Essential is water to life
Vontron presents inexhaustible supply

VONTRON TECHNOLOGY CO.,LTD

Address: South Huiton Hi-Tech Zone,
No.126 Gaoxin Road, Wudang District,
Guiyang, Guizhou (550018) - CHINA

Tel: +86-851-86270368 | 86270378

Fax: +86-851-86270378

www.vontron.com sales@vontron.com

Beijing Office:

Tel: +86-10-53033980 | 53033981

Fax: +86-10-53033983

© VONTRON TECHNOLOGY CO.,LTD · 2016A

VONTRON

Essential is water to life
Vontron presents inexhaustible supply

Upgrade our value upon the top quality
and strive to become the professional
leader in the world

VISION

Broaden the new sources of supply
and reduce the consumption so as
to bloom the water industry

MISSION

Advocate the science and keep
in pursuit for excellence

VALUE

CHAIRMAN'S MESSAGE

Evolved from "Vontron Enviro-Tech" via "Vontron Membrane Technology", Vontron Technology Co., Ltd. has grown up through the past years. By virtue of innovation and advancement, we have survived in the intensively competing market where only the fittest and the excellent can survive. We are contained in this ecological system, and in return make contributions to this system. We've successfully merged the individual value in the corporate value, and merged the corporate value in the social value. We are wholeheartedly grateful to our valuable customers for their unswerving support in the past years.

We will be, as always, making relentless efforts to contribute our value to the society in the coming era. We are always following the corporate philosophy of "surpassing ourselves and keeping in endless pursuit", and are making our best efforts to demonstrate the spirits of tenacity, wisdom and innovation.

We are always treating the world with a thanksgiving heart
since we are bestowed with the blooming life.

蔡志奇

COMPANY MEMORABILIA

December 2000

December 2000: Vontron Enviro-Tech Co., Ltd. was established and duly registered.

July 2001

The Company imported from the United States a complete set of equipment and technology for composite RO membrane production.

February 22, 2002

The producing technology and equipment for RO membranes imported from abroad passed the Appraisal of New Technical Achievements organized by the Science & Technology Department of Guizhou Province.

The year of 2003

VONTRON's membrane products entered the market.

November 25, 2003

The company was certified to ISO9001:2000 Quality Control System of China Quality Certification Center.

From November 9 to November 11, 2006

Vontron succeeded in organizing the "All-China RO Membrane Domesticization Forum 2005" held in Guiyang, China.

January 10, 2006

VONTRON's residential RO membranes were Certified to NSF/ANSI 58.

2000 2001 2002 2003 2004 2005 2006 2007 2007 2008 2009 2010 2011 2012 2013 2015

July 2007

Vontron Technology Co., Ltd. was established and registered in Beijing.

November 2011

Vontron's membrane products were certified to WQA Gold Seal .

January 2015

Vontron was Certified to NSF-61

COMPANY PROFILE

Vontron Technology Co., Ltd. is specialized in R&D, manufacture and technical service of RO and NF membrane elements. Owning the core technology and capability for fabrication of membrane sheets, Vontron is the biggest professional manufacturer of compound RO membranes in China, and is the provider of system design and applied service with powerful technical support. Vontron owns and operates its production lines in Guiyang, amounting to a total yearly capacity of 17 million square meters of RO/NF membrane sheets,which it will expand to 30 million square meters by 2017.

Vontron Technology Co., Ltd. will, as always, carry out the corporate spirit of "Surmounting Ourselves and Keeping in Endless Pursuit", and will devote itself to becoming one of the worldwide top suppliers in the membrane industry with large scale, top quality, highest level technology, complete product directory and best service.

CERTIFICATION

Certificate of ISO9001

NSF/ANSI-58、NSF/ANSI-61

Certificate of WQA Gold Seal

Verification of Conformity for RoHS Directive of Residential Membrane Elements

GOVERNMENTAL APPROVAL

Vontron has obtained the health license issued by Department of Health of Guizhou province

