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新奥环境  
NEAO ENVIRONMENT

# TECHNICAL EXPERT OF WATER AND AIR DISINFECTION SYSTEM

水、空气消毒系统技术专家

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### North China Region

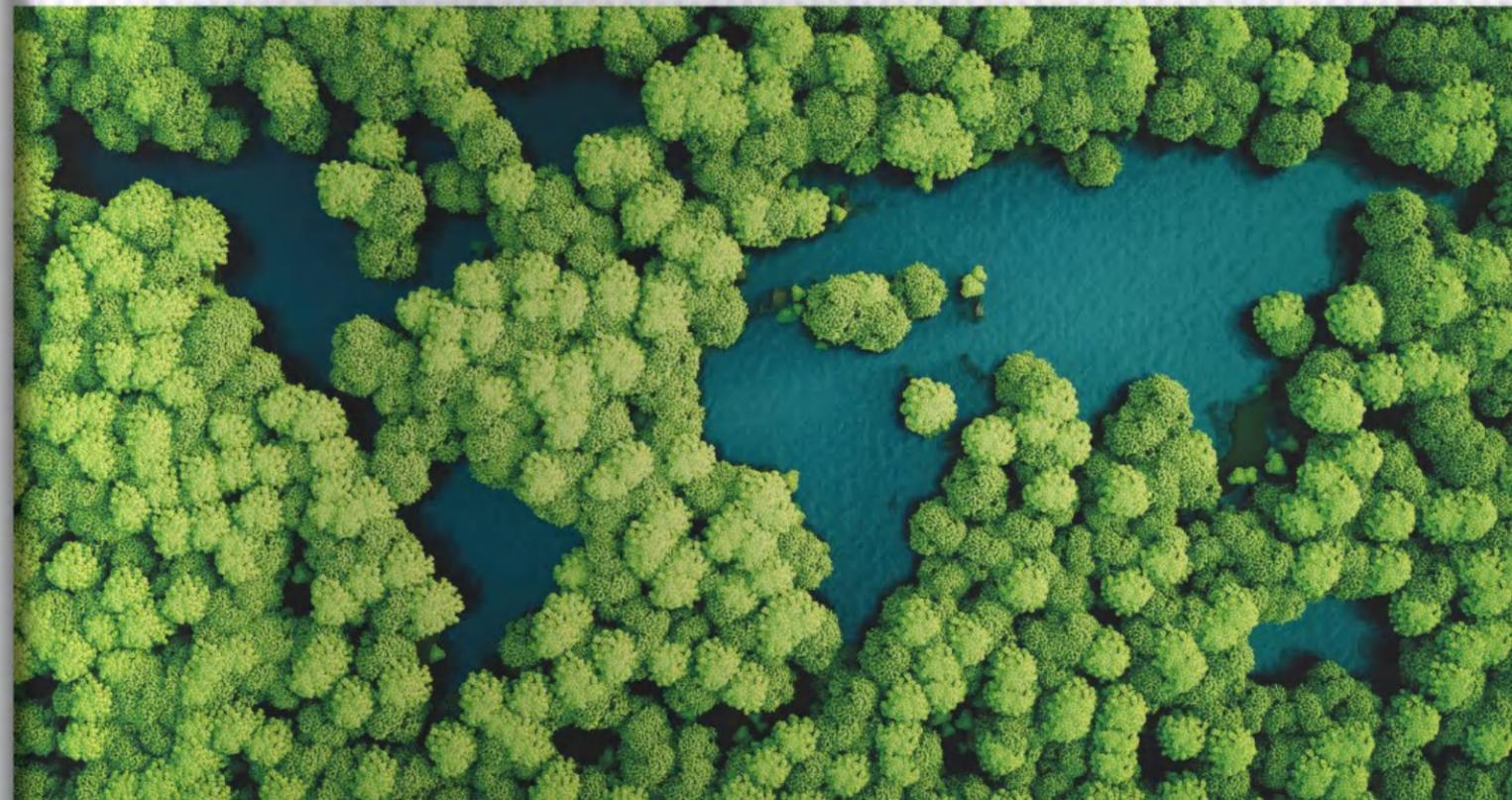
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广州新奥环境  
NEAO Guangzhou Environmental Technology

消毒设备及精准投加系统研发、设计、制造及  
销售为一体的专业水处理高新技术企业，  
专注于为客户提供水消毒处理系统解决方案。

A professional water treatment high-tech enterprise  
Integrating R&D, design, manufacturing and sales of  
disinfection equipment and precision dosing systems,  
Focusing on providing customers with water disinfection  
treatment system solutions.

# CATALOGUE

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# ABOUT NEAO

## 关于新奥

广州新奥环境技术有限公司成立于2003年,是一家致力于消毒设备研发、设计、制造及销售为一体的专业水处理高新技术企业,专注于为客户提供水消毒处理系统解决方案。

公司生产基地位于珠三角东岸世界级发达城市群核心区域穗东交通枢纽中心—广州增城区中豪高新科技园A栋。

我司主营次氯酸钠发生器,紫外线消毒设备,精准自动加药装置,臭氧发生器,UV高级氧化系统等;经过多年的技术研发、沉淀及不断创新,先后获得紫外线消毒设备、次氯酸钠发生器、精准自动加药装置等三十多项发明、实用、外观等技术专利证书,并且通过了系列的广东省涉及饮用水卫生安全产品卫生许可批件,广东省高新技术产品认证,ISO9001质量管理体系认证,ISO14001环境管理体系认证、ISO45001职业健康与安全管理体系认证和知识产权管理体系认证;荣获国家高新技术企业、广州市科技创新小巨人企业等,是广州市苗圃企业、广州市瞪羚企业、广州市规上企业。

NEAO Guangzhou Environmental Technology Co., Ltd. was established in 2003, is a professional water treatment high-tech enterprise committed to the research and development, design, manufacturing and sales of disinfection equipment, focusing on providing customers with water disinfection treatment system solutions.

The production base of the company is located in Building A of Zhonghao Hi-tech Park, Zengcheng District, Guangzhou, which is the core area of Suidong Transportation Hub in the developed urban agglomeration on the east coast of the Pearl River Delta.

Our main business is Sodium Hypochlorite generator, Ultraviolet Disinfection equipment, Precise Automatic Dosing device, Ozone generator, UV advanced oxidation system, etc.; After years of technical research and development, precipitation and continuous innovation, we have successively obtained Ultraviolet Disinfection equipment, Sodium Hypochlorite generator, precision, more than 30 technical patent certificates for Invention, Utility, Appearance, etc., such as Automatic Dosing device, and passed a series of Guangdong Province related to Drinking Water Hygiene and Safety Product Sanitation license approval, Guangdong Province high-tech product certification, ISO9001 Quality management system certification, ISO14001 Environmental management system certification, OHSAS18001 Occupational health and safety management system certification, and knowledge product management system certification; Won the National High-tech Enterprise, Guangzhou Science and Technology Innovation Giant Enterprise, etc., Also Guangzhou Nursery Enterprise, Guangzhou Gazelle Enterprise, Guangzhou Planning listed Enterprises.



公司以水处理消毒为基础,不断寻求技术突破,立志成为顶尖的水及空气消毒系统的技术公司,成立研发实验室,齐全、先进的测试仪器和中试实验装置。为提供更专业、实时的技术服务,成立云端服务,实时了解设备运行状态,保障设备处于最佳状态,让客户使用更便捷。公司业务遍布全国,北至新疆阿勒泰、南至海南三亚、西至青藏铁路沿线、东至浙江.....在全国已有5000多个应用业绩案例。在业内不断攀升的影响力与口碑已是行业内的一颗璀璨之星。

新奥环境本着诚信、专注、务实的原则,用心打造技术团队,严格控制产品质量,以客户为中心以需求为导向,为绿色环保持续性发展竭尽全力。

Based on water treatment and disinfection, our company is constantly seeking technological breakthroughs, determined to become a top technology company in water and air disinfection systems, and have established a research and development laboratory, complete and advanced testing instruments and pilot experimental devices. In order to provide more professional and real-time technical services, a cloud service is established to know the operating status of equipment in real time, to ensure that the equipment is in the best condition, and to make it more convenient for customers to use. Our company's business spreads across our country, from Altay in Xinjiang in the north, Sanya in Hainan in the south, along the Qinghai-Tibet Railway in the west, and Zhejiang in the east. There are more than 5,000 application cases across our country. The rising influence and reputation in the industry is already a shining star.

Based on the principles of honesty, focus, and pragmatism, NEAO Environment builds a technical team with heart, strictly control the product quality, Customer-centered and demand-oriented, do our efforts for the sustainable development of green and environmental protection.

# DEVELOPING PROCESS

## 发展历程

次氯酸钠发生器研发成功，获得多项专利；  
通过ISO9001质量管理体系认证和ISO14001  
环境管理体系认证。

Sodium hypochlorite generator was successfully  
developed and obtained multiple patents  
Passed ISO9001 quality management system  
certification and ISO14001 environmental  
management system certification.

2013

2016

先后被评为国家高新技术企业、  
广州市科技小巨人。  
Has been rated as a national High-Tech  
enterprise, Guangzhou Science and  
Technology Little Giant.

2017

公司更名为广州新奥环境技术有限公司，  
以技术研发为主导，进一步扩大规模，  
建成华南最大消毒设备生产区。  
Further expand the scale, The largest  
disinfection equipment production area  
in South China.

2008

自主研发紫外线消毒设备，  
并成功应用于各类水处理项目。  
Independent research and  
development of ultraviolet  
disinfection equipment, and  
successfully applied to various water  
treatment projects.

2003

2003年8月14日公司成立，  
主营二氧化氯发生器。  
NEAO was established on August  
14, 2003, mainly engaged in  
Chlorine Dioxide Generators.

先后被评为广州市苗圃企业、  
广州市瞪羚企业、广州市规上企业、  
市级“专精特新”（两高四新）企业。  
It has been rated as guangzhou  
Nursery enterprise, Guangzhou  
Gazelle enterprise, Guangzhou  
standard enterprise, and municipal  
"specialized and special new" (two  
high and four new) enterprise.

