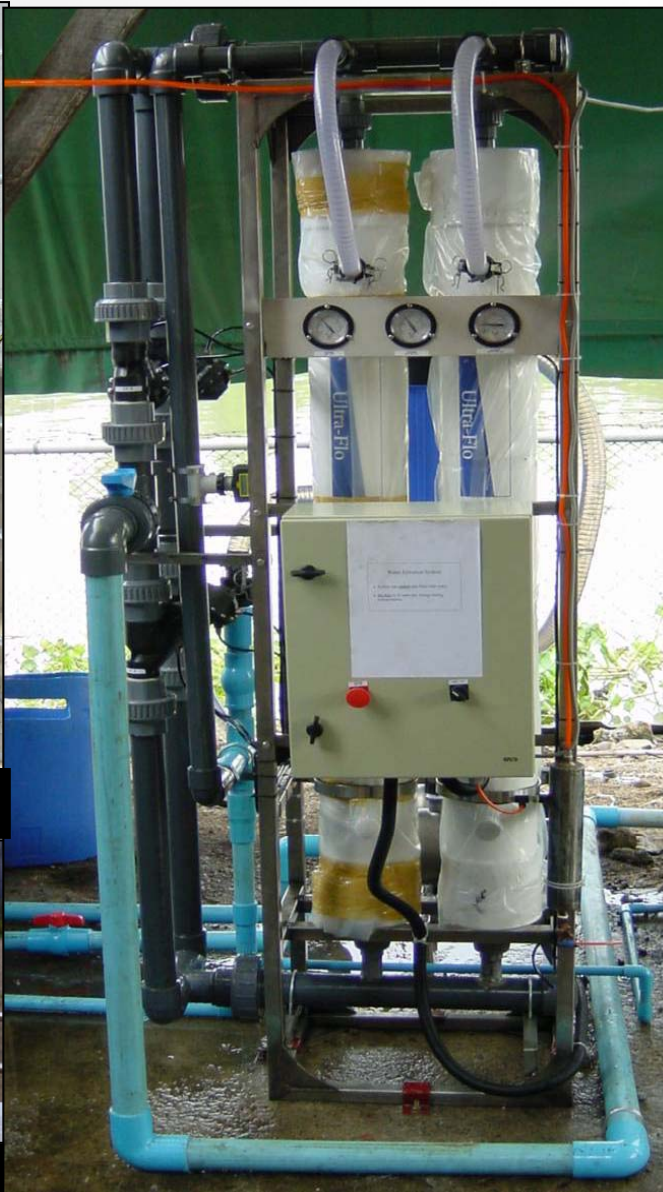
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CHAO PHRAYA RIVER WATER CLARIFICATION



Panthum Thani, Thailand



Feed Filtered Back-flush



Textile Factory in Nakhonchaisri, Thailand



Feed Back-flush Filtered

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HOLIDAY RESORTS

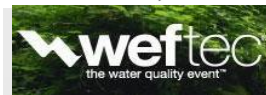
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MBR SYSTEM AT HOLIDAY RESORT BALI



**RECYCLING OF SEWAGE WATER FOR GENERAL USE;
TOILET FLUSH AND GARDENING AT THIS 7 STAR
RESORT COMMISSIONED IN 2007**

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MBR SYSTEM AT HOLIDAY RESORTS, MALDIVES