PRODUCTS

Catalog of Industrial RO Membrane Elements

Type	Model	Reject (%)	Average Permeate GPD (m^3/d)	Working Pressure & Application Fields	Testing Conditions		
					Pressure psi(MPa)	Solution Concentration NaCl(ppm)	Recovery Rate(%)
Extra Low Pressure Element	XLP11-4040	98.0	2000 (7.6)	Working under extremely low pressure. Applicable to feedwater with low salinity that requires relatively low rejection rate.	100 (0.69)	500	15
	XLP12-8040	98.0	9000(34.0)				
Ultra Low Pressure Element	ULP12-8040	98.0	13200 (49.9)	Working under ultra low pressure, applicable to feedwater with fairly low salinity.	150 (1.03)	1500	15
	ULP21-8040	99.0	11000 (41.6)				
	ULP22-8040	99.0	12100 (45.7)				
	ULP32-8040	99.5	10500 (39.7)				
	ULP11-4040	98.0	2700 (10.2)				
	ULP21-4040	99.0	2400 (9.1)				
	ULP31-4040	99.4	1900 (7.2)				
	ULP11-4021	98.0	1000 (3.78)	Working under ultra low pressure. Applicable to commercial water purifiers, and water purifying devices for hospitals and laboratories.	150 (1.03)	1500	8
	ULP21-4021	99.0	950 (3.6)				
	ULP31-4021	99.4	850 (3.2)				
	ULP21-2521	99.0	300 (1.13)				
	ULP21-2540	99.0	750 (2.84)				15
Brackish Water Element	LP21-8040	99.5	9600 (36.3)	Working under low pressure. Applicable to regular or high-concentration brackish water.	225 (1.55)	2000	15
	LP22-8040	99.5	10500 (39.7)				
	LP21-4040	99.5	2400 (9.1)				
Fouling Resistant Element	FR11-8040	99.5	9600 (36.3)	Working under low pressure. Applicable to feedwater with small content of contaminants (organic substances, colloids)	225 (1.55)	2000	15
	FR12-8040	99.5	10500 (39.7)				
	FR11-4040	99.5	2200 (8.3)				
High Oxidation Resistant Element	HOR21-8040	99.2	9000(34.0)	Applicable to feedwater with oxidative substances or serious microbial contamination.	225 (1.55)	2000	15
	HOR21-4040	99.2	2200(8.3)				
Seawater Desalination Element	SW8040XHR-400	99.85	6000 (22.7)	Working under high pressure. Applicable to seawater or quasi seawater.	800 (5.5)	32800	8
	SW8040HR-400	99.8	7500 (28.4)				
	SW8040LE-400	99.8	9000 (34.0)				
	SW8040XLE-400	99.7	11000 (41.6)				
	SW4040HR	99.8	1600 (6.1)				
	SW4040LE	99.7	1900 (7.2)				
	SW4021	99.5	750 (2.8)	Working under high pressure. Applicable to small-sized systems in military ships, marine ships, laboratories, etc. for desalination of seawater or high-concentration brackish water.			
	SW2521	99.5	270 (1.0)				4
	SW2540	99.5	600 (2.3)				

Catalog of Residential RO Elements

Type	Model	Reject (%)	Average Permeate GPD (m^3/d)	Working Pressure & Application Fields	Testing Conditions		
					Pressure psi(MPa)	Solution Concentration NaCl(ppm)	Recovery (%)
General extra Low Pressure Element	ULP1812-50	97.5	50 (0.19)	Working under extremely low pressure. Applicable to residential water purifiers and water purifying devices in hospitals and laboratories for treatment of feedwater with TDS lower than 500 ppm.	60 (0.41)	250	15
	ULP1812-75	97.5	75 (0.28)				
	ULP2012-100	95.0	100 (0.38)				
Residential oxidation Resistant Element	HOR2012-50	97.5	50 (0.19)	Applicable to water sources with oxidising substances or high microbial pollution.	60 (0.41)	250	15
Residential Element with High Water Flux	ULP2812-200	97.0	200 (0.76)	Working under extremely low pressure. Applicable to automatic water dispensers and residential drinking fountains.	100 (0.69)	500	15
	ULP3012-300	97.0	300 (1.14)				
	ULP3020-420	97.0	420 (1.60)				

Notes: For more information, please refer to VONTRON Technical Manual for Residential RO and NF Membranes.

Catalog of Nanofiltration Membranes

Type	Model	Reject. (%)	Average Permeate GPD (m^3/d)	Working Pressure & Application Fields	Testing Conditions		
					Pressure psi(MPa)	Solution Concentration	Recovery (%)
Residential NF Element	VNF-1812	30±10	100 (0.38)	Working under extremely low pressure, applicable to various home-drinking purifiers, mineralizing drinking machines, etc.	60 (0.41)	250ppm (NaCl)	15%
		≥85				250ppm ($CaCl_2$)	15%
	VNF-2012	30±10	120 (0.45)		60 (0.41)	250ppm (NaCl)	15%
		≥85				250ppm ($CaCl_2$)	15%
	VNF-2812	30±10	300 (1.14)		60 (0.41)	250ppm (NaCl)	15%
		≥85				250ppm ($CaCl_2$)	15%
Industrial NF Element	VNF1-8040	30 ~ 50	12000 (45.5)	Working under extremely low pressure, applicable to production of drinking water and softening of feedwater.	100 (0.69)	2000ppm (NaCl)	15%
		≥96	10000 (37.9)		100 (0.69)	2000ppm ($MgSO_4$)	15%
	VNF2-8040	90 ~ 98	10000 (37.9)		100 (0.69)	2000ppm (NaCl)	15%
		≥96	10000 (37.9)		100 (0.69)	2000ppm ($MgSO_4$)	15%
	VNF1-4040	30 ~ 50	2400 (9.1)		100 (0.69)	2000ppm (NaCl)	15%
		≥96	2000 (7.5)		100 (0.69)	2000ppm ($MgSO_4$)	15%
	VNF2-4040	90 ~ 98	2000 (7.5)		100 (0.69)	2000ppm (NaCl)	15%
		≥96	1800 (6.8)		100 (0.69)	2000ppm ($MgSO_4$)	15%
	VNF1-2540	30 ~ 50	800 (3.03)		100 (0.69)	2000ppm (NaCl)	15%
		≥96	650 (2.46)		100 (0.69)	2000ppm ($MgSO_4$)	15%
	VNF2-2540	90 ~ 98	700 (2.65)		100 (0.69)	2000ppm (NaCl)	15%
		≥96	700 (2.65)		100 (0.69)	2000ppm ($MgSO_4$)	15%
NF Element for Special-purpose Separation	VNF-8040K	≥98	10000 (37.9)	Applicable to separation and concentration/purification processes for foodstuff, medicine, biological engineering and pollution treatment, etc.	100 (0.69)	2000ppm ($MgSO_4$)	15%

