

“And many more”



CROSSFLOW (XIAMEN) FLUID TECHNOLOGY CO., LTD

ADD: Bldg.15, No.4 Xiangyue Rd, Xiang'anDistrict,
Xiamen, China

TEL: 0592-5901908

FAX: 0592-5901909

E-Mail: service@crossflow.com.cn

www.crossflow.com.cn

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COMPANY PROFILE

Crossflow (Xiamen) Fluid Technology Co., Ltd. is focusing on Separation & Purification of Industry Flow, It is a product and proprietary technology oriented Hi-tech service company.

Crossflow integrates R&D of process, sales design and technical service. With more than 17 years of experience in Industry Flow Separation, and the world leading technology mastered. we devote to offering customers the most professional and complete solutions, as well as comprehensive technical service.



TEAM HISTORY

2003

Our core team members started working on membrane technology, applied for developing in industry flow, adjusted hundreds of systems that are used in the fields of pharmaceutical, chemical, food and environmental ect.

2009

Professional study in membrane pollution and cleaning, our proprietary products were used in different fields by hundreds of companies, Crossflow has worked with customers to solve many difficult problems.

2010

Our core team members work in the difficult field of industry flow and water reuse. we have a break through in treating high pollution waste water and feed liquid which contains solvent. And the technology was used in famous Pharmaceutical Companies domestically.

2016

Crossflow (Xiamen) Fluid Technology Co., Ltd. was established, it majorly worked in introducing and absorbing the advanced Separation Technology from Euro-American.

2017

Successfully applied the BT/PT High Concentration technology to the fields of Pharmaceutical and Chemical. Replaced the traditional evaporation technology.

2018

Industrialized applying of Continuous Ion Exchange. Ultra-high pressure membrane system applied to the treatment of tough wastewater. Steady mass production of our UF ceramic and spiral wound membranes elements.