2021

2019

建立新奥环境云监控与服务系统；  
通过知识产权管理体系认证。  
Establish ENN Cloud Monitoring and  
Service System. Passed the  
intellectual property management  
system certification.

2018

设立西北、西南、华中、华东、  
华北、广西等地办事处，布局  
全国战略稳步发展。  
Set up offices in Northwest,  
Southwest, Central China, East  
China, North China, Guangxi and  
other places, The national layout  
strategy has developed steadily.

至今  
Up to now

产品技术不断升级，  
业务逐步覆盖世界多个国家！  
Product technology continues to  
upgrade, business gradually cover  
many countries in the world!

砥砺前行，  
再创新高！  
Forge ahead, a new high!

# COMPANY QUALIFICATION

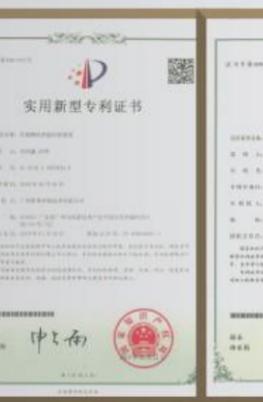
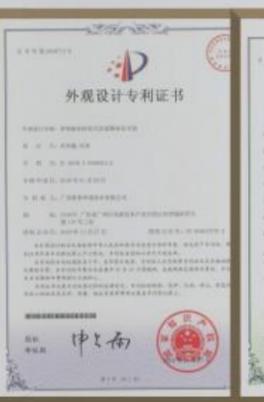
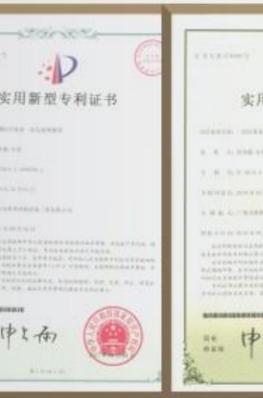
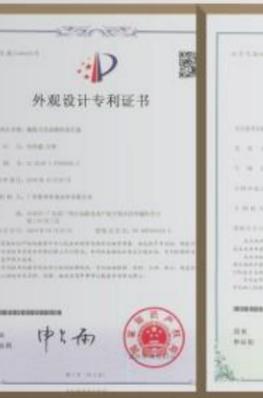
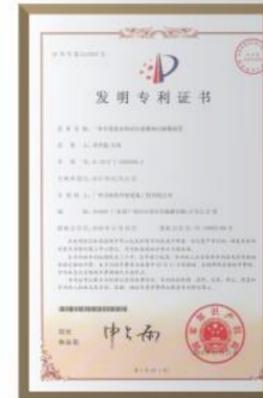
## 公司资质



### 认证证书 Certification



### 专利证书 Patent Certificate



# MAJOR STRATEGIC PARTNERS

## 主要战略合作伙伴

我们做的一切只为客户满意，  
目前，已为超过100家企业提供了服务。

Everything we do is only for customer satisfaction,  
Currently, Over 100 businesses have been served.



# SODIUM HYPOCHLORITE GENERATOR

## 次氯酸钠发生器

### 次氯酸钠发生器

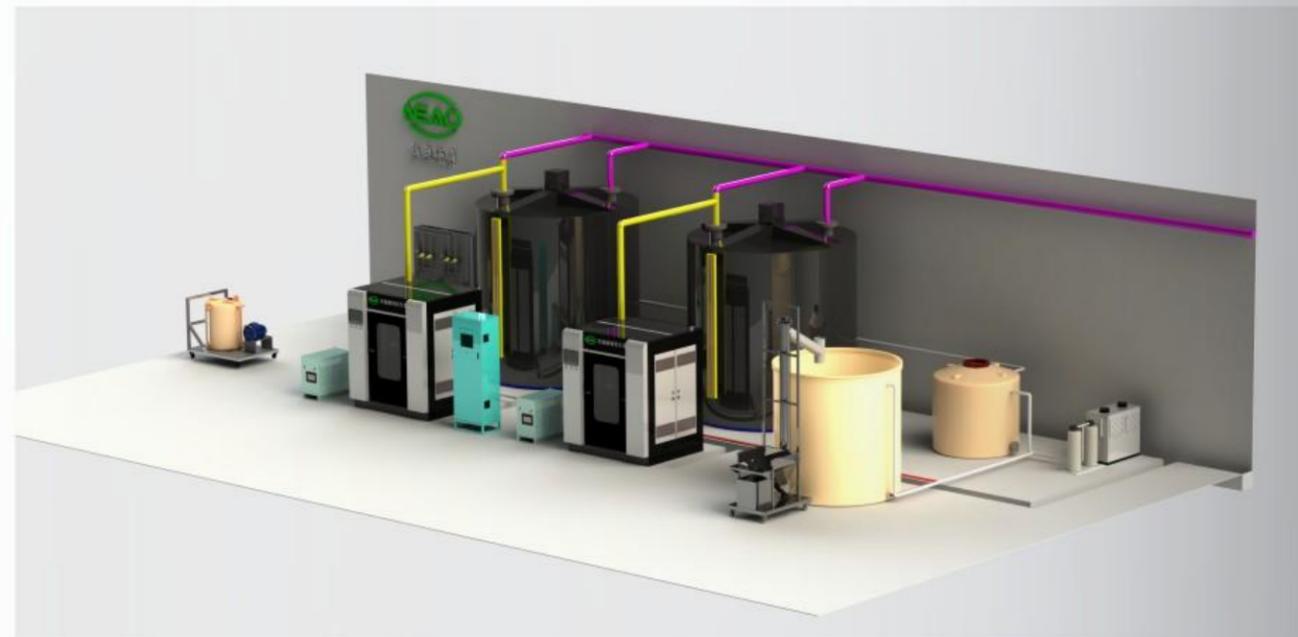
#### SODIUM HYPOCHLORITE GENERATOR

次氯酸钠发生器是一种无隔膜电解法产生次氯酸钠消毒溶液的系统设备，它通过电解稀盐水或净化海水产生次氯酸钠溶液，系统由PLC自动控制，完全自动运行。系统包含盐水精制装置、软水制备装置、水温恒定装置、在线配比装置、电解槽总成、整流电源、安全脱氢装置、药液储存及投加装置、酸洗装置、在线仪表、配电控制柜以及我司研发的发生器控制软件等。因为盐水或海水经过精密的前处理，在电解过程中没有添加任何其他化学药剂，使得制成液是一种纯净的次氯酸钠溶液，次氯酸钠溶液具有强氧化性，具有很强的杀菌、灭藻能力，是应用最广泛的一种消毒剂，主要应用于自来水（饮用水）、污水处理、再生水处理、食品加工工艺等的消毒环节。

次氯酸钠发生器的唯一原材料是盐，盐不属于危险化学品，无毒害、无安全隐患、容易购买，并且盐的存放不需要配套安全防护措施（只需防潮），产生的消毒液是低浓度的液体次氯酸钠消毒剂，没有气体消毒剂和高浓度的危害性，因此它的原材料和成品均具有很高的安全性，是目前给排水处理替代原来其他消毒方法的理想选择。

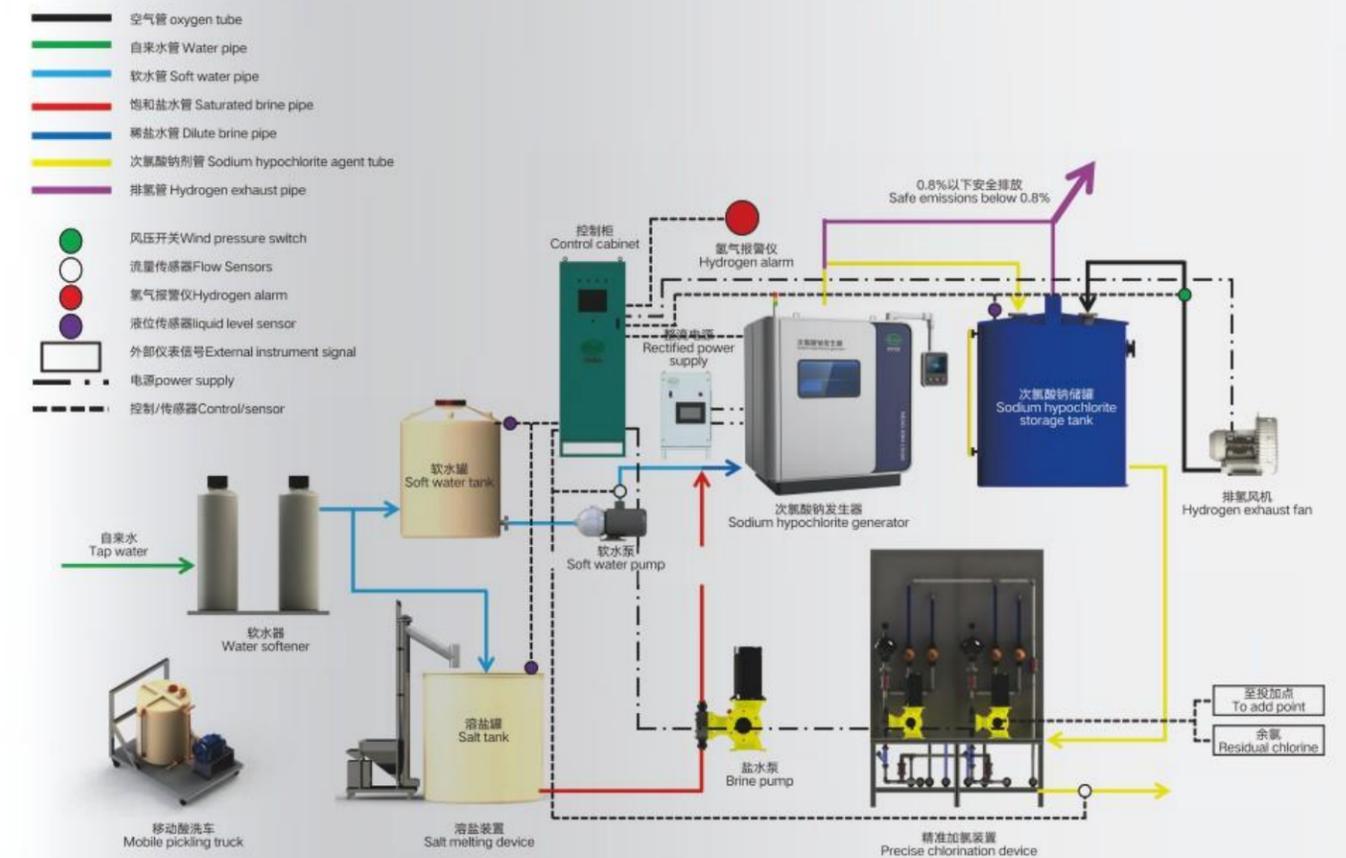
Sodium Hypochlorite generator is a system equipment that produces sodium hypochlorite disinfection solution by electrolysis without diaphragm. It produces sodium hypochlorite solution by electrolyzing dilute salt water or purified sea water. The system is automatically controlled by PLC and runs fully automatically. The system includes brine refining device, soft water preparation device, water temperature constant device, online proportioning device, electrolyzer assembly, rectifier power supply, safe dehydrogenation device, liquid chemical storage and dosing device, pickling device, online instrument, power distribution control Cabinet and generator control software developed by our company. Because the salt water or sea water has undergone precise pre-treatment and no other chemical agents are added during the electrolysis process, the resulting solution is a pure sodium hypochlorite solution. The sodium hypochlorite solution has strong oxidizing properties and has strong sterilization and algae killing capabilities. It is the most widely used disinfectant, mainly used in the disinfection of tap water (drinking water), sewage treatment, reclaimed water treatment, food processing technology, etc.