MU08-6 FOR FULL MOON RESORT

MU04-6 FOR BAROS RESORT

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MEMBER



MBR SYSTEM AT HOLIDAY RESORTS, MALDIVES



FEED WATER TANK FOR AERATION BEFORE MEMBRANE TREATMENT



MU08-6 ULTRAFILTRATION



NANOFILTRATION



PERMEATE WATER FEED WASTEWATER

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KURAMATHI RESORT, MALDIVES



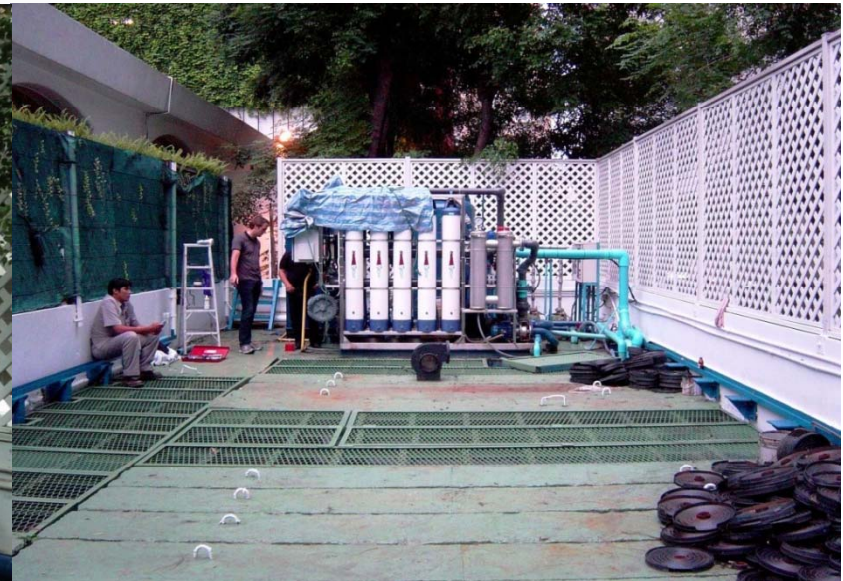
Water from the effluent treatment plant is further treated using a MU08-8 and LRO 120 to produce 120 m³/day of clean water for laundry and gardening use at the resort.



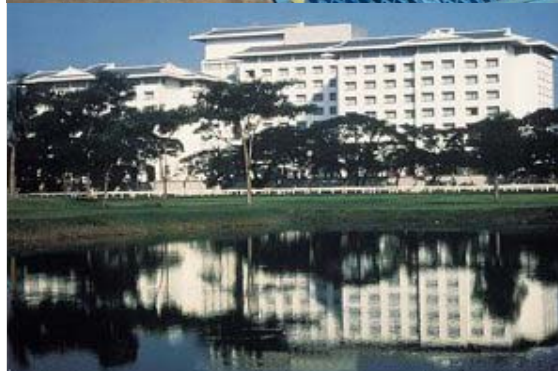
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TREATED EFFLUENT RECYCLING, BANGKOK



MU-10 use to clarified 200 m³/day of treated effluent from a 5 star hotel in Bangkok. The clarified water is used in the hotel cooling towers and for gardening purpose.



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HORTICULTURE, AQUACULTURE & ANIMAL FARMS

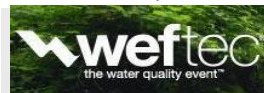
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SYSTEM INSTALL ON TRUCK TO REMOVE SEAL EXCREMENT IN U.K. ZOO



Daily 10 kilos of waste



30 seals in small pool



Filtration in progress



After Ultra-flo filtration



Crystal clear water



Happy healthy seals

GREENHOUSE SYSTEM IN GJENNESTAD, NORWAY



GROWING OF PLANTS IN GREENHOUSE AND DRAINING OF WASTEWATER CONTAINING NUTRIENTS INTO TANKS FOR TREATMENT



ULTRAFILTRATION TO REMOVE BACTERIA, ALGAE & FUNGUS

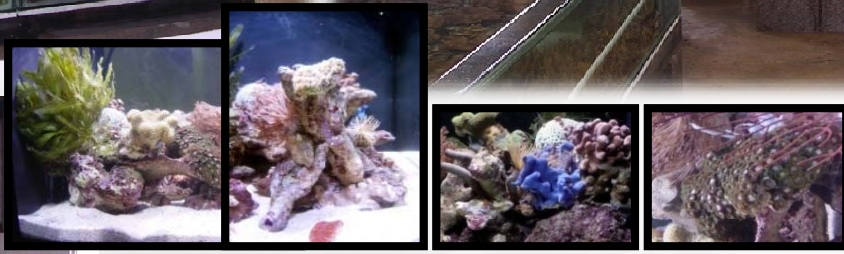
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MARINE LIFE FARM, SINGAPORE



Commissioned in Sept 2006, the MS02-6 is used to produce 3 m³/h of clean sea water - free of parasites and algae - for a fish and coral farm in Singapore

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BORE-HOLE FILTRATION AT VINEYARD IN SWAN VALLEY, WESTERN AUSTRALIA



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SYSTEM FOR KOI POND, SINGAPORE