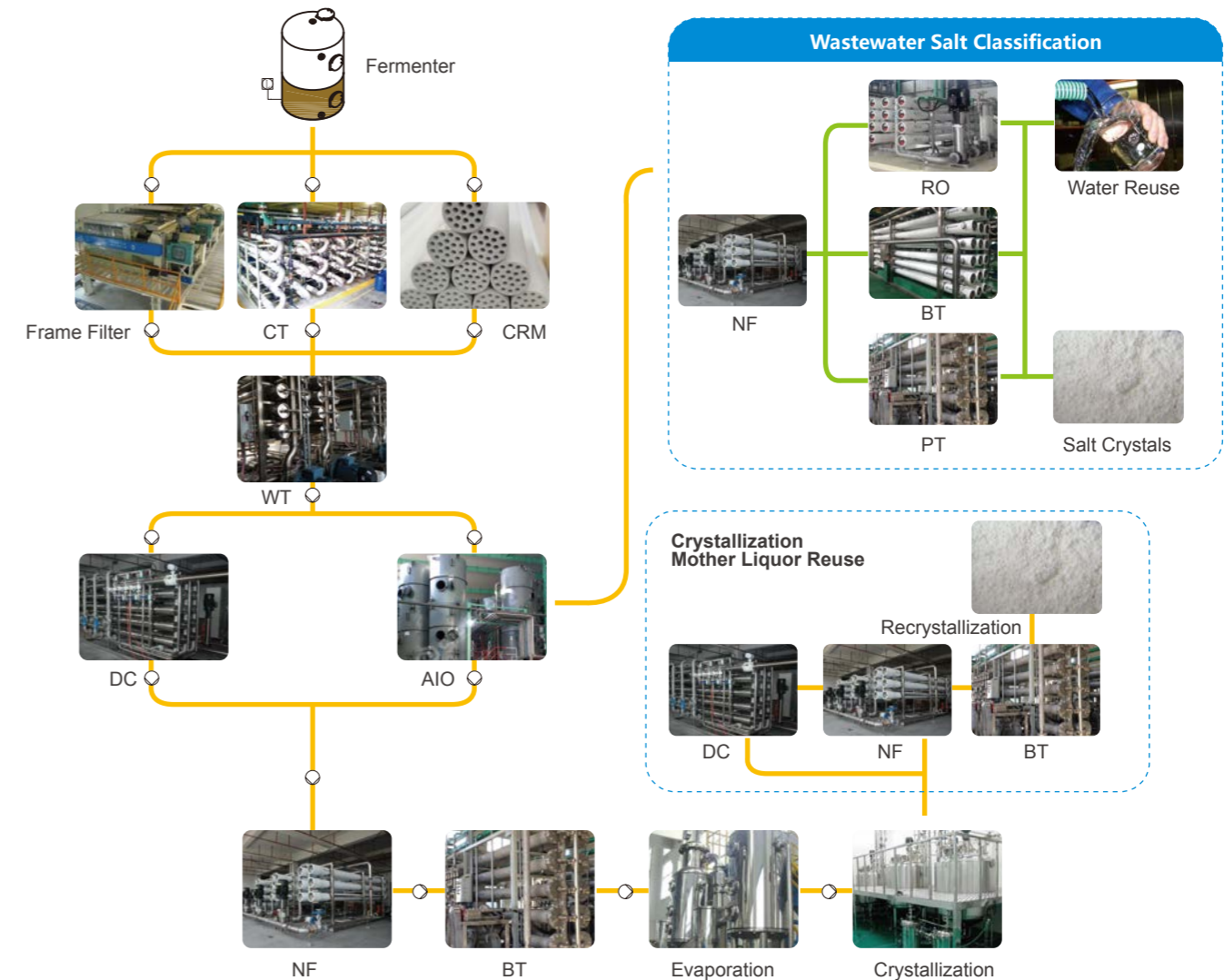
2019

Successfully applied the fine purification technology to the production of Functional Sugar, Vitamin ect. Replace some of the activated carbon and resin process.

Future

Looking forward to cooperation with you for a bright future...

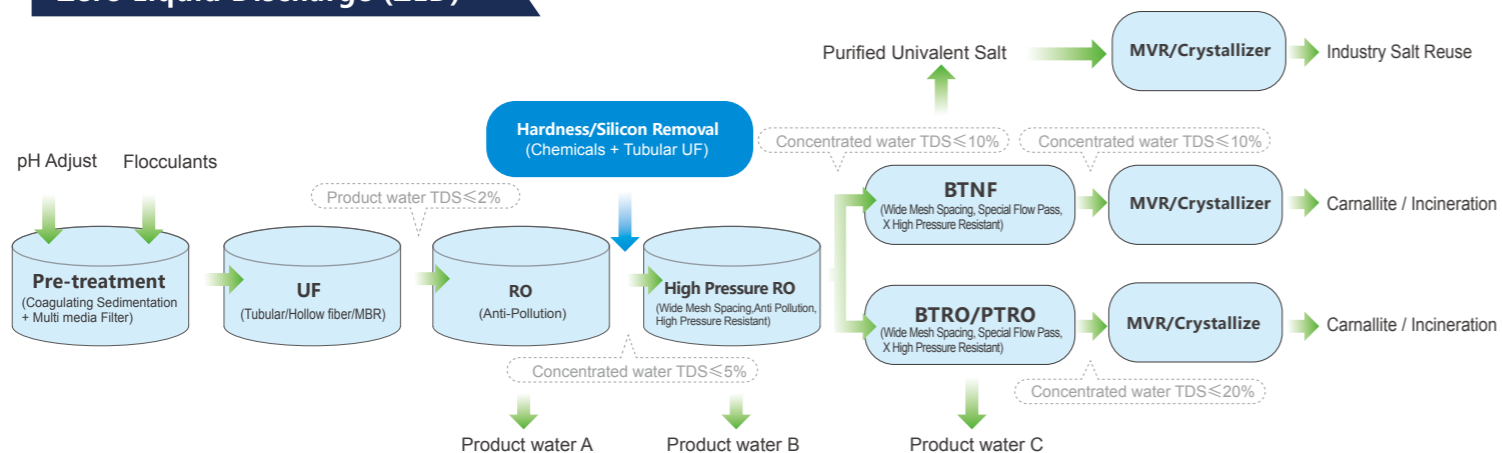
OVERVIEW



WASTEWATER TREATMENT (WWT)

WWT, the removal of impurities from wastewater by physics, chemistry or biology ways. It is a major element of water pollution control to achieve water purity, reduce environmental pollution. So that the water could be recycled & reused. WWT aims at Desalination, Recovery of Acid and Alkali, and Zero Liquid Discharge (ZLD).