The only raw material of the sodium hypochlorite generator is salt. Salt is not a dangerous chemical. It is non-toxic, safe and easy to buy. The storage of salt does not require supporting safety protection measures (only moisture-proof), and the disinfectant produced is of low concentration. Liquid sodium hypochlorite disinfectant does not have the harmfulness of gas disinfectant and high concentration, so its raw materials and finished products have high safety, and it is the ideal choice for the current water supply and drainage treatment to replace other disinfection methods.



### 全自动化次氯酸钠发生器系统原理流程图

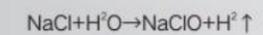
#### Fully automatic sodium hypochlorite generator system principle flow chart



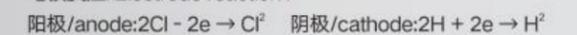
### 次氯酸钠发生器的原理 Principle of sodium hypochlorite generator

次氯酸钠发生器是一套由低浓度（2.5%-3.5%）食盐水通过通电电极发生电化学反应以后生成次氯酸钠溶液的装置。其总反应表达如下：

Sodium hypochlorite generator is a set of devices that generate sodium hypochlorite solution from low-concentration (2.5%-3.5%) salt water through electrochemical reaction through electrified electrodes. The overall response is expressed as follows:



电极反应/Electrode reaction:



## 次氯酸钠发生器介绍 Introduction to Sodium Hypochlorite Generator

次氯酸钠由电解稀盐水制备。我司的次氯酸钠发生器由若干个系统组成，其中盐水精制装置、在线配比装置、安全脱氢装置、电解槽总成是我司发生器独具特色的部分，也是保证系统稳定运行一个重要前提。

Sodium hypochlorite is prepared by electrolysis of dilute brine. Our sodium hypochlorite generator is composed of several systems. Among them, brine refining device, online proportioning device, safe dehydrogenation device, and electrolysis lagoon assembly are the unique parts of our generator, and it is also an important part to ensure the stable operation of the system. premise.

**软水系统:** 内置钠型交换树脂，可以与水中钙镁离子发生化学置换反应，从而将钙镁离子吸附到树脂上，运行一段周期后通过浓盐水进行再生，树脂重新吸附钠离子并将钙镁离子置换到水中并排放，从而实现树脂再生，软水后的水用在系统中可以延长电解槽的结垢周期，保证系统的稳定，软化后的水硬度要求低于25mg/L(以CaCO<sub>3</sub>计)。

**Water softening system:** Built-in sodium-type exchange resin, it can chemically replace the calcium and magnesium ions in the water, thereby adsorbing the calcium and magnesium ions to the resin. After running for a period of time, it is regenerated by concentrated brine, and the resin re-absorbs sodium ions and reduces the calcium and magnesium ions. The ions are replaced into the water and discharged to achieve resin regeneration. The softened water can be used in the system to extend the scaling cycle of the electrolytic cell and ensure the stability of the system. The water hardness requirement after softening is less than 25mg/L.(calculated as CaCO<sub>3</sub>).

**盐水精制装置:** 我司的盐水精制装置采用独特的设计工艺，软水经过盐层后，再进行过滤，这样可以确保制备出的盐水洁净度高，并且氯化钠浓度不低于300g/L。对于用盐量大的系统我司设计的吨袋加盐方式可以降低用户的操作强度，方便运行操作及维护。

**Brine refining device:** Our brine refining device adopts a unique design process. After the soft water passes through the salt layer, it is filtered, which can ensure that the prepared brine has a high cleanliness and the sodium chloride concentration is not less than 300g/L. For systems with a large amount of salt, the salt-filling method designed by our company can reduce the user's operation intensity and facilitate operation and maintenance.

**稀盐水配比装置:** 电解过程中稀盐水的浓度以及流态对于电解槽的效率有很大的影响，因此稳定的稀盐水配比及输送装置非常重要，我司稀盐水配比装置设置了盐度计和流量计，可以通过盐度计的信号反馈自动调节饱和盐水流量，以确保进入电解槽的稀盐水盐度稳定在25-30g/L,同时我司的稀盐水采用多通道进水，这样可以确保稀盐水的均匀性，从而为发生器的稳定运行提供了可靠的保障。

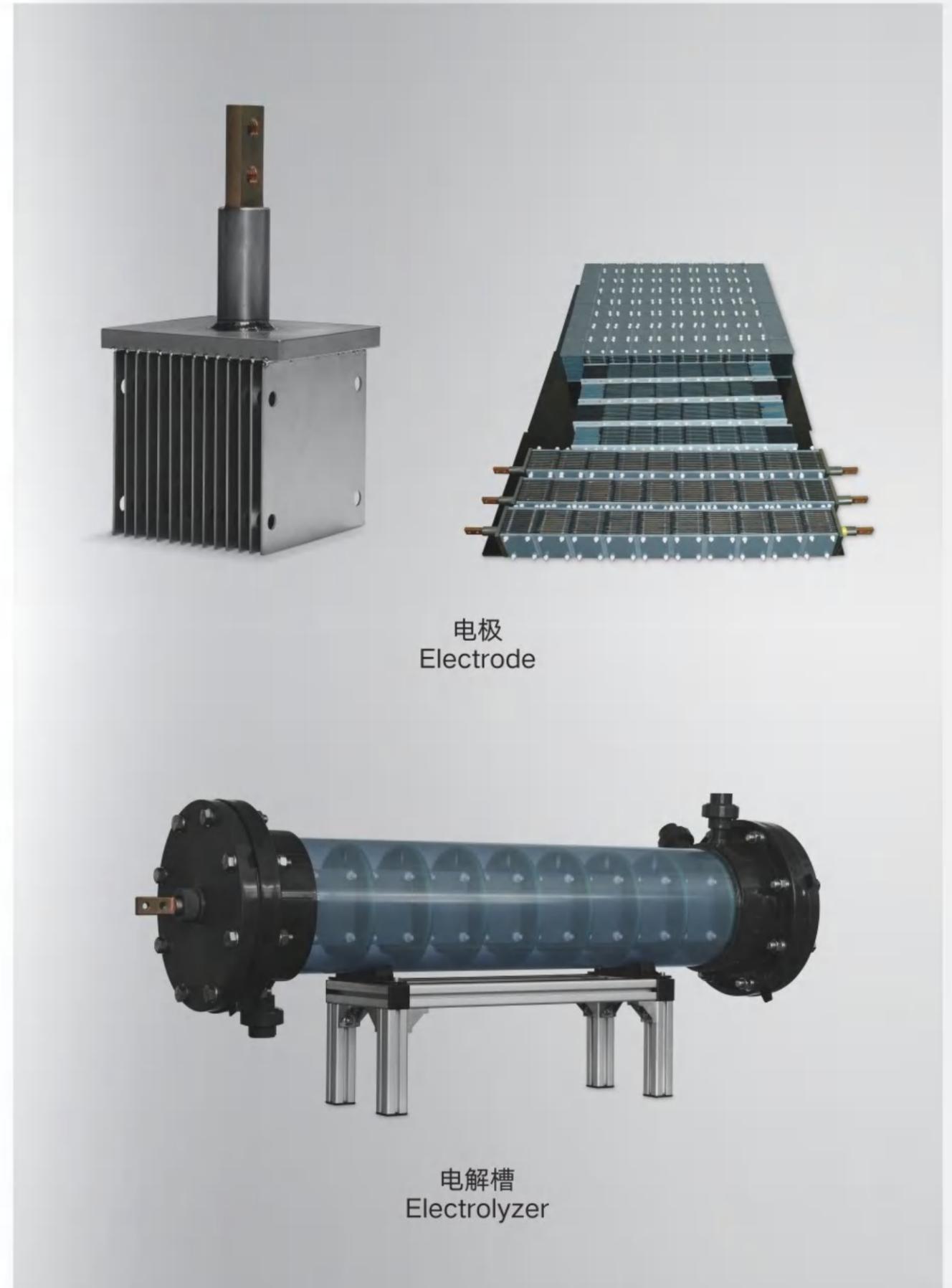
**Dilute brine proportioning device:** The concentration and flow state of dilute brine during the electrolysis process have a great influence on the efficiency of the electrolyzer. Therefore, a stable dilute brine proportioning and conveying device is very important. Our company's dilute brine proportioning device is equipped with salt meter and flow meter can automatically adjust the saturated brine flow through the signal feedback of the salinometer to ensure that the salinity of the dilute brine entering the electrolytic cell is stable at 25-30g/L. At the same time, our company's dilute brine adopts multi-channel water inlet. This can ensure the uniformity of the dilute brine, thereby providing a reliable guarantee for the stable operation of the generator.