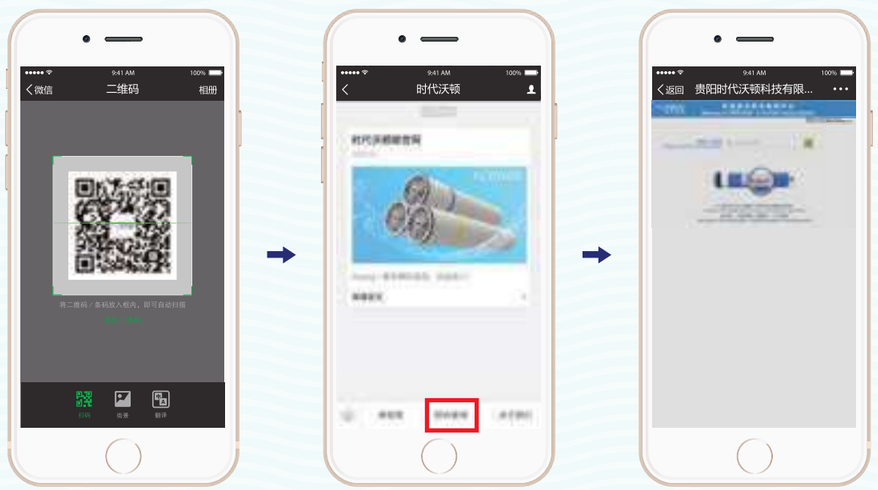
ANTI-FAKE INQUIRY

Login Vontron's website for inquiry

Option 1: Login Vontron's website for inquiry.
Webpage: http://track.vontron.com/

Inquiry with Wechat

Option 2: Inquiry with Wechat



Scan the QR code and Link to the official account of Vontron

Click on "Anti-fake Inquiry"

Enter the inquiry page in your cellular phone.

ANTI-FAKE INQUIRY

Industrial RO Membrane Elements

Extra Low Pressure Element—XLP Series:

Working under extremely low pressure, applicable to feedwater with low salinity that requires low rejection rate.

Ultra Low Pressure Element—ULP Series:

Working under ultra low pressure, applicable to feedwater with fairly low salinity.

Brackish Water Element—LP Series:

Working under low pressure, applicable to regular or high-concentration brackish water.

Fouling Resistant Element—FR Series:

Working under low pressure, applicable to feedwater with small content of contaminants (organic substances and colloids).

High Oxidation Resistant Element—HOR Series:

Applicable to feedwater with oxidative substances or serious microbial contamination.

Seawater Desalination Element—SW Series:

Working under high pressure, applicable to seawater and quasi-seawater, and small-sized systems in military ships, marine ships, laboratories, etc. for desalination of seawater or high-concentration brackish water.

Residential RO Membrane Elements

General extra Low Pressure Element:

Working under extremely low pressure, applicable to residential water purifiers and water purifying devices in hospitals and laboratories for treatment of feedwater with TDS lower than 500 ppm.

Residential oxidation Resistant Element:

Applicable to water sources with oxidizing substances or high microbial pollution.

Non-standard Element:

Working under extremely low pressure, applicable to automatic water dispensers and residential drinking fountains.

Nanofiltration Membrane Elements

Residential NF Element:

Working under extremely low pressure, applicable to various home-drinking purifiers, mineralizing drinking machines, etc.

Industrial NF Element:

Working under extremely low pressure, applicable to production of drinking water and softening of feedwater.

NF element for special-purpose separation:

Applicable to separation and concentration/purification processes for foodstuff, medicine, biological engineering and pollution treatment, etc.