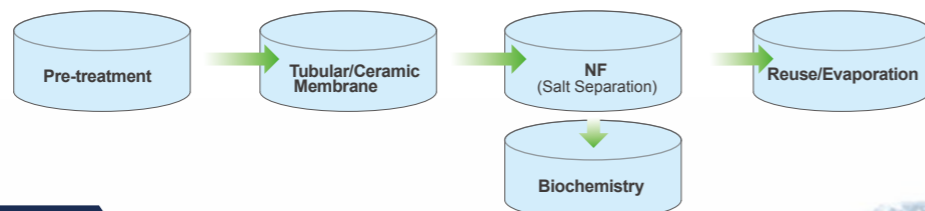
Zero Liquid Discharge (ZLD)



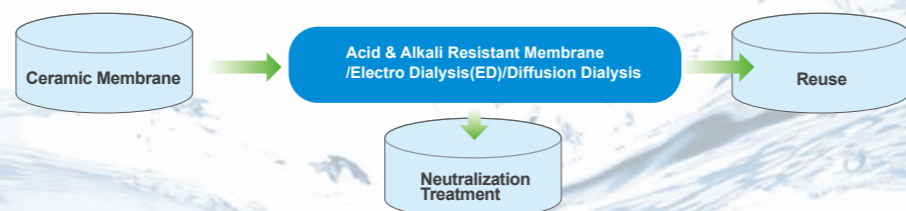
• The product water A/B/C could be reused by grading, mixed discharge or mixed reuse

The recycled process are comprehensive considered & designed by economic & technical parameter, wastewater quality/quantity, and reuse requirement quality/quantity. Crossflow recommend membrane separation, we design according to customer's requirements, to achieve water reuse by grading, till ZLD.

High Salinity Wastewater Reuse

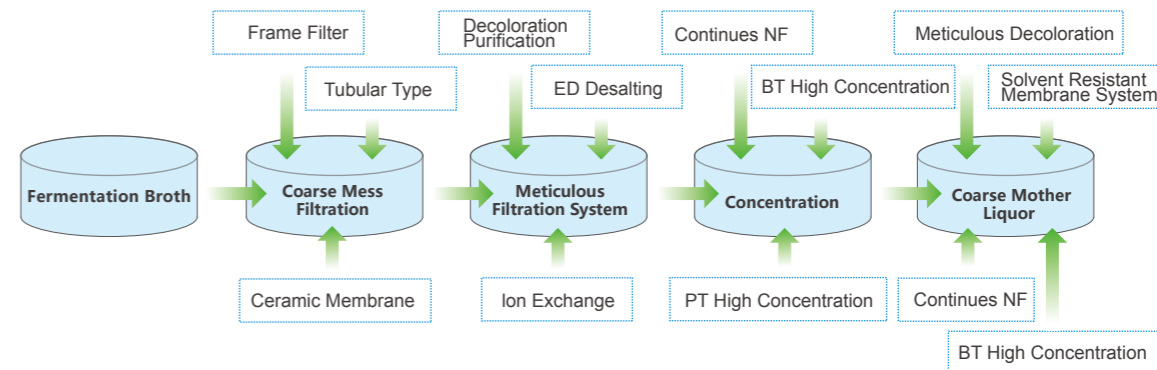


Waste Acid/Waste Alkali Recycle



INDUSTRY FLOW SEPARATION

Membrane Technology is widely and deeply used in Pharmaceutical, Chemical and Food industries. Crossflow represents the world leading fluid technology, devotes to optimizing the technology process, modularization process, offering complete solutions and separation ways enrichment.



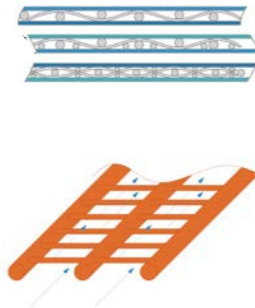
BT HIGH CONCENTRATION SYSTEM

Crossflow introduced advanced membrane element from Germany. BT is specially designed for high time concentration. it comes with strengthen dialysis mesh, special ladder type flow pass. The high pressure vessel and its installation method are different from the normal spiral wound membrane element. which enables a higher concentration.