**安全脱氢装置:** 次氯酸钠发生器电解会产生氢气，因此脱氢工艺尤为重要，我司采用独特的气液分离系统以及两级排氢工艺，大量的氢气通过风机直接稀释进行排放，少量的氢气通过储罐的正压鼓风进行去除，同时设备间和储罐设置了氢气传感器，脱氢管道设置风压传感器，储罐设置了防氢气逸散装置，通过多种工艺的结合控制，我司的脱氢装置可以确保储罐内氢气体积浓度低于0.4%，排放至室外的氢气体积浓度低于1%，保证了系统的绝对安全性。

**Safety deoxygenation device:** Sodium hypochlorite generator electrolysis will produce hydrogen, so the dehydrogenation process is particularly important. Our company adopts a unique gas-liquid separation system and a two-stage hydrogen exhaust process. A large amount of hydrogen is directly diluted by a fan for discharge, and a small amount of hydrogen is discharged through storage. The positive pressure blast of the tank is removed. At the same time, the equipment room and the storage tank are equipped with hydrogen sensors, the dehydrogenation pipeline is equipped with wind pressure sensors, and the storage tanks are equipped with hydrogen escape devices. Through the combined control of multiple processes, our company's The hydrogen device can ensure that the hydrogen volume concentration in the storage tank is less than 0.4%, and the volume concentration of hydrogen discharged to the outside is less than 1%, ensuring the absolute safety of the system.

**电解槽装置:** 我司的电解槽常规采用透明聚乙烯制作而成，对氯气和次氯酸钠溶液耐腐蚀性优于亚克力材质，长期运行也能保持电解槽的透光性优良。电解槽的阳极表面采用MMO涂层技术，该涂层有优良的耐电化性能，正常运行条件下使用寿命可达8年以上，极板设置充足的间距确保氢气不会在极间距累积，保证运行过程中电解液的温度处在适宜的范围内。

**Electrolytic cell device:** Our electrolytic cell is conventionally made of transparent polyethylene, which has better corrosion resistance to chlorine and sodium hypochlorite solution than the acrylic material, and can maintain the excellent light transmittance of the electrolytic cell even in long-term operation. The anode surface of the electrolytic cell adopts MMO coating technology. The coating has excellent electrochemical resistance. The service life can reach more than 8 years under normal operating conditions. The electrode plates are set with sufficient spacing to ensure that hydrogen does not accumulate in the electrode spacing, the temperature of the electrolyte is within an appropriate range during operation.



设备特征

- 原料易得，安全高效；
- 电极采用进口品牌；
- 采用高频电解电源，电源采用进口/国产一线品牌，转化效率可达95%以上；
- 电解槽采用管装板式，占地面积小，检修维护方便；
- 次氯酸钠设置有2级排氢系统，保证的氢气浓度低于1%；
- 设备控制采用全自动控制方式，定期自动酸洗，客户只需1-2周投加一次氯化钠即可，氯化钠可采用工业精制盐或者食品级精制盐，原料购买方便，储存安全；运行成本低于二氧化氯发生器；
- 设备运行中不排放任何刺激性或有毒气体，整个运行环境安全，对人体无任何危害，安全性能很高。

Equipment characteristics

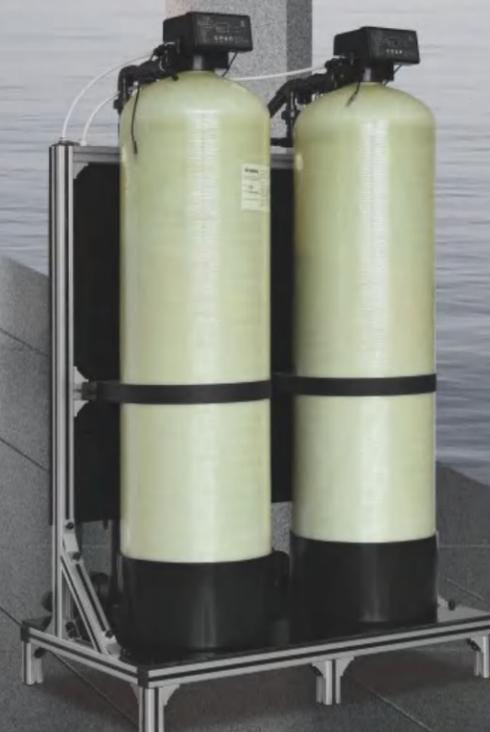
- Easy to obtain raw materials, safe and efficient;
- The electrode sheet is developed in cooperation with imported brands, and the surface coating is specially treated to reduce fouling and improve chlorine evolution;
- High-frequency electrolytic power supply is adopted, and the power supply adopts imported/domestic first-line brands, and the conversion efficiency can reach more than 95%;
- The electrolytic cell adopts the tube-mounted plate type, which occupies a small area and is convenient for maintenance and repair;
- Sodium hypochlorite is equipped with a 2-stage hydrogen exhaust system, and the guaranteed hydrogen concentration is less than 1%;
- The equipment control adopts fully automatic control mode, regular automatic pickling, customers only need to add sodium chloride once 1-2 weeks, sodium chloride can be industrial refined salt or food grade refined salt, raw materials are easy to purchase and store Safe; operating cost is lower than chlorine dioxide generator;
- The equipment does not emit any irritating or toxic gases during operation, and the entire operating environment is safe, without any harm to the human body, and has a high safety performance.



次氯酸钠发生器  
Sodium hypochlorite generator



次氯酸钠发生器（撬装）  
Sodium hypochlorite generator (skid-mounted)



软水器 Water softener



稀盐水配比装置  
Dilute brine proportioning device



酸洗装置  
Pickling device



软水撬装  
Water softening device prizing

## 次氯酸钠发生器

### SODIUM HYPOCHLORITE GENERATOR



#### 应用范围 Scope of application

饮用水消毒 Drinking water disinfection	污水厂消毒 Swimming pool disinfection	泳池消毒 Sewage treatment plant disinfection	医疗废水消毒 Medical wastewater disinfection	污水厂标改造 Sewage treatment plant upgrading and transformation
抑制藻类生长 Inhibiting algae growth	电镀废水处理 Electroplating wastewater treatment	降低废水中的BOD Reducing BOD in wastewater	除色去味 Decoloring and deodorizing	漂白 Bleaching and other functions

#### 设备参数 Device parameters

##### A等级设备 Class A equipment

技术经济指标 Technical and economic indicators	单位 unit	新奥次氯酸钠参数 NEAO Sodium hypochlorite parameters	质量等级 Quality Level		
			A	B	C
直流电耗 DC power consumption	kW·h/kg	≤3.8-4.2	≤4.5	≤5.0	≤6.5
盐耗 Salt consumption	kg/kg	≤3.0-3.5	≤4.0	≤4.5	≤6.5

备注：我司的设备参数完全优于国家标准《次氯酸钠发生器》GB 12176-90。

Remark: Our equipment parameters are completely superior to the national standard "Sodium Hypochlorite Generator" GB 12176-90.

#### 设备选型计算 Equipment selection calculation

每小时最大处理水量 (t/h) \* 每吨水的有效氯投加量 (g/t) = 每小时需要的有效氯含量(g/h)

Maximum processing water volume per hour (t/h) \* Effective chlorine dosage per ton of water (g/t) = Available chlorine content required per hour (g/h)

处理水质 Treatment water quality	自来水 Tap water	医疗废水 Medical wastewater		市政污水厂 Municipal Wastewater Treatment Plant		泳池杀菌 Swimming pool sterilization	循环水杀菌 Circulating water sterilization
	出水要求 Water requirement	饮用水 drinking water	预处理 Pretreatment	生化处理 Biochemical treatment	一级A/B First level A/B		
有效氯投加量(mg/L) Effective chlorine dosage	1~3	20~40	10~20	5~8	8~15	1~3	1~3

#### 设备选型表 Equipment selection table

##### NEAO-DBM模块化系列 NEAO-DBM Modular series

型号 Model	有效氯产量 (g/h) Available chlorine production	Ac额定功率 (KW) AC rated power	主机尺寸 (L*B*H,mm) Host size	设备间尺寸 (L*B,m) Equipment room size
NEAODBM 1500	1500	9	1400*1200*2000	6*4
NEAODBM 2000	2000	12	1400*1200*2000	6*4
NEAODBM 3000	3000	18	1400*1200*2000	8*4
NEAODBM 4000	4000	24	1400*1200*2000	8*4
NEAODBM 5000	5000	30	1400*1200*2000	8*4
NEAODBM 6000	6000	36	1400*1200*2000	10*4
NEAODBM 7000	7000	42	1600*1200*2000	10*4
NEAODBM 8000	8000	48	1600*1200*2000	10*4
NEAODBM 10000	10000	60	1900*1200*2100	12*5
NEAODBM 13000	13000	78	1900*1200*2100	12*5
NEAODBM 15000	15000	90	1900*1200*2100	12*5
NEAODBM 20000	20000	120	1900*1600*2100	15*6
NEAODBM 30000	30000	180	1900*1600*2100	15*6

##### NEAO-DBS撬装系列 Skid-mounted series

型号 Model	有效氯产量 (g/h) Available chlorine production	Ac额定功率 (KW) AC rated power	设备尺寸 (L*B*H,mm) Host size	设备间尺寸 (L*B,m) Equipment room size
NEAODBS 50	50	0.6	800*800*1700	2.5*1.5
NEAODBS 100	100	0.8	800*800*1700	2.5*1.5
NEAODBS 200	200	1.6	1750*800*1700	3*2
NEAODBS 300	300	2.4	1750*800*1700	3*2
NEAODBS 400	400	3.0	1750*800*1700	3*2
NEAODBS 500	500	3.5	1750*800*1700	3*2
NEAODBS 600	600	4.2	1750*800*1700	4*2
NEAODBS 700	700	4.9	1750*800*1700	4*2
NEAODBS 800	800	5.6	1750*800*1700	4*2
NEAODBS 900	900	6.0	1750*800*1700	4*2
NEAODBS 1000	1000	6.5	1750*800*1700	4*2