APPLICATION FIELDS


Power Industry


Chemical Industry


Metallurgical Industry


Foodstuff and Beverage


Pharmaceutical Industry

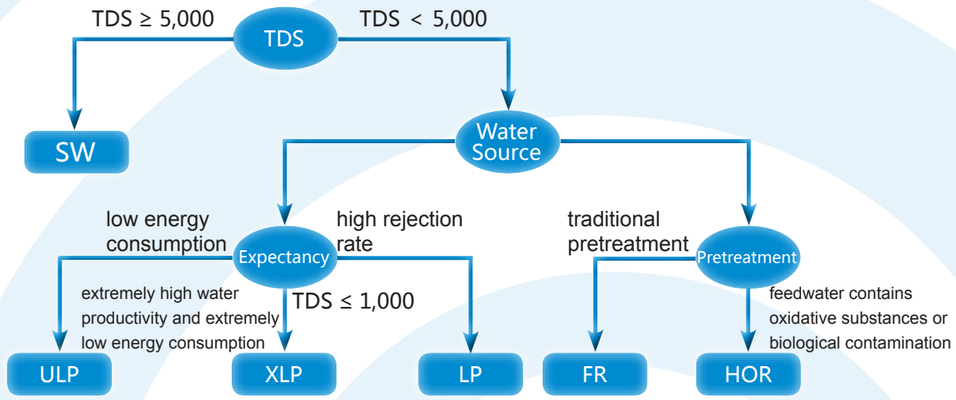

Electronic Industry


Water Treatment


Seawater Desalination


Drinking Water

FRAME DIAGRAM OF SELECTION OF MEMBRANE ELEMENTS



BRACKISH WATER (LP) SERIES ELEMENT

Production Introduction

The LP (low pressure) series of aromatic polyamide compound membrane element developed by Vontron Technology Co., Ltd. has the properties of low-pressure operation, high permeate flow and excellent desalination and is applicable to desalination of brackish water. Besides, it is particularly applicable to fabrication of high-purity water for electronic industry and electric power industry owing to its excellent performance in removing soluble salts, TOC, SiO_2, etc.

Being suitable for desalting such water sources as surface water, underground water, tap water and municipal water, etc., LP series is mainly applicable to treatment of various industrial water such as industrial-purpose pure water, boiler water replenishment in power plants, and can be also applied to such brackish water applications as treatment of high-concentration saline wastewater and production of beverage-purpose water.

Specifications and Major Properties

Model	Active Membrane Area $ft^2(m^2)$	Average Permeated Flow GPD(m^3/d)	Stable Rejection Rate (%)	Minimum Rejection Rate (%)
LP21-8040	365(33.9)	9600(36.3)	99.5	99.3
LP22-8040	400(37.0)	10500(39.7)	99.5	99.3
LP21-4040	90(8.4)	2400(9.1)	99.5	99.3

Testing Conditions

Testing Pressure..... 225psi (1.55Mpa)
Testing Solution Temperature.....25℃
Testing Solution Concentration (NaCl).....2000ppm
pH Value of Testing Solution 7.5
Single Element Recovery.....15%

VONTRON

SEAWATER DESALINATION ELEMENT – SW SERIES

Testing Conditions

Testing Pressure.....800psi (5.5Mpa)
Testing Solution Temperature.....25℃
(NaCl) Testing Solution Concentration (NaCl) 32800ppm
pH Value of Testing Solution.....7.5
Single Element Recovery.....8%(8040/4040/2540)
4%(4021/2521)

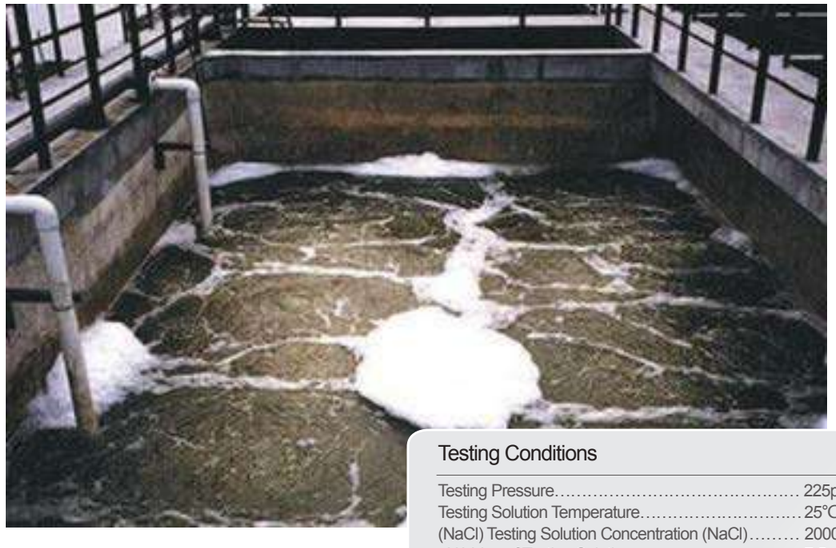
VONTRON

Production Introduction

SW series of aromatic polyamide compound membrane element developed by Vontron Technology Co., Ltd. is applicable to desalination of seawater. By optimizing the structure of membrane element, the SW series increases the permeate flow, and requires fewer elements for same permeate flow. It is characterized by low operating pressure, low investment in equipment, excellent rejection rate and reliable performance, and its high salt rejection can ensure to produce the drinking water from seawater simply through one-pass RO design. Applicable to treatment of seawater and high-concentration brackish water, the SW series of membrane element is designed for various industrial water treatment, such as seawater desalination, high-concentration brackish water desalting, boiler water replenishment for power plants, and is also applicable to various fields such as recycling of wastewater, concentration and reclamation of such substances with high additional value in foodstuff, pharmaceuticals.