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KOI FARM, HIROSHIMA, JAPAN



800 m³/day UF System - Parasites and Pathogen Control



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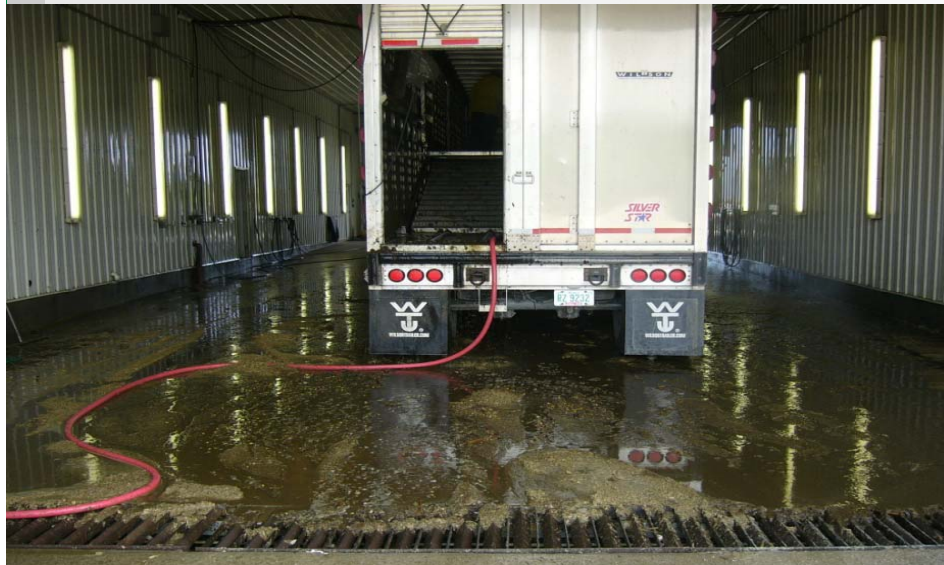


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IOWA, USA



20m³/day
High COD
Livestock
Wash
Water



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PIG FARM, MALAYSIA



↑
Source of water

Pig farm with 32,000 pigs. The MU20-8 produces 500 m³/day of clarified water for animal washing and drinking.



Treated Water

Raw Water



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PIG FARM, MALAYSIA



In the second phase the production of clarified water was increased to 1,750 m³/day by adding a MU50-8. A pilot test to recycle the waste water was also commissioned using a MBR 50.



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SPAS & SWIMMING POOL

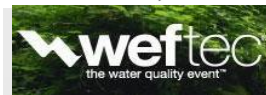
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SWIMMING POOL, SINGAPORE



Swimming Pool Water Treatment at Sixth Avenue Singapore



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POOL CLARIFICATION AND DISINFECTION, SWEDEN



**Ultra-Flo MU06-8
ultra filtration system
for
Swimming Pool Water
with
UV disinfection**

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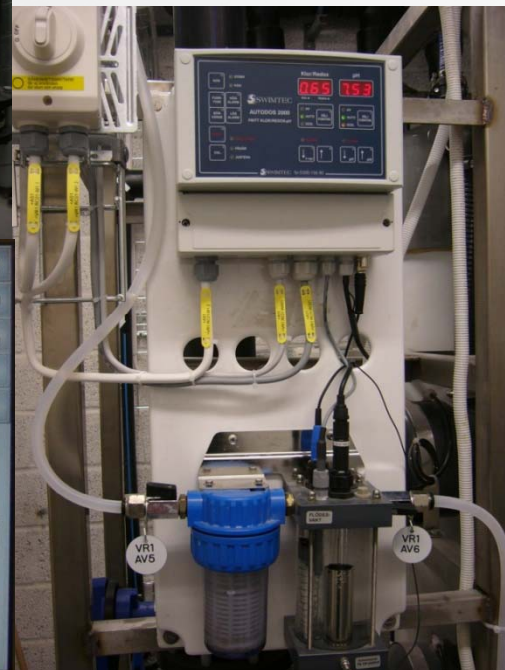
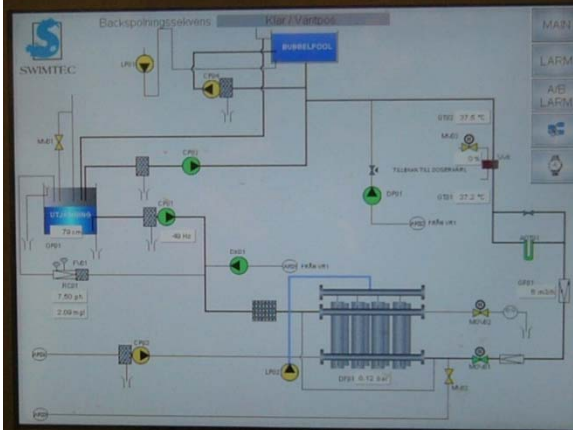