##### NEAO-DBR手动系列 Manual series

型号 Model	有效氯产量 (g/h) Available chlorine production	Ac额定功率 (KW) AC rated power	设备尺寸 (L*B*H,mm) Host size	设备间尺寸 (L*B,m) Equipment room size
NEAODBR 30	30	0.5	640*300*800	2*1
NEAODBR 50	50	0.6	640*300*800	2*1
NEAODBR 100	100	0.8	640*300*800	3*2
NEAODBR 200	200	1.6	640*300*1100	3*2

# MODS MIXED OXIDATION DISINFECTION SYSTEM

## MODS莫德斯混合氧化消毒系统

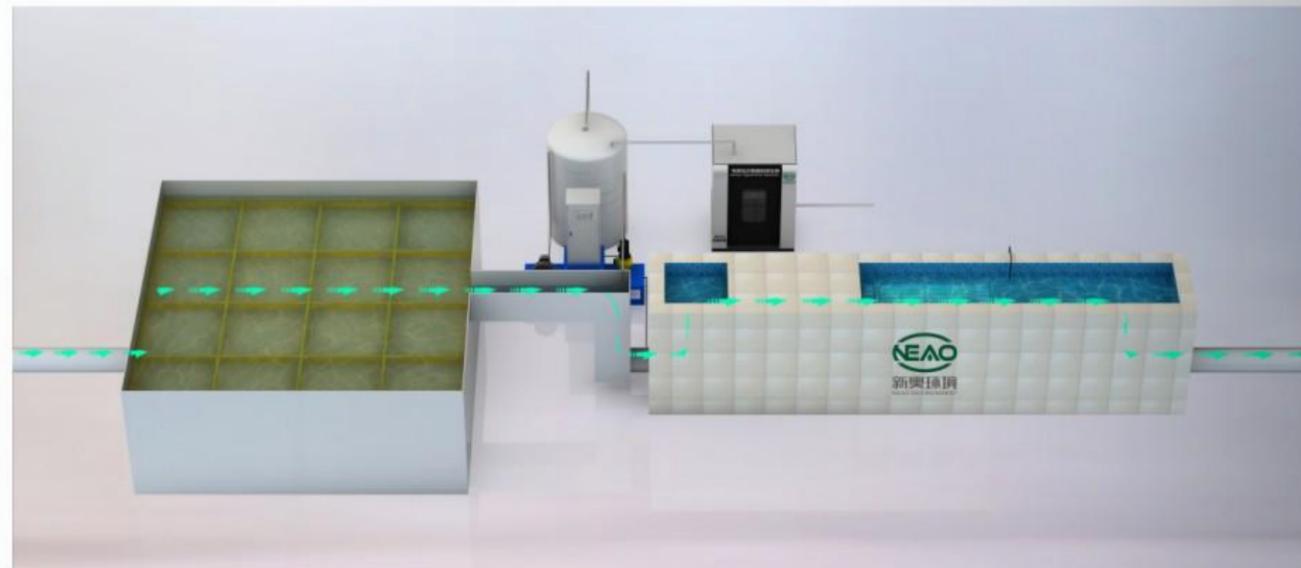
### NEAO-MODS (莫德斯) 系统说明 NEAO-MODS (Modes) system description

MODS—Mixed oxidation disinfection system, 莫德斯混合氧化消毒系统, 是广州新奥环境 (NEAO) 针对中国污水市场的运行现状, 依托公司17年的消毒技术经验, 创新研发的适用于污水消毒的工艺系统。MODS消毒工艺运用物理+化学消毒的协同作用, 即物理消毒的快速性, 化学消毒的持续性, 结合我司的HMR (快速混合反应器), 保证消毒剂与污水能够短时间内混合均匀, 实现出水消毒效果的稳定性。

### 原理说明 Principle explanation

在紫外消毒系统前端设置次氯酸钠投加点及快速混合反应器HMR (专利产品), MODS工艺主要依靠UV的快速杀菌作用: 通过UV系统灭杀90%的微生物, 且经过UV照射NaClO分子会分解出活性[O], 活性[O]具有很强的氧化性, 可以迅速的破坏微生物的细胞壁, 导致微生物死亡。由于UV照射时间短, 大部分的NaClO分子依然以游离氯的形式存在于水体中, 持续进行杀菌。

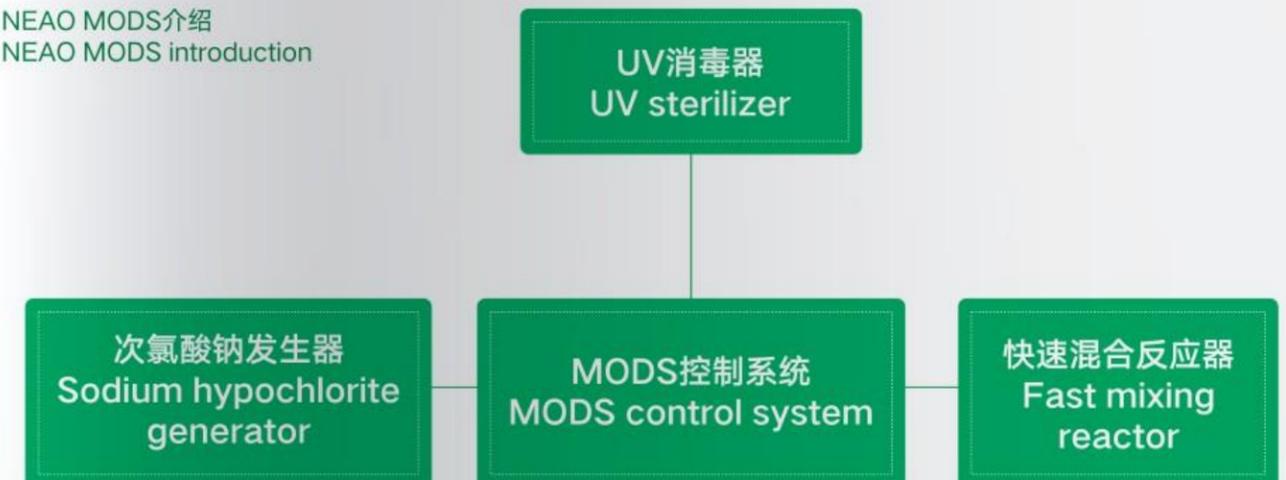
### 工艺流程 Process Flow



### NEAO MODS技术创新 NEAO MODS Technology Innovation

- 次氯酸钠经紫外线照射后产生活性[O], 活性氧的氧化性极强, 可以快速杀灭水中的微生物;
  - 出水消毒效果100%达标;
  - 定期冲击式投加可以去除紫外线消毒水渠内的藻类生物, 从而减少水渠内残留微生物量;
  - 专利产品快速混合装置确保了低浓度次氯酸钠消毒剂与污水快速混合;
  - 增加次氯酸钠的投加量, 可以将水体中的游离氨反应为NH<sub>2</sub>Cl和NHCl<sub>2</sub>, 从而消减氨氮含量;
  - 为提标改造项目量身定制, 不需要设置接触消毒池, 占地面积小;
  - 利用原来的消毒工艺增加UV系统或者次氯酸钠消毒系统, 改造成本低;
  - 把物理消毒和化学消毒的优势组合, 优势互补, 同时避免了各自消毒工艺的缺点;
  - 运行成本低, 比传统的单一消毒工艺每吨水节约1-3分钱;
  - 减少因运行过程中设备维护不及时导致紫外线外层套管结垢的问题;
  - 通过光强信号及流量信号反馈控制投加量, 从而确保消毒稳定的前提下, 成本最优化。
- Sodium hypochlorite produces activity [O] after being irradiated with ultraviolet rays, and the active oxygen is extremely oxidizing, which can quickly kill microorganisms in the water;
  - The effluent disinfection effect is 100% up to the standard;
  - Regular impulse dosing can remove the algae organisms in the ultraviolet disinfection canal, thereby reducing the amount of residual microorganisms in the canal;
  - The patented product rapid mixing device ensures the rapid mixing of low-concentration sodium hypochlorite disinfectant and sewage;
  - Increasing the dosage of sodium hypochlorite can react the free ammonia in the water body to NH<sub>2</sub>Cl and NHCl<sub>2</sub>, thereby reducing the ammonia nitrogen content;
  - Tailor-made for the upgrading project, no need to set up a contact disinfection tank, and occupy a small area;
  - Use the original disinfection process to add a UV system or sodium hypochlorite disinfection system, and the cost of transformation is low;
  - 8Combine the advantages of physical disinfection and chemical disinfection, complement each other's disadvantages, and avoid the disadvantages of their respective disinfection processes;
  - Low operating cost, saving 1-3 cents per ton of water compared with the traditional single disinfection process;
  - Reduce the problem of scaling of the ultraviolet outer casing caused by the untimely maintenance of the equipment during operation;
  - Through the light intensity signal and the flow signal feedback to control the dosage, so as to ensure that the disinfection is stable, and the cost is optimized.

### NEAO MODS介绍 NEAO MODS introduction



# UV DISINFECTION EQUIPMENT

## 紫外线消毒设备

### 紫外线消毒原理 Principle of UV Disinfection

#### 紫外线 (Ultra Violet, 简称UV) Ultraviolet (Ultra Violet, UV for short)

紫外线通指是波长在100-400nm的电磁波, 人的肉眼不能直观看到紫外线。

100-400nm波长的紫外线, 按其对人体影响及功能, 分为UV-A, UV-B, UV-C和UV-V。

UV-A是指波长在315-400nm的紫外线, UV-A能使人体的皮肤产生黑色素, 使得皮肤变黑。

UV-B是指波长在280-315nm的紫外线, UV-B能致癌, 令皮肤使皱纹老化。

UV-C的波长在200-280nm, 其中波长在240-270nm的UV-C杀菌、消毒效果最强, 能直接破坏细胞病毒中的DNA脱氧核糖核酸和RNA核糖核酸, 使微生物迅速死亡, 同时能够有效地分解水中的臭氧。

UV-V波长在100-200nm (185的紫外线) 能够产生臭氧, 而在空气中或溶解在水分中的臭氧, 具有强氧化性, 能直接破坏生物细胞的结构, 使微生物立刻死亡。

紫外线消毒技术具有安全、高效、低成本、不产生副产物等优点。经紫外线消毒后, 不存在二次污染及副产物。紫外线杀菌效果通常以杀灭比例表示, 如99.99%被杀灭, 只有0.01%的存活, 即1/10000存活, 因1000是10 或对数 (log) 中的4,故习惯上亦会以4log表示杀灭菌的高低。紫外线的杀菌决定于两个因素:

Ultraviolet rays generally refer to electromagnetic waves with a wavelength of 100-400nm, and human eyes cannot directly see ultraviolet rays.