Model	Active Membrane Area $ft^2(m^2)$	Average Permeated Flow GPD(m^3/d)	Stable Rejection Rate (%)	Minimum Rejection Rate (%)
SW8040XHR-400	400 (37.2)	6000 (22.7)	99.85	99.75
SW8040HR-400	400 (37.2)	7500 (28.4)	99.8	99.7
SW8040LE-400	400 (37.2)	9000 (34.1)	99.8	99.7
SW8040XLE-400	400 (37.2)	11000 (41.6)	99.7	99.6
SW4040HR	85 (7.9)	1600 (6.1)	99.8	99.7
SW4040LE	85 (7.9)	1900 (7.2)	99.7	99.6
SW4021	33 (3.1)	750 (2.8)	99.5	99.3
SW2521	12 (1.1)	270 (1.0)	99.5	99.3
SW2540	28 (2.6)	600 (2.3)	99.5	99.3

FOULING RESISTANT ELEMENT – **FR SERIES**



Testing Conditions

Testing Pressure	225psi (1.55Mpa)
Testing Solution Temperature	25℃
(NaCl) Testing Solution Concentration (NaCl)	2000ppm
pH Value of Testing Solution	7.5
Single Element Recovery	15%

VONTRON

Production Introduction

FR (fouling resistant) series of aromatic polyamide RO membrane element developed by Vontron Technology Co., Ltd. is applicable to desalination of brackish water. It is characterized by low-pressure operation, higher water productivity and excellent desalting performance. Moreover, special treatment has been made to the surface of membrane with unique technology to change its electrical charge and smoothness, increasing the hydrophilicity of membrane surface, thus decreasing the adhesion of contamination and microbe so as to lessen the pollution and extend the service life of elements.Owing to the adoption of new design with 34mil-width feedwater channel, it has better fouling resistance and washability.

Vontron's fouling resistant products are designed for desalting treatment of such water with salt concentration less than 10,000 ppm as surface water, underground water, tap water and municipal water, etc. It is mainly applied to treatment of various industrial water applications, such as reuse of industrial reclaimed water and boiler water replenishment for power plants, etc., and is particularly applicable to treatment of those water containing slight organic pollutants such as industrial wastewater, municipal sewage and other slightly contaminated water.

Specifications and Major Properties

Model	Active Membrane Area $ft^2(m^2)$	Average Permeated Flow GPD(m^3/d)	Stable Rejection Rate (%)	Minimum Rejection Rate (%)
FR11-8040	365 (33.9)	9600 (36.3)	99.5	99.3
FR12-8040	400 (37.2)	10500 (39.7)	99.5	99.3
FR11-4040	90 (8.4)	2200 (8.3)	99.5	99.3

HIGH OXIDATION RESISTANT ELEMENT – **HOR SERIES**

Production Introduction

HOR (high oxidation resistant) series of aromatic polyamide compound membrane element newly developed by Vontron Technology Co., Ltd. has the properties of low operating pressure, high permeate flow and excellent rejection performance, etc. Besides, the use of special synthesizing process enhances the oxidation property of membrane element and enables the membrane element to endure the impact by certain magnitude of oxidative substance, thus simplifying and optimizing the pretreatment process of RO system, decreasing the microbial contamination of membrane element, saving the operating cost and elongating the service life.

Industrial HOR series is designed for the desalting treatment of those water sources with salinity lower than 10000ppm such as surface water, underground water, tap water and municipal water, and is especially applicable to reuse treatment of those water sources that contain microbial contamination or oxidative substance, such as municipal-purpose or industrial-purpose reclaimed water, electroplating wastewater.

Specifications and Major Properties

Model	Active Membrane Area $ft^2(m^2)$	Average Permeated Flow GPD(m^3/d)	Stable Rejection Rate (%)	Minimum Rejection Rate (%)
HOR22-8040	400 (37.2)	9000 (34.1)	99.5	99.2
HOR21-4040	90 (8.4)	2200 (8.3)	99.5	99.2

Testing Conditions

Testing Pressure	225psi (1.55Mpa) (8040/4040)
Testing Solution Temperature	25℃
(NaCl) Testing Solution Concentration (NaCl)	2000ppm (8040/4040)
pH Value of Testing Solution	7.5
Single Element Recovery	15%

VONTRON

NANOFILTRATION MEMBRANES
– RESIDENTIAL ELEMENT

Production Introduction

Applicable to various small-sized drinking systems, such as home drinking water purifiers, mineralized drinking fountains, the residential NF elements are designed for removing from water various organics, microbes, viruses and most metallic ions with two or higher valence while retaining part of the sodium, potassium, calcium and magnesium ions, etc., thus improving the mouthfeel of purified water and maintaining the content of mineral nutrition.

Specifications and Major Properties

Model	Active Membrane Area $ft^2(m^2)$	Average Permeated Flow GPD(m^3/d)	Stable Rejection Rate (%)	Minimum Rejection Rate (%)
VNF-1812	4.4 (0.41)	NaCl	100 (0.38)	30±10
		$CaCl_2$		≥ 85
VNF-2012	4.4 (0.41)	NaCl	120 (0.45)	30±10
		$CaCl_2$		≥ 85
VNF-2812	5.0 (0.46)	NaCl	300 (1.14)	30±10
		$CaCl_2$		≥ 85

Notes: The permeate flow of single membrane element may vary within(-20%)-(20%)

Testing Conditions

Testing Pressure ..... 60 psi (0.41Mpa)
Temperature of Testing Solution..... 25℃
Concentration of Solution (NaCl)..... 250ppm
Concentration of Solution ($CaCl_2$) 250ppm
pH Value of Solution 7.5
Single Element Recovery 15%

VONTRON

NANOFILTRATION MEMBRANES
– INDUSTRIAL-PURPOSE ELEMENT

Production Introduction

The industrial nanofiltration element is designed for removing from water various organics, microbes, viruses and most metallic ions with two or higher valence while retaining part of the sodium, potassium, calcium and magnesium ions, etc. Nanofiltration, free of chemical reaction, heating and transformation, can keep the biological activity undamaged and maintain the primary flavor or fragrance of substance unchanged, and is increasingly applied in production of drinking water and in separation and concentration/purification processes for foodstuff, medicine, biological engineering and pollution treatment, etc.