HOTEL SWIMMING POOL, SWEDEN



Operating a unit of MU04-8 and MU10-8 at the swimming pool of one of the top hotels in Sweden helps to save more

than 50% in heating and water replacement cost



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SPORTSHALL SWIMMING POOL, SWEDEN



MU14-8 use to ensure the water in the pool is clean and safe for the children. Ultra-Flo system enables the sports hall to save on water and heating cost



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INDUSTRIAL ESTATE & TOWNSHIP

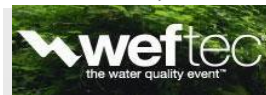
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CITY WATER SUPPLY PHUKET, THAILAND



Water from the lake is drawn to the UF water treatment system. 6 x MU 36-8 to produce 7,200 m³/day of clear, clean water for supply to the city of Phuket. This supply make up 20% of the water use in Phuket.



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INDUSTRIAL ESTATE WATER SUPPLY AMATA, THAILAND



Water supply
to the Amata
Industrial
Estate in
Thailand.
25,000 m³/day
water
treatment plant
using 12 x
MU50-8 ultra
filtration
system



Water Factory Project

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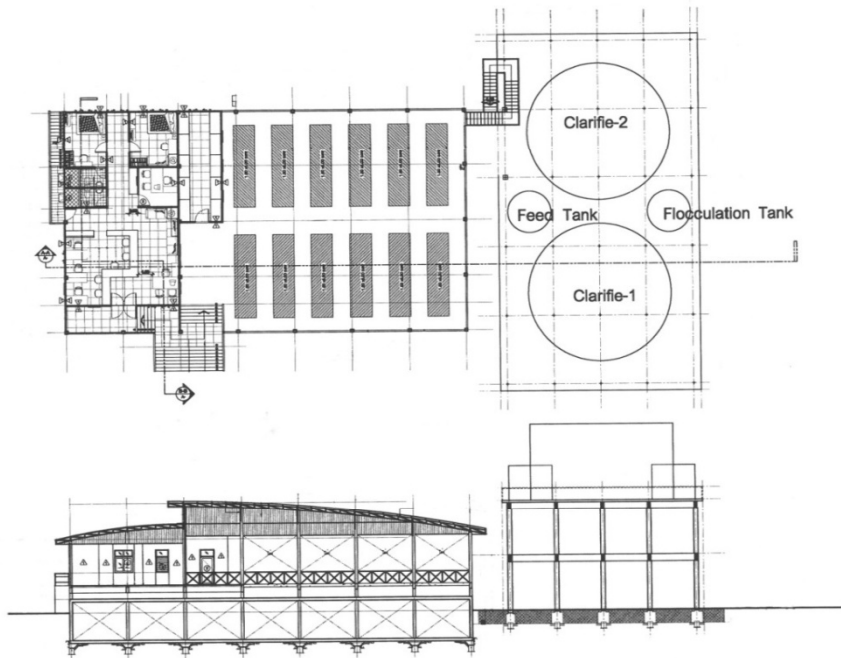
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INDUSTRIAL ESTATE WATER SUPPLY AMATA, THAILAND



The plant was successfully commissioned in October 2009



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INDUSTRIAL ESTATE WATER SUPPLY PANUS, THAILAND



Water supply to the
Panus Industrial
Estate in Thailand.
16,000 m³/day water
treatment plant using
8 x MU50-8 ultra
filtration system