Ultraviolet rays with wavelengths of 100-400nm are classified into UV-A, UV-B, UV-C and UV-V according to their effects on the human body and their functions.

UV-A refers to ultraviolet rays with a wavelength of 315-400nm. UV-A can make human skin produce melanin, making the skin dark.

UV-B refers to ultraviolet rays with a wavelength of 280-315nm. UV-B can cause cancer and cause wrinkles to age.

The wavelength of UV-C is 200-280nm, of which UV-C with a wavelength of 240-270nm has the strongest sterilization and disinfection effect. It can directly destroy the DNA deoxyribonucleic acid and RNA ribonucleic acid in the cell virus, causing the microorganisms to die quickly and at the same time. Effectively decompose ozone in the water.

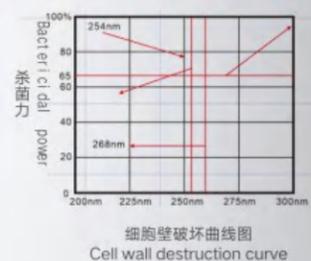
UV-V wavelength of 100-200nm (185 ultraviolet rays) can produce ozone, and ozone in the air or dissolved in water has strong oxidizing properties, which can directly destroy the structure of biological cells and make microorganisms die immediately.

Ultraviolet disinfection technology has the advantages of safety, high efficiency, low cost, and no by-products. After ultraviolet disinfection, there is no secondary pollution and by-products. Ultraviolet bactericidal effect is usually expressed by the killing ratio. For example, 99.99% are killed and only 0.01% survived, that is, 1/10000 survived. Because 1000 is 10 or 4 in the logarithm (log), it is customary to use 4log. Indicates the level of sterilization. The sterilization of ultraviolet rays is determined by two factors:

X-射线 X-ray      紫外线 Ultraviolet      可见光 Visible light



低压汞灯波段分布 Low-pressure mercury lamp band distributio



家庭小型饮水  
水上娱乐设施等  
家禽、家畜饲养用水  
医院饮水  
办公、旅馆等大楼用水  
水产养殖加工用

Family small drinking water  
Water entertainment facilities, etc.  
Feeding water for poultry and livestock  
Hospital drinking water  
Water for offices, hotels and other buildings  
For aquaculture processing



中水回用  
景观用水  
半导体电子等工业超净水  
市政供水  
纯净水、矿泉水厂  
医药、化妆品制造业无菌水

Water reuse  
Landscape water  
Industrial ultra-clean water such as semiconductor electronics  
Municipal water supply  
Pure water, mineral water plant  
Sterile water for pharmaceutical and cosmetic manufacturing



小区二次供水  
食品、饮料行业用水  
军事基地、航舰等用水  
贝类净化水  
市政污水处理  
大型电站等冷却水

Community secondary water supply  
Food and Beverage industry water  
Water for military bases, ships, etc.  
Shellfish purified water  
Municipal sewage treatment  
Cooling water for large power stations, etc.



### 明渠紫外线消毒设备 UV disinfection equipment for open channels 设计依据 Design Basis

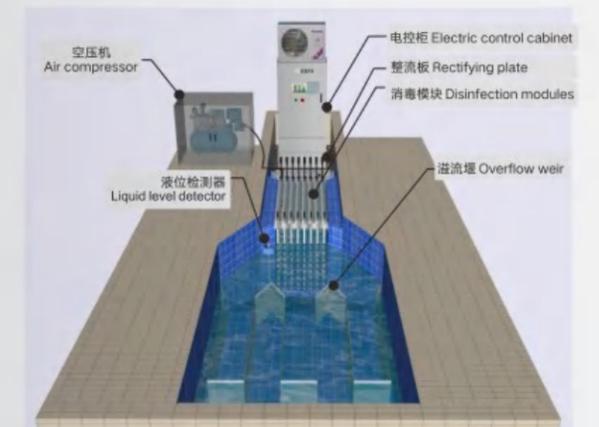
紫外线消毒设备设计与制造依据《GB19837-2005紫外线消毒设计规范》国家标准; 辅助设计依照《GB18918-2002城镇污水处理厂污染物排放标准》或地方标准。

消毒标准:(以GB18918-2002中要求的一级A标准及一级B出水标准设计)出水粪大肠菌群 < 1 × 10<sup>6</sup> /L(一级A标); 出水粪大肠菌群 < 1 × 10<sup>5</sup> /L(一级B标) (30天几何平均值)。

紫外线剂量:在峰值流量和紫外透光率为65%时, 系统在灯管寿命终点所能实现的有效紫外剂量, 即消毒器生物验证剂量不小于一级A标准不能低20000Ws/cm, 一级B标准不能低15000Ws/cm。

The design and manufacture of ultraviolet disinfection equipment is in accordance with the national standard of "GB19837-2005 Ultraviolet Disinfection Design Code"; the auxiliary design is in accordance with the "GB18918-2002 Pollutant Discharge Standard for Urban Sewage Treatment Plants" or local standards.

Disinfection standard: (designed according to the first-level A standard and the first-level B effluent standard required in GB18918-2002) effluent fecal coliform < 1 × 10<sup>6</sup> /L (level A standard); effluent fecal coliform < 1 × 10<sup>5</sup> pieces/L Grade B) (30-day geometric average).



Ultraviolet dose: When the peak flow rate and UV transmittance are 65%, the effective UV dose that the system can achieve at the end of the lamp life, that is, the bioassay dose of the sterilizer is not less than the level A standard and cannot be lower than 20000 Ws/cm, one The level B standard cannot be lowered by 15000 Ws/cm.

## 设备组成 Equipment composition

新奥瑞明渠紫外线消毒系统，由紫外线消毒模块，控制系统，出水系统，清洗系统四大部分组成。每个标准化紫外线消毒模块由一个不锈钢灯架(304/316材质)、紫外灯管(有效使用寿命12000h)、石英套管(透光率≥90%)、清洗结构(采用中央驱动磁耦合清洗气缸)组成，整个紫外线消毒系统由若干紫外线消毒模块组成，便于安装运行及维护。

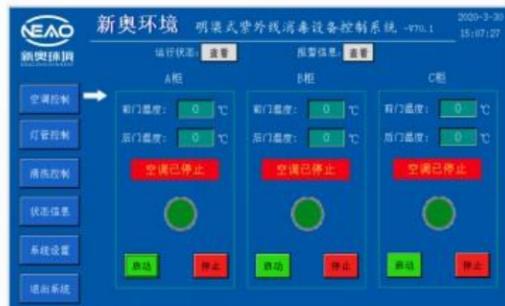
The UV disinfection system of NEAO Open Channel consists of four parts: UV disinfection module, control system, water outlet system and cleaning system. Each standardized ultraviolet disinfection module consists of a stainless steel lamp holder (304/316 material), ultraviolet lamp tube (effective life of 12000h), quartz sleeve (transmittance ≥90%), cleaning structure (using central drive magnetic coupling cleaning cylinder), the entire ultraviolet disinfection system is composed of several ultraviolet disinfection modules, which is easy to install, operate and maintain.

### 一、领先的控制系统 Leading control system

- 系统自动或者手动运行，可远控操作，亦可就地操作；
- 元器件均为进口一流品牌产品，品质卓越，稳定可靠；
- 人性化的操控界面，操作方便，清晰明了；
- 消毒系统独有的单支灯管运行时间状态监控记录；
- 完善的运行记录，报警系统和保护功能。
- The system runs automatically or manually, and can be operated remotely or locally;
- The components are imported first-class brand products, with excellent quality, stability and reliability;
- Humanized control interface, easy to operate, clear and clear;
- Unique single lamp running time status monitoring record of the disinfection system;
- Perfect operation record, alarm system and protection function.

### 二、稳定高效的机械+化学双重清洗系统 Stable and efficient mechanical + chemical dual cleaning system

- 采用中央驱动磁耦合清洗气缸，上下受力均匀，清洗更稳定；
- 采用机械加清洗液的结合，大幅度提高清洗能力，比只通过机械擦洗的方式更加有效地清除套管上的沉积物；
- 清洗套采用特定材质，具有耐磨，耐酸碱，耐老化等优势，洁净更快；确保紫外剂量的输出，从而保证消毒效果；
- 自动在线清洗功能，有效地减少因人工清洗带来的停机和人工成本；
- 可以对NEAO原装的清洗系统进行升级，把单机械清洗升级到机械+化学双重清洗系统。详情请咨询我司销售工程师或者技术工程师。
- The central drive magnetic coupling cleaning cylinder is adopted, the upper and lower forces are evenly applied, and the cleaning is more stable;
- The combination of machinery and cleaning fluid can greatly improve the cleaning ability, and it is more effective to remove the deposits on the casing than only through mechanical scrubbing;
- The cleaning sleeve is made of specific materials, which has the advantages of wear resistance, acid and alkali resistance, aging resistance, etc., and it cleans faster; it ensures the output of the ultraviolet dose, thereby ensuring the disinfection effect;
- Automatic online cleaning function, effectively reducing downtime and labor costs caused by manual cleaning;
- NEAO's original cleaning system can be upgraded, from single mechanical cleaning to mechanical + chemical dual cleaning system. For details, please consult our sales engineer or technical engineer.



### 三、紫外线灯管 UV lamp

- 采用进口的低压高强汞齐紫外线灯管，单支灯管功率320W，功率可在50%—100%之间调节；
- 灯管的有效工作寿命可达12000小时；灯管的老化系数不低于80%，具有很好的抗老化性能；
- 320W的紫外线灯管单支灯管的紫外线输出强度≥115W。
- Imported low-pressure and high-strength amalgam ultraviolet lamps are used, and the power of a single lamp is 320W, and the power can be adjusted between 50% and 100%;
- The effective working life of the lamp tube can reach 12000 hours; the aging coefficient of the lamp tube is not less than 80%, which has good anti-aging performance;
- The UV output intensity of a single tube of a 3.320W UV tube is ≥115W.