VNF1 Relatively low rejection rate of monovalent salt; Moderate rejection rate of divalent salt; High removal rate of TOC.

VNF2 Higher rejection rate; Satisfactory removal of insecticide, herbicide, TOC and transition metals

K series With new design of wider feedwater channel, this element is designed for special-purpose separation, and has better pressure resistance and fouling resistance, and has higher selective separation performance to monovalent, divalent and multivalent ions.

Testing Conditions

Testing Pressure .....100 psi (0.69Mpa)
Temperature of Testing Solution.....25℃
Concentration of Solution (NaCl) 2000ppm
Concentration of Solution ($MgSO_4$) 2000ppm
pH Value of Solution.....7.5
Single Element Recovery..... 15%

VONTRON

Specifications and Major Properties

Model	Active Membrane Area $ft^2(m^2)$	Solution Type	Average Permeate GPD(m^3/d)	Stable Rejection(%)
VNF1-8040	400 (37.2)	NaCl	12000 (45.5)	30 ~ 50
		$MgSO_4$	10000 (37.9)	≥ 96
VNF2-8040	400 (37.2)	NaCl	10000 (37.9)	90 ~ 98
		$MgSO_4$	10000 (37.9)	≥ 96
VNF-8040K	400 (37.2)	$MgSO_4$	10000 (37.9)	≥ 98
VNF1-4040	80 (7.4)	NaCl	2400 (9.1)	30 ~ 50
		$MgSO_4$	2000 (7.5)	≥ 96
VNF2-4040	80 (7.4)	NaCl	2000 (7.5)	90 ~ 98
		$MgSO_4$	2000 (7.5)	≥ 96
VNF1-2540	28 (2.6)	NaCl	800 (3.03)	30 ~ 50
		$MgSO_4$	650 (2.46)	≥ 96
VNF2-2540	28 (2.6)	NaCl	700 (2.65)	90 ~ 98
		$MgSO_4$	700 (2.65)	≥ 96

Notes: 2) Minimum rejection to $MgSO_4$ of VNF1 is 94.0%

R&D

R&D TEAM

Vontron Technology Co., Ltd. owns an R&D team consisting of experts and engineers with senior educational background, among whom more than 60% have a master's degree, and more than 20% have a doctor's degree.

The R&D Center is devoted to research and development of membrane separation materials, module structure and system application, and has obtained certain achievements in the fields of membrane materials, membrane manufacturing technology and membrane manufacturing equipment.

R&D CAPABILITY

Vontron's R&D Center owns a well-equipped membrane laboratory and a team of experts who, having been engaged in water treatment for many years and having rich experience in practice, are capable of autonomously developing the compound RO membranes widely applicable to the field of water treatment and providing better solutions of system design. By virtue of its solid technical strength, it can ensure the powerful technical support to the customers along with the expansion and extension of product category.

After its establishment, the R&D Center has focused on overall improving its capability in technical innovation, optimizing the resource allocation for technical innovation and improving the efficiency of technical innovation so as to enhance the competitive power and develop impetus of the company.

Key R&D Project

- State's Key New Product Project: Low-Pressure Compound RO Membrane LP21-8040
- State's Key New Product Project: Energy-saving RO Membrane Element 1812-Sized
- National 863 Project: Experiment and Research of the Application of Compound RO Membrane to Seawater Desalination
- National 863 Project: Development of Key Materials for Energy-Saving Low-Pressure RO Membrane
- State' Key Science and Technology Support Program: Configuration Design and Process Development of High Fouling Resistant Membrane
- National 863 Project: Key Technology on Large Scale Manufacture of High-performance Separating Materials

Design and Research Capability
Inspection and Testing Capability
Process Control Capability
Applied Research and Service Capability

VONTRON

ACQUISITION OF PATENTS

As of January 2016, totally 58 patents have been authorized to Vontron, of which 27 items are patents for inventing (including 1 patent authorized in Korea and 1 patent authorized in Taiwan) and 31 items for utility model.

Some of the authorized patents include:

1. Patent for Invention: An Oxidation-resistant Composite Reverse Osmosis Membrane; China; [200610051219.X]
2. Patent for Invention: A Method for Production of Fouling Resistant Composite Reverse Osmosis Membrane; China; [200610051205.8]
3. Patent for Invention: A Method for Production of Extremely Low Pressure Composite Reverse Osmosis Membrane; China; [200610051192.4]
4. Patent for Invention: An Oxidation-resistant Composite Reverse Osmosis Membrane; Korea; [10-2008-0018854]

MANUFACTURING

PROFESSIONAL
MANUFACTURE EQUIPMENT AND CAPACITY

Vontron owns the core technology for fabricating of membrane sheets, with annual capacity of 17 million square meters of reverse osmosis and nanofiltration membrane sheets.

Besides continuously improving the technological process and formula technology, Vontron has also been reasonably and feasibly conducting technical upgrading and renewal of production equipment and reconstructed its polyamide RO membrane production line, thus effectively decreasing the consumption of materials.