Strengthen Dialysis Mesh

When a pressure of more than 40Bar hits the normal structure spiral wound membrane. the permeated flow pass could be compacted & blocked, and it would stop the dialyzate flow.

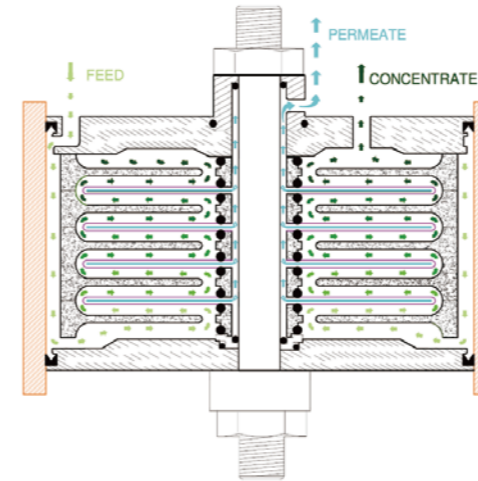
The strengthen anti-compact dialysis mesh and its compressed light fiber structure would offer a more effective support and protection. it could bear a pressure drop of upto 90Bar.



Special Ladder Type Flow Pass

The vertical mesh creates micro flow passes. and horizontal mesh leave space for the membrane. it eliminates the dead angle and creates a good turbulent flow, which enables a higher anti-pollution and a steadier performance. compare to a normal type of spiral wound element.

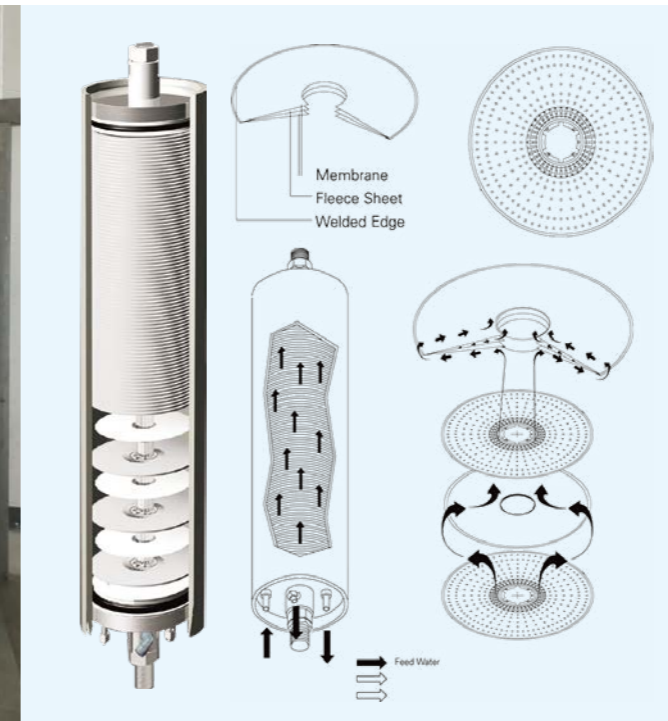
PT HIGH CONCENTRATION SYSTEM



PT has special flow structure design, which enables a stronger anti-pollution performance.

- Wider application range of feed TDS upto 40%.
- Low pre-treatment required, feed SDI could be upto 20. Anti-scaling, can work steadily under a feed hardness of upto 2000mg/L.

Full open flow pass, force turbulence, high anti-pollution performance with X low pre-treatment requirement. High pressure resistant & High integrated design. It could directly desalt/concentrate the high salinity/high concentration material.



CONTINUOUS ION EXCHANGE/CHROMATOGRAPHY

Traditional Resin Separation

- Require plenty of resin, but the use ratio is low, Require many flow valves and operators.
- High consumption of chemicals and water, discharge plenty of wastewater.
- Product quality is not steady, low yield rate.

Continuous Moving Bed

- First Generation: Resin rotating turn-plate with hang-type valve, high risky of complex aerial work.
- Second Generation: Resin rotating turn-plate with ground valve, it requires a high basic structure quality, and appears seriously cutoff.
- Third Generation: Resin rotating turn-plate structure was replaced by ingenious valve design. it makes internal treatment process exchange available. the simplified structure brings an easier system installation, safety and reliable. It had been widely used by many industry fields all around the world.