### 四、电子镇流器 Electronic ballast

- 行业领先技术，安全稳定可靠；
- 低波峰系数，波峰系数小于1.7,有效延长灯管寿命；
- 具有全自动报警功能，可远程操作监控；
- 新奥瑞镇流器还可以根据客户的要求控制灯管的紫外线输出强度；
- 功率因素0.95以上，使用寿命长达5年。
- Industry-leading technology, safe, stable and reliable;
- Low crest factor, the crest factor is less than 1.7, effectively prolonging the life of the lamp;
- With automatic alarm function, remote operation and monitoring;
- New Orui ballast can also control the UV output intensity of the lamp according to customer requirements;
- The power factor is above 0.95 and the service life is up to 5 years.



## 五、石英套管 Quartz casing

- 采用国际熔融石英灯管套管标准；
  - 石英管UVC透光率 $\geq 90\%$ ；
  - 密封性优良，可有效的防止水与紫外灯管接触；
  - 套管开口端双层密封，防护等级为IP68能够有效地防止石英套管意外破裂影响灯管及其他模块。
- Adopt the international standard for fused silica lamp tube;
- UVC transmittance of quartz tube  $\geq 90\%$ ;
- Excellent sealing performance, which can effectively prevent water from contacting the UV lamp tube;
- The open end of the casing is double-sealed, and the protection level is IP68, which can effectively prevent the accidental rupture of the quartz casing and affect the lamp and other modules.



## 六、出水系统 Outlet system

- 明渠紫外线消毒系统出水方式主要有两种：
  - 自动拍门，其特点：占地面积小，无需动力，方便控制，适用于连续出水；
  - 溢流堰，其特点：水位控制准确，连续出水和间歇出水均适用，水头损失小。
- There are two main ways to discharge water from the UV disinfection system in an open channel:
- Automatic shutter door, its characteristics: small footprint, no power required, convenient control, suitable for continuous water discharge;
- Overflow weir, its characteristics: accurate water level control, suitable for continuous water discharge and intermittent water discharge, and small head loss.



拍门 Slap the door



溢流堰 Overflow weir

## 杀菌效果的影响因素 Influencing factors of bactericidal effect

### 进水中工业废水的成分 The composition of industrial wastewater in the influent

- 上游处理工艺及所用化学药剂
- 进水紫外透光率
- 悬浮物含量
- 颗粒尺寸大小
- 金属离子（铁离子和锰离子）含量
- Upstream treatment process and chemicals used
- Influent UV transmittance
- Suspended matter content
- Particle size
- Metal ion (iron ion and manganese ion) content

### 消毒模块水动力学设计 Hydrodynamic design of disinfection module

- 灯管性能（包括老化系数、辐照度等）
- 灯管排布
- 套管结垢系数（套管和透光率）
- 镇流器性能
- Lamp performance (including aging factor, illuminance, etc.)
- Lamp arrangement
- Casing fouling coefficient (casing and light transmittance)
- Ballast performance

### 紫外线有效剂量 Effective dose of ultraviolet rays

- 紫外线强度
- 紫外线辐照时间
- UV intensity
- UV irradiation time

## 设备选型表 Equipment selection table

明渠式紫外线消毒设备选型表 Selection table of open channel ultraviolet disinfection equipment												
Serial number 设备	Project scale 项目规模		320W/150W灯管数量(支) 320W/150WNumber of tubes				设备型号 Device model				Coefficient of Variation 变异系数	Remark 备注
	Tons/day 吨/天	Tons/hour 吨/小时	Level A Standard 一级A标准	Total lamp power 灯管总功率 (KW)	Level B standard 一级B标准	Total lamp power 灯管总功率 (KW)	一级A标准 粪大肠菌群 $\leq 10000$ 个/L Level A Standard Fecal coliforms $\leq 10000$ /L	土建平面尺寸 LxB(mm) Civil engineering plane size	一级B标准 粪大肠菌群 $\leq 10000$ 个/L Level B standard Fecal coliforms $\leq 10000$ /L	土建平面尺寸 Civil engineering plane size LxB(mm)		
1	300	13	2	0.30	2	0.25	XARUO15012GL	9000x2500	XARUO12712GL	9000x2500	Kz=1.3	
2	500	21	2	0.64	3	0.45	XARUO32012GL	9000x2500	XARUO15013GL	9000x2500	Kz=1.3	
3	1000	42	4	1.28	3	0.96	XARUO32022GL	9000x2500	XARUO32013GL	9000x2500	Kz=1.3	
4	1500	63	6	1.92	4	1.28	XARUO32023GL	9600x2500	XARUO32022GL	9600x2500	Kz=1.3	
5	2000	83	8	2.56	6	1.92	XARUO32024GL	9600x2500	XARUO32023GL	9600x2500	Kz=1.3	
6	2500	104	10	3.20	8	2.40	XARUO32025GL	9600x2500	XARUO32024GL	9600x2500	Kz=1.3	
7	3000	125	12	3.84	9	2.88	XARUO32034GL	9600x2500	XARUO32033GL	9600x2500	Kz=1.3	
8	3500	146	15	4.80	10	3.20	XARUO32035GL	10600x2500	XARUO32025GL	10600x2500	Kz=1.3	
9	4000	167	16	5.12	12	3.84	XARUO32044GL	10600x2500	XARUO32034GL	10600x2500	Kz=1.3	
10	4500	188	18	5.76	15	4.80	XARUO32036GL	10600x2500	XARUO32035GL	10600x2500	Kz=1.3	
11	5000	208	20	6.40	16	5.12	XARUO32054GL	11600x2500	XARUO32044GL	11600x2500	Kz=1.3	
12	6000	250	24	7.68	18	5.76	XARUO32046GL	11600x2500	XARUO32036GL	11600x2500	Kz=1.3	
13	7000	292	30	9.60	20	6.40	XARUO32056GL	11600x2500	XARUO32045GL	11600x2500	Kz=1.3	
14	8000	333	32	10.24	24	7.68	XARUO32048GL	11600x2500	XARUO32038GL	11600x2500	Kz=1.3	
15	10000	417	40	12.80	30	9.60	XARUO32058GL	11600x2500	XARUO32056GL	11600x2500	Kz=1.3	
16	15000	625	60	19.20	40	12.80	XARUO320610GL	12600x3600	XARUO32058GL	12600x3600	Kz=1.3	水渠宽度1500, 设置旁通水渠, 旁通水渠宽度1200mm
17	20000	833	72	23.04	56	17.92	XARUO32098GL	12600x3600	XARUO32078GL	12600x3600	Kz=1.3	
18	25000	1042	88	28.16	64	20.48	XARUO3201108GL	12600x3600	XARUO32088GL	12600x3600	Kz=1.3	
19	30000	1250	100	32.00	72	23.04	XARUO3201010GL	13600x4400	XARUO32098GL	13600x4400	Kz=1.3	
20	35000	1458	112	35.84	88	28.16	XARUO3201408GL	13600x4400	XARUO3201108GL	13600x4400	Kz=1.3	
21	40000	1667	120	38.40	100	32.00	XARUO3201210GL	13600x4400	XARUO3201010GL	13600x4400	Kz=1.3	
22	45000	1875	130	41.60	110	35.20	XARUO3201310GL	13600x4400	XARUO3201110GL	13600x4400	Kz=1.3	
23	50000	2073	140	44.80	128	40.96	XARUO3201410GL	13600x4400	XARUO320168GL	13600x4400	Kz=1.3	
24	60000	2500	170	54.40	144	46.08	XARUO3201710GL		XARUO320188GL		Kz=1.3	
25	70000	2917	200	64.00	168	53.76	XARUO3202010GL		XARUO320218GL		Kz=1.3	
26	80000	3333	230	73.60	180	57.6	XARUO3202310GL		XARUO3201810GL		Kz=1.3	
27	90000	3750	260	83.20	192	61.44	XARUO3202610GL		XARUO320248GL		Kz=1.3	
28	100000	4167	280	89.60	208	66.56	XARUO3202810GL		XARUO320268GL		Kz=1.3	

备注：55000吨以下按照单渠设置，55000吨以上按照双渠设置。以上尺寸仅作参考，可以根据现场具体调整。

Remarks: The setting of single canal for below 55,000 tons, and the setting of double canal for above 55,000 tons. The above dimensions are for reference only and can be adjusted according to the site.

## 带计量一体化明渠紫外线消毒设备

### OPEN CHANNEL ULTRAVIOLET DISINFECTION EQUIPMENT WITH INTEGRATED METERING



#### 设计原理 Design principle

新奥瑞带计量一体化明渠紫外线消毒设备是我司针对中小规模市政污水处理厂、自来水厂、中水回用等应用领域新研发的消毒产品，拥有完全自主知识产权。设备采用304/316不锈钢制作，将明渠紫外线消毒模块（中央永磁清洗系统）、出水控制系统、自控系统集成一体化，选配巴氏计量槽。带计量一体化明渠紫外线消毒设备方便客户的安装与使用，且对土建要求低。紫外线消毒灯管采用进口的低压高强紫外线灯管，灯管有效工作寿命可达12000小时，镇流器采用德国先进技术，具有瞬时过电压保护，能够有效延长灯管寿命。

NEAO belt metering integrated open channel ultraviolet disinfection equipment is a disinfection product newly developed by our company for small and medium-sized municipal sewage treatment plants, water plants, and water reuse. It has completely independent intellectual property rights. The equipment is made of 304/316 stainless steel, integrates the open channel ultraviolet disinfection module (central permanent magnet cleaning system), the water outlet control system, and the automatic control system. The pasteurized metering tank is optional. The open channel ultraviolet disinfection equipment with integrated metering is convenient for customers to install and use, and has low requirements for civil construction. The ultraviolet disinfection lamp adopts imported low-pressure and high-strength ultraviolet lamp, the effective working life of the lamp can reach 12,000 hours, and the ballast adopts German advanced technology, with instantaneous overvoltage protection, which can effectively extend the life of the lamp.