ENGINEERING CASES

Engineering Case

BEIHAI THERMAL POWER PLANT

Project of Beihai Thermal Power Plant – A Typical Reference of Recycled Water Reuse

The project of recycled water recovery and reuse constructed in Beihai Thermal Power Plant subsidiary to Dalian Thermal Power Co., Ltd. was the key project of Dalian City in 2006, and as a project of “Energy Conservation, Emission Reduction, and Development of Circular Economy”, it was favored with priority by the state-level government.

Vontron’s membrane is currently used by Dalian Thermal Power Co., Ltd. for recovery and reuse of polluted municipal water. It is demonstrated in practice that Vontron’s membrane not only has stable and reliable performance after long period of running, but also enjoys the comprehensive properties equivalent to international advanced level.

Place of Project: Dalian, Liaoning Province

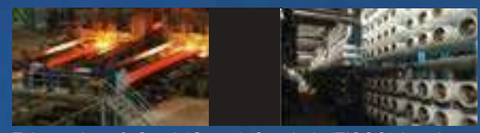
Purpose: Reuse of Wastewater
System Capacity: 12,000 T/D
Vontron Membranes Installed: 175 pcs
Model: FR12—8040

After 5 Years’ Operation

Running Pressure: 1.0 MPa
Temperature: 20 ℃
System Rejection: 98%
System Recovery: 75%
Flow Rate of Single Set: 100t/h

Engineering Case

PROJECT OF TAIYUAN IRON & STEEL (GROUP) CO., LTD.



Taiyuan Iron & Steel (Group) Co., Ltd. (TISCO) is a large iron & steel enterprise, which has been equipped with largest production capacity in the world and owned the most advanced technology and equipment of stainless steel. The annual steel production of TISCO reached 9.98 million tons in 2013, while sales revenues were RMB 146 billion and profit RMB 500 million, ranking in the forefront of the industry.

Vontron membranes have been used since 2014 in the project of TISCO, for reclamation and reuse of wastewater. The consumption of new water has reduced to 1.45 m^3 for each ton of steel,which is the lowest new water consumption for per ton of steel until now. TISCO has been leading in water-saving and emission-reduction in domestic industry, achieving the win-win strategy of water treatment and wastewater utilization.

Place of Project: Taiyuan, Shanxi Province

Feed Water Quality: Municipal sewage & steel wastewater
Purpose: Process water
Online Time: Early 2014
System Capacity: 34000 T/D
Vontron Membranes Installed: 1071 pcs
Model: New-Type Fouling Resistant Membrane Element

Benefit Analysis of Project

For the wastewater reuse project, the design permeate is 600 m^3/h,and 14000 tons of qualified desalted water are produced from this project per day, saving new water 14000 tons per day and around 5.25 million tons per year.

Engineering Case

PROJECT OF SHANGHAI COKING & CHEMICAL CO., LTD.

– A Typical Reference of Boiler Water Replenishment

Incorporated in 1958, Shanghai Coking & Chemical Co Ltd is a large-scale chemical enterprise with total assets at RMB 7 billion (about USD 11 billion) and annual turnover at RMB 6.5 billion (about USD 1 billion). An RO system using foreign brand membrane elements was put into operation in a subsidiary of Shanghai Coking & Chemical Co ltd in early 2008. Using the water taken from Huangpu River as its feedwater, the product water was used as the replenishment water for the boiler. The foreign-brand membrane elements were replaced by FR21-8040 elements of Vontron in December 2009.

Following is the comparison of system performance chart before and after replacement of membrane elements

Item	Before Replacement (End of 2009)	After Replacement (End of 2009)	Initial Operation (Beginning of 2008)	Two Years After Replacementn (December 2011)
Brand	Foreign Brand	FR21-8040	Foreign Brand	FR21-8040
Feedwater Pressure / bar	13.8	10.1	10.8	10.5
Inter-stage Pressure /bar	9.5	9.2	9.9	8.9
Concentrate Pressure / bar	8.33	8.6	9.33	8.1
System Premeate Flow /m^3•h^{-1}	83.33	124	120	113
System Concentrate Flow /m^3•h^{-1}	25.7	40	40.7	36.3
Recovery /%	76.07	75.6	74.7	75.7
Feedwater Conductivity /μS•cm^{-1}	700	704	720	828
Permeate Water Conductivity /μS•cm^{-1}	45.7	15	18	26.8
System Rejection /%	93.47	97.9	97.5	97.8
Temperature /℃	25	23.4	22.5	27.6
Energy Consumption /kw•h•m^{-3}	0.87	0.59	0.65	0.673

After being replaced with FR21-8040 elements of Vontron, the system has been running in good conditions, and achieved the goal of decreasing energy consumption while the system remains the roughly same performance, testifying that Vontron's membrane products can fully satisfy the requirements of RO treatment system.