Continuous Moving Bed Characteristics

No resin rotating turn-plate design brings a lower construction cost. Resin turn-plate and valves could be flexible located. Fast valve switch, less flux influence. Simple structure/supporting system for an easier maintenance. Require less resin/chemicals. Less wastewater discharge.



TUBULAR MEMBRANE SYSTEMS



Characteristics of Memos Tubular Membrane

- PVDF Membrane material with permanent Hydrophobicity. Heat resistant, high chemical and mechanical stability. Anti pollution with high and steady flux.
- Suitable for feed liquid of high concentration, high viscosity. Membrane/vessel separable design, reduce the membrane changing cost.
- Different component specifications. custom designs are available.

Parameter	Unit	Model No.			
		VFU-10	VFU-30	VFU-100	VFU-250
Membrane Material		PVDF			
MWCO	kDa	10	30	100	250
Water Flux	LMH	60	60	300	500
Tubular ID	mm	4-12			

CERAMIC MEMBRANE ELEMENT



Based on the Blue Diamond coating technology, Crossflow has made different flow channel shapes/pore size ceramic membrane elements, which can meet the demand of different situations with lower possible energy consumption.

Tubular Ceramic Membrane											
OD(mm)	25.5	25.5	25.5	30	30	30	40.2	40.2	38	38	38
Channel No.	7	19	27	9	19	37	19	37	19	37	27
Channel Diameter(mm)	6	3.5	2.8	7	4	2.8	6	4	6	4	5.5
Product Length(mm)	1178	1178	1178	1200	1200	1200	1200	1200	1200	1200	1200
Membrane Area(m ²)	0.157	0.246	0.310	0.257	0.286	0.420	0.430	0.557	0.430	0.557	0.550
Plate Type Ceramic Membrane (MBR)											
Model No.	T45/600					T45/1500					
Product Length(mm)	1200					1200					
Membrane Area(m ²)	0.12					0.3					
Membrane Modules Area (m ²)	1.2					30					



Membrane Parameters	
Support Material	$\alpha\text{-Al}_2\text{O}_3$
Membrane Material	MF: $\alpha\text{-Al}_2\text{O}_3$ UF: $\text{ZrO}_2/\text{TiO}_3$
MF Pore Size(nm)	1000、500、200、100
UF Pore Size(nm)	30、20、10
Suitable pH Range	0-14
Sensitivity of Organic Solvent	Negative
Operation Temperature	100 C
Operation Pressure	≤ 0.8

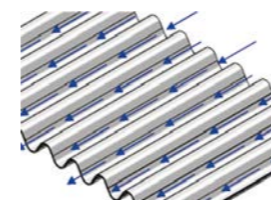
Pure Water Flux $\text{m}^3\cdot\text{m}^{-2}\cdot\text{h}^{-1}$	
1000nm	≥ 5.0
500nm	≥ 3.5
200nm	≥ 2.2
100nm	≥ 1.6
50nm	≥ 0.7
30nm	≥ 0.5
20nm	≥ 0.4
10nm	≥ 0.3

(Testing Condition: Purify water, Temperature 28 C., Transmembrane Pressure 0.15Mpa.)

SPIRAL WOUND MEMBRANE ELEMENT

Crossflow manufactures Spiral Wound Membrane elements with all kinds of separation accuracies of MF,UF,NF,RO.

we design to improve the membrane durability, anti fouling performance and hygiene according to the feed liquid, Crossflow can also provide high heat/pressure resistant modules, to meet some of the tough separation fields.



High Temperature Resistance Hygienic Membrane elements	Acid and Alkali Resistance Membrane elements	High Pressure Resistant Membrane elements	Special Flow Pass Membrane elements
The sterilizing temperature could be upto 85.C	Tolerance $\leq 25\%$ NaOH Can concentrate H_2SO_4 upto 7%.	The operation pressure can be upto 120Bar.	Anti-pollution Rectangular Corrugated flow pass.



MEMBRANE CHEMICALS

Professional membrane chemicals manufacture, with strictly process control, we developed high efficient flocculants agent, anti-scaling agent, sterilizing agent and other kinds of membrane cleaning chemicals. we can develop a customized cleaning solution according to different pollution situation as required.