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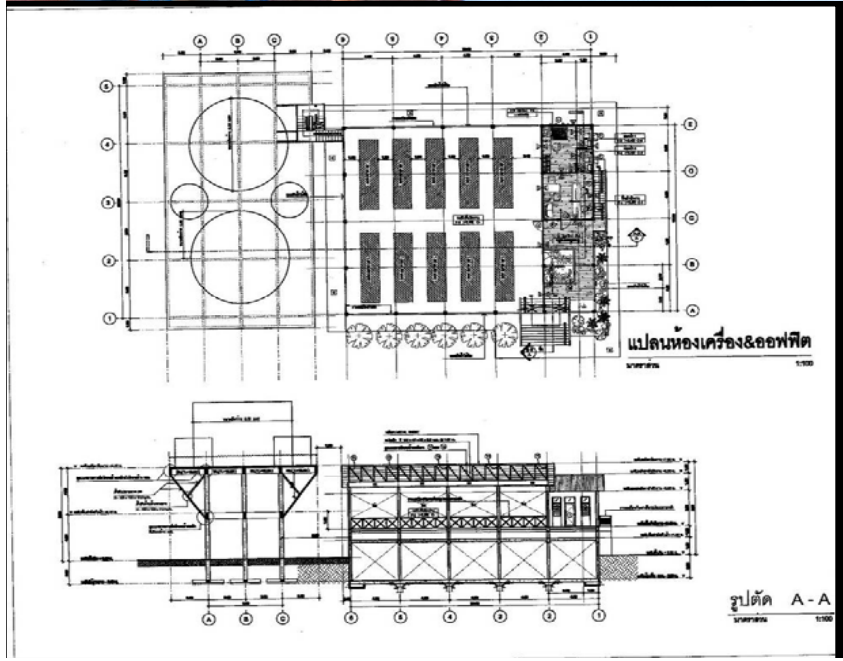
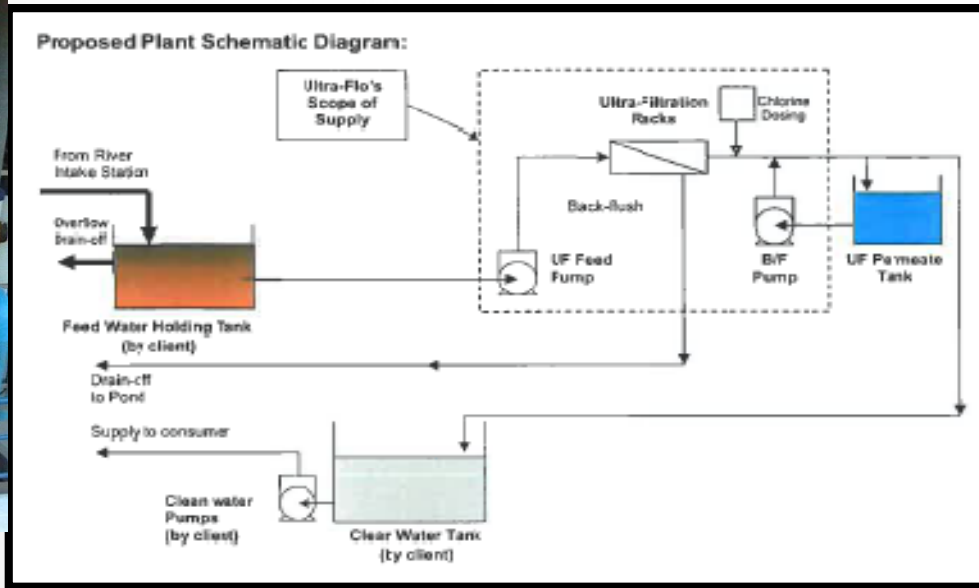
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INDUSTRIAL ESTATE WATER SUPPLY PANUS, THAILAND



The plant was successfully commissioned in January 2010



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CARWASH

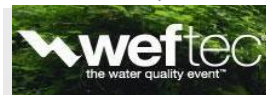
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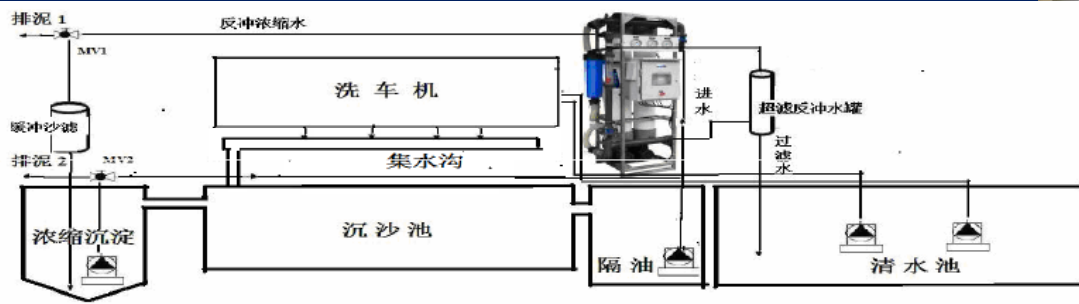
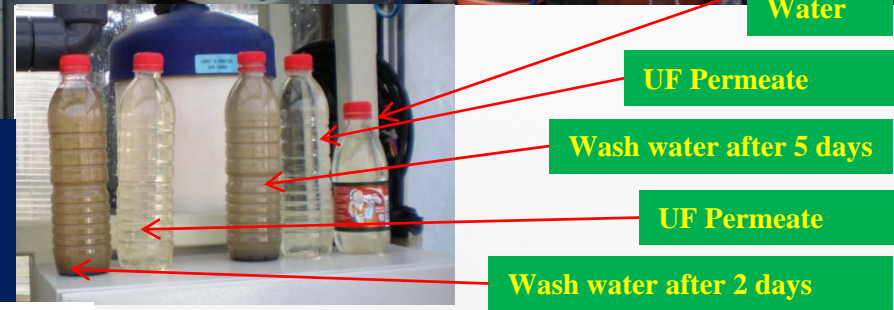
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CARWASH IN PETROL KIOSK, BEIJING