LIST OF REFERENCES

Name of User	Model	Feedwater	Purpose	Online Data	System Capacity(m^3/d)
Shanghai Coking & Chmical Co., Ltd. China(Double-pass RO)	FR21-8040	Surface Water	Boiler Replenishment	2009	8640
China Resources Snow Breweries	LP21-8040/ New-Type Fouling Resistant membrane	Underground Water	For Technological Process	2010	20000
Dalian Development Zone Thermal Power Plant, CGDC	FR11-8040	Reclaimed Water	Boiler Replenishment	2011	7200
A Company in Shandong, China (two-passes RO)	LP22-8040	Reclaimed Water	For Technological Process	2011	24000
A Circuit Board Factory in Shenzhen, China	FR11-8040	Electroplating Wastewater	Industrial water	2011	1500
Shandong Weiqiao Pioneering Group Co., Ltd.	FR11-8040/ New-Type Fouling Resistant membrane	Surface Water	Boiler Replenishment	2012	50000
China Railway Equipment Manufacturing Material Co., Ltd.	New-Type Fouling Resistant membrane	Wastewater	Boiler Replenishment	2013	24000
A Sewage Treatment Plant for Pharmaceutical Project	New-Type Fouling Resistant Membrane	Wastewater	Reclaimed Water Reuse	2014	6000
Dalate Power Plant, China Huaneng Group	New-Type Fouling Resistant Membrane	Surface Water	Boiler Replenishment	2014	5000
Power Plant of China Railway Equipment Manufacturing Material Co., Ltd.	New-Type Fouling Resistant Membrane	Surface Water	For Production Water Supply	2014	16800
Shougang Guiyang Special Steel Co., Ltd.	New-Type Fouling Resistant membrane	Surface Water	For Production Process	2014	7200
sewage plant of China Railway Equipment Manufacturing Material Co., Ltd.	New-Type Fouling Resistant membrane	Wastewater	For Production Process	2014	33000
Tianjin Dagang New Spring Seawater Desalination Co., Ltd.	ULP32-8040	Seawater	Seawater Desalination	2014	100000
SICHUAN COC DISPLAY DEVICES CO.,LTD(COCPDP)	New-Type Fouling Resistant membrane	Tap water	Ultrapure Water	2014	10000
Colgate-Palmolive (China) Co., Ltd.	HOR-8040	Tap water	For Technological Process	2014	3000
Dongguan Liande Woolen Co., Ltd.	FR11-8040	Printing and Dyeing Wastewater	Reclaimed Water Reuse	2014	5000
Foxconn Technology Group	LP22-8040	Tap water	Ultrapure Water	2014	35000
Kunming Iron & Steel Holding Co., Ltd.	ULP32-8040	Surface Water	Reclaimed Water	2014	11520
Guizhou Tyre Co., Ltd.	New-Type Fouling Resistant membrane	Surface Water	Surface Water	2014	2400
Chongqing Huafeng Chemical Co., Ltd.	LP2-8040	Surface Water	Surface Water	2014	9600
Tangshan Iron & Steel (Group) Co., Ltd.	FR12-8040	Steel Wastewater/ Surface Water	For Technological Process	2014	30000
Hangzhou Wahaha Group Co., Ltd.	LP22-8040	Tap water	Pure Water	2014	7200

SALES AND SERVICE

PRE-SALES SERVICE

Contents of Service

Promotion plans for new product, new technology, new application field; Plans of product and technology advertisement and promotion in professional fields, professional periodicals or other media.

DURING-SALES SERVICE

Contents of Service

Program of training on know-how and skills of product application and inspection; Program of providing or participating in the design of RO system.

Process Flow

The Marketing Dept and the R&D Center shall provide the customers with on-site training on know-how and skills of product application and inspection, and shall participate in design of customer's RO system and on-site instruction, and help the customers in establishing and implementing the standards for product application, inspection and maintenance as well as the working instructions.

AFTER-SALES SERVICE

Contents of Service

Acceptance and disposal of complaints on quality assurance service and product quality; Acceptance of customers' request for service; Solicitude on Customers, etc.

Flow Process

A.In case of product quality problem beyond the quality assurance terms:
The regional sales manager shall submit the "Request for After-sales Service", and the quality assurance manager shall dispose of it according to "Control Procedure on Customer's Complaint"

B.In case of product quality problem within the quality assurance terms:

The regional sales manager shall submit the "Disposal of Complaint on Product Quality".Request for technical service after sales: The regional sales manager shall fill in the "Request for After-sales Service" and submit it to the Chief Technical Officer so as to arrange relevant personnel to provide relevant service.

Request for sales service after sales: The regional sales manager shall fill in the "Request for After-sales Service" and submit it to the Vice President of Marketing so as to arrange relevant personnel to provide relevant service.

Solicitude service to customers: The Vice President of Marketing shall organize the marketing executive and promotion executive or sales executive to conduct this service according to the Service Program.

SERVICE WEB – OVERSEAS

Not only covering most regions in China, VONTRON's membrane products have been also exported to many countries and regions in the world, including India, Italy, Spain, Germany, Turkey, Korea, Japan, Vietnam, Thailand, USA, Canada, Brazil, Singapore, Taiwan, etc. By virtue of its superior quality and solid brand effect, VONTRON has won public recognition from the international market.

SERVICE WEB – DOMESTIC

Vontron Technology Co., Ltd. owns and operates a manufacturing plant in Guiyang, and has set up sales service sites in major cities of China, including Shanghai, Guangzhou, Wuhan, Ji'nan, Xi'an, Zhengzhou, Chengdu, etc.