Membrane Cleaning Agent

Acid type, Alkaline type and Dedicated type.

Water Treatment Chemicals

Anti scaling agent, Sterilizing agent, High efficient flocculants agent and protection agent.

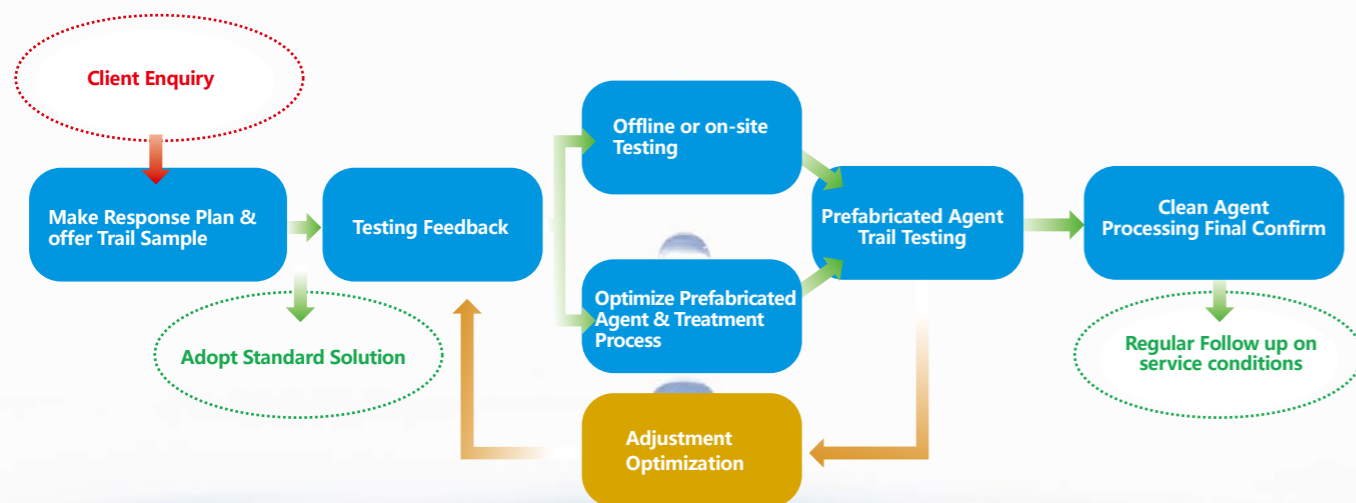
Your Problems



Our Solutions



Membrane Cleaning System Customization



SKID MOUNTED INTEGRATED SYSTEM

Crossflow designs a highly integrated container system according to the flow characteristics and customized requirements.

01

Integrated Type, Combination of multi separation methods.

Turnkey operation or leasing operation available.

02

03

Simple construction, easy transport and commissioning, require small area.

Remote operation, management assisting service available.

04

Multi Modular Skid Mounted Integration System



FERMENTATION BROTH/FRAME FILTER FILTRATE PROCESS

Treatment of Fermentation Broth is the key process in pharmaceutical and food chemical industries, it is the first process, and it impacts the following process significantly. With more than 17 years of Industry Experience, Crossflow offers better separation solution based on investment, environmental protection, quality and other requirements.

Fermentation Broth Treatment Methods:

Treatment Method	Filtrate Quality	Capex	Opex	Environmental Protection
Ceramic Membrane	Medium	Medium	High	Low
UF Ceramic Membrane	High	High	High	Low
Tubular Membrane	High	Low	Medium	Low
Frame Filter(Drum) + Spiral Wound Membrane	High	Low	Low	High

Remark: this table is only for reference as it takes no account of product specificity.



Starch Sugar Purification

Crossflow owns the core technology in starch sugar purification. after starch sugar enzymolysis, there are plenty of impurities, pigment and incomplete enzyme in the process system. the sugar liquor is of high temperature with high viscosity. which may cause the following process more complex. Crossflow could suitably solve the issue with a specific designed WT system.

MOTHER LIQUOR RECOVERY



During chemical preparation, the saturated solution after precipitation and crystallization is called "mother liquor", Mother Liquor contains high impurity/pigment, high sanitary and high object elements, and some specified liquid contains solvent. All the above characteristics has made the pharma - chemical mother liquor recycle a challenge.