Our K-02U has been successfully operating in the petrol kiosk car wash in Beijing since 2008. Each K-02U is able to recycle 4,500 lit /h of wash water. Reducing wash water of turbidity from > 300 NTU to <1 NTU.



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MARINE

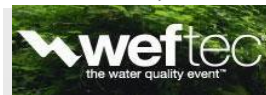
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SHIPYARD IN BATAM



100 m3/day Sea Water Desalination Plant

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FRESH WATER SUPPLY, SINGAPORE



400 m³/day Sea Water Desalination plant on board a water supply vessel. The plant uses UF and RO technology and is fitted in 2 x 20' containers.



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SEAWATER DESALINATION AT PULAU SEABROK



SEAWATER DESALINATION PLANT FOR MARINE SLOP AND SLUDGE TREATMENT PLANT ON ISLAND

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SEAWATER DESALINATION AT PULAU SEABROK



Sea Water Desalination Plant on a Marine Slop and Sludge Treatment Facility
Desalinated water used for boilers and cooling towers
This 120 m³/day plant has been operating since 1998

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RECEPTION FACILITY, SINGAPORE



Membrane Bio Reactor
100 m³/day



100 m³/day MBR being installed and commissioned at the MARPOL reception facility on Pulau Sebarok to cater to the needs of the shipping community within the Port of Singapore.

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ROCHOR CANAL, SINGAPORE



MBR 50 was commissioned by PUB in this trial project to improve the quality of the Rochor Canal water. As the water from the canal flows directly into the Singapore River and the Marina Barrage reservoir --- the quality of the water has to be controlled. The MBR 50 was able to reduce the TSS, COD, BOD and harmful micro organism population in the water.

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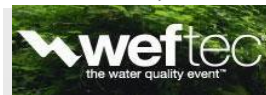
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Industrial Water and Wastewater Treatment Equipment Markets
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International
Water Association



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FOR TSUNAMI DISASTER THAILAND & INDONESIA



U660 WITH HAND PUMP BEING DEPLOYED BY RED CROSS IN REMOTE ACEH



LOCAL NGO WITH S660 IN ACEH, INDONESIA



MOBILE U660 FOR REFUGE CAMP IN PHUKET, THAILAND

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FOR CYCLONE DISASTER IN MYANMAR



CLEAN WATER: A Singapore Red Cross Society worker demonstrating the use of a locally designed hand-powered water-purification system to be sent to Myanmar. PHOTO: AP



BASIC NEEDS: A member of the Singapore Red Cross in Myanmar showing Foreign Minister George Yeo how water is collected at a well. DOI BOON KEONG



LATEST: Premier Wen Jiabao calls for calm in Myanmar's Championship title with playoff triumph Golf, Sports



IN DIRE NEED: A house on Haing Gyi island that was destroyed by Cyclone Nargis. The Singapore Red Cross has 1,000 tents, 35,000 family food packs and 10 Singapore-made water purification systems waiting to be delivered to Myanmar. PHOTO: AFP



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BB-420-4 BEING INSTALLED BY LOCAL AND SINGAPORE MEDICAL STUDENT VOLUNTEERS IN A CAMBODIAN ORPHANAGE UNDER THE AUSPICES OF THE CATHOLIC MEDICAL GUILD OF SINGAPORE



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