If the mother liquor is well treated, an increasing yield of 3-10% can be achieved, there will be more water reuse possibility and less environment protection cost.

Crossflow has developed treatment process for many kinds of mother liquor. We have solved problems and created value for many of our clients.



HIGH CONCENTRATION

Sugar Production

Sugar Concentration from 2% to 30%, reduce the evaporation process. Optimize the process by spray-drying/freeze drying directly, to finally increase the production quality.

Antibiotic Production

High concentration treatment for the product liquid increases the titer of antibiotic. Thin film evaporation was replaced, it reduces the heat sensitive loss and increases the crystallization yield rate and product purity.



Ossein Concentration

Ossein high concentration system concentrates the flavor substance under its original situation. The process is kept and delivered to the evaporation process in high temperature, which would greatly reduce the evaporation cost.

VC/Gulonnic Acid.

The feed acid value is 2-4%, by high concentration, the final acid value is increased to 30%.



TOUGH WASTEWATER TREATMENT

Tough Wastewater (high NH₃-N, high salinity, high COD), are majorly produced by chemical industries like: pharmaceutical, biology, leather production. Tough wastewater has big fluctuation on elements, with high toxicity, and it is difficult to be treated by biochemical ways. Crossflow offers a combined solution for treatment of tough wastewater, to achieve a higher level of water discharge and water recycle.

System Characteristic

Special material, special designed flow pass, anti pollution.
Heat resistant, alkali resistant, easy cleaning.
High pressure resistant, reduce both energy consumption and Capex of evaporation system.
In case of an emergency issue, a remote system assistance is available.

Typical Applications

For recovery of the workshop cleaning liquid, and its mother liquor (recovery of product, salt, acid and alkali)
The separation of macromolecular COD and salt in biochemical process, to improve its biodegradability.
Reuse the total outlet water by grading. Salt crystallization after high pressure concentration.



LAB TESTING EQUIPMENT & TECHNOLOGY DEVELOPMENT



Platform Co-building

Crossflow works with Universities (like: Xiamen University of Technology, Fujian Normal University ect.) to co-build a platform for the graduates. It increases Crossflow's abilities of R&D, analyzing and system applying.



JSBT-1812

Multi functional Spiral Wound Scale Test Equipment

It is used for testing of desalting, decoloration and concentration of different industry flow, to offer feasibility data for industrialized application.



CAIE-3025

Continuous Ion Exchange/Chromatography System

It is a new type of flow separation device, compare to the traditional mixed Iron moving bed, it could significantly improve the separation rate, reduce the resin consumption of more than 70%, save regeneration reagent of more than 35%, and the system is unique flexible.



CMMF-3010

Ceramic/Tubular Pilot Test Equipment.

It is specially used for filtration and purification of extract liquid of Chinese traditional medicine. the filtration/decoloration of thallus from fermentation broth, and the concentration of metallic nano powder.



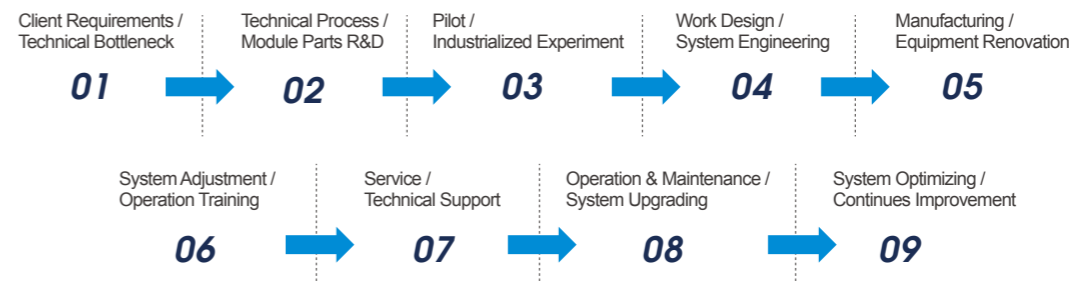
BT/PT-2540

High Concentration Pilot Test Equipment

It is special used for testing high concentration & separation of the tough wastewater (high NH3-N, high salinity, high COD)



FOR YOURS



OUR CUSTOMERS



OUR PARTNERS