#### 设备特征 Equipment characteristics

- 中央无杆磁耦清洗系统，轻便、密封性好、受力均匀、运行稳定；
- 设备集成度高，含紫外消毒系统和巴氏计量槽；独特的设计与先进的技术结合，维护简单，操作方便；
- 设备不需要土建制作，即可将消毒设备与成套处理系统的进出水系统独特地结合为一体；
- 便于设计院设计、土建施工和设备安装，为用户最大化节约成本。
- The central rodless magnetic coupling cleaning system, which is portable, has good airtightness, uniform force, and stable operation;
- The equipment has a high degree of integration, including an ultraviolet disinfection system and a pasteurized metering tank; a unique design combined with advanced technology, simple maintenance and convenient operation;
- The equipment does not require civil construction, and the disinfection equipment can be uniquely combined with the water inlet and outlet systems of the complete treatment system;
- Facilitate the design of the design institute, civil construction and equipment installation, and maximize cost savings for users

#### 应用范围 Scope of application

- 主要应用于中小型自来水厂、污水厂、中水回用消毒等等。
- Mainly used in small and medium-sized water plants, sewage plants, reclaimed water reuse and disinfection, etc.

#### 一体化明渠选型表 Integrated open channel selection table

水量 Water volume(m <sup>3</sup> /d) 运行时间24h/d operation hours 24h/d	型号 model	规格尺寸 Standard sizes ( mm )		功率 power ( KW )	进出水口径 Inlet and outlet diameter ( mm )
		不锈钢明渠 Stainless steel open channel (LxBxH)	进出水缓冲槽 In and out of the water buffer tank(LxBxH)		
0-500	XARUJ32012GL	2050x200x550	500x800x500	0.64	DN150
500-1000	XARUJ32022GL	2050x200x600	500x1000x750	1.28	DN200
1000-2000	XARUJ32024GL	2050x200x650	600x1000x850	1.92	DN200
2000-3000	XARUJ32034GL	2050x300x700	700x1000x900	2.56	DN250
3000-4000	XARUJ32044GL	2050x400x800	800x1000x1000	5.12	DN250
4000-5000	XARUJ32054GL	2050x500x900	800x1000x1100	6.40	DN300

注：此水量对应的排放标准为生活污水一级A排放标准，本设备亦可用于中小规模的自来水厂消毒处理，详细参数请咨询我司技术或者销售人员；处理标准执行GB18918-2002《城镇污水处理厂污染物排放标准》；进出口位置和口径可以根据现场具体要求设计。

Remarks: The discharge standard corresponding to this water volume is the domestic sewage level A discharge standard. This equipment can also be used for the disinfection treatment of small and medium-sized water plants. For detailed parameters, please consult our technical or sales personnel; the treatment standard is in accordance with GB18918-2002 "Urban Sewage Factory Pollutant Discharge Standard"; the import and export position and caliber can be designed according to the specific requirements of the site.

#### 安装基础尺寸 Installation base size

水量 ( m <sup>3</sup> /d ) 运行时间24h/d Water volume ( m <sup>3</sup> /d ) operation hours 24h/d	型号 model	基础规格尺寸 Basic size(mm)L × B × H
0-500	XARUJ32012GL	4000x1500x250
500-1000	XARUJ32022GL	4000x1500x250
1000-1500	XARUJ32023GL	4000x1500x250
1500-2000	XARUJ32024GL	4200x1600x250
2000-3000	XARUJ32034GL	4400x1600x250
3000-4000	XARUJ32044GL	4600x1600x250
4000-5000	XARUJ32054GL	4800x1600x250

注：非标设备请咨询厂家安装基础大小

Remarks: For non-standard equipment, please consult the manufacturer for the installation base size

#### 带计量一体化明渠选型表 Selection table for open channel with integrated measurement

处理水量 Treated water volume(m <sup>3</sup> /d)	设备型号 model	巴氏计量 槽型号 Pasteur metering tank model	系统最大功率 (KW)(带自动清洗) Maximum system power (With automatic cleaning)	功率 power ( KW )	进出水法兰 Water inlet and outlet flange ( mm )	设备尺寸 Equipment size ( LxBxH, mm )	安装基础尺寸 Installation base size ( LxBxH,mm )
100	XARUJ15011GL	标准型1型 Standard Type 1	0.95	0.15	DN100	2000x500x750	4000x1500x250
300	XARUJ15012GL	标准型2型 Standard Type 2	1.10	0.3	DN100	3200x500x750	4000x1500x250
500	XARUJ32012GL		1.44	0.64	DN150	3200x400x850	4000x1500x250
1000	XARUJ32022GL		2.08	1.28	DN200	3200x400x850	4000x2000x250
1500	XARUJ32023GL	标准型3型 Standard Type 3	2.72	1.92	DN250	3500x500x850	4200x2200x250
2000	XARUJ32024GL		3.36	2.56	DN250	3500x600x850	4400x2500x250

## 过流（腔体）式紫外线消毒设备

### OVERFLOW (CAVITY) ULTRAVIOLET DISINFECTION EQUIPMENT



#### 设计原理 Design principle

- 过流（腔体）式紫外线消毒设备，采用世界领先的高强度紫外线杀菌灯，筒体内壁经过特殊处理的304/316不锈钢，使经过预处理的水流过筒体时受到波长253.7nm紫外线足够量的照射，具有良好的杀菌效果。本装置为卧式，杀菌速度快、效率高、效果好，按水处理要求照射2-3秒钟后，就可杀死水中病毒、细菌，杀菌率99.99%以上。
- 本设备体积小、重量轻、耗电少、寿命长、成本低，与其它杀菌方法相比具有显著的优越性，因此被广泛使用。
- 新奥瑞的过流（腔体）式紫外线消毒设备有两种：一种是带清洗装置，一种是不带清洗装置。
- 带清洗装置的过流式消毒设备具有维护方便，操作简单，无需专人清洗，能够有效保证套管表面透光率的特征，保证出水达标。设备可以自动运行，亦可手动操作。
- Overflow (cavity) type ultraviolet disinfection equipment, using the world's leading high-intensity ultraviolet germicidal lamp, the inner wall of the barrel is specially treated 304/316 stainless steel, so that the pre-treated water is subjected to sufficient ultraviolet rays with a wavelength of 253.7nm when flowing through the barrel. The irradiation has a good bactericidal effect. This device is horizontal, with fast sterilization speed, high efficiency and good effect. After 2-3 seconds of irradiation according to water treatment requirements, it can kill viruses and bacteria in the water, with a sterilization rate of over 99.99%.
- This equipment is small in size, light in weight, low in power consumption, long in life, and low in cost. Compared with other sterilization methods, it has significant advantages, so it is widely used.
- There are two types of over-current (cavity) ultraviolet disinfection equipment of Xin Orui: one with cleaning device and the other without cleaning device.
- The overflow type disinfection equipment with cleaning device has the characteristics of convenient maintenance, simple operation, no need for special cleaning, and can effectively ensure the light transmittance of the casing surface and ensure that the water outlet meets the standard. The equipment can be operated automatically or manually.

#### 设备特征 Equipment characteristics

- 采用低压高强紫外灯管，灯管有效工作寿命可达12000小时；
- 具有通讯功能的可调节输出功率的电子镇流器；
- 采用304/316筒体制作而成，筒体内壁经过特殊抛光处理，能够使紫外光的效果最优；
- 采用磁耦合清洗气缸，清洗运行平稳，设备结构紧凑，轻便。

- Using low-pressure and high-strength ultraviolet lamps, the effective working life of the lamp can reach 12,000 hours;
- Electronic ballast with communication function and adjustable output power;
- It is made of 304/316 cylinder, and the inner wall of the cylinder is specially polished to optimize the effect of ultraviolet light;
- Using magnetic coupling cleaning cylinder, the cleaning operation is stable, the equipment structure is compact and light.

#### 应用范围 Scope of application

- 主要应用在净水消毒方面，水箱二次消毒，自来水消毒，污水消毒回用，泳池水消毒，景观水消毒，小型污水厂消毒等方面。
- Mainly used in water purification disinfection, water tank secondary disinfection, tap water disinfection, sewage disinfection reuse, swimming pool water disinfection, landscape water disinfection, small sewage treatment plant disinfection, etc.

#### 清洗装置 Cleaning device



过流（腔体）式紫外线消毒设备清洗装置  
Overflow (cavity) type ultraviolet disinfection equipment cleaning device

#### 设备选型表 Equipment selection table

处理水量 Treated water volume (m <sup>3</sup> /d)	设备型号 model	功率 power (KW)	进出水口法兰 Inlet and outlet flange	设备尺寸 Equipment size (LxΦxH,mm)	安装基础尺寸 Installation base size (LxBxH,mm)
300	XARUC1502GL	0.3	DN80	1800x159x360	1400x1000x200
400	XARUC1503GL	0.45	DN100	1800x219x450	1400x1000x200
500	XARUC1504GL	0.6	DN125	1800x219x450	1400x1000x200
600	XARUC3202GL	0.64	DN125	1800x159x360	1400x1000x200
700	XARUC3203GL	0.96	DN125	1800x219x450	1400x1000x200
800	XARUC3203GL	0.96	DN150	1800x219x450	1400x1000x200
900	XARUC3204GL	1.28	DN150	1800x219x450	1400x1000x200
1000	XARUC3204GL	1.28	DN150	1800x219x450	1400x1000x200
1100	XARUC3204GL	1.28	DN150	1800x219x450	1400x1000x200
1200	XARUC3205GL	1.6	DN200	1800x219x450	1400x1000x200
1300	XARUC3205GL	1.6	DN200	1800x219x450	1400x1000x200
1400	XARUC3205GL	1.6	DN200	1800x219x450	1400x1000x200
1500	XARUC3206GL	1.92	DN200	1800x250x450	1400x1000x200
1600	XARUC3206GL	1.92	DN200	1800x250x450	1400x1000x200
1700	XARUC3206GL	1.92	DN200	1800x250x450	1400x1000x200
1800	XARUC3207GL	2.24	DN250	1800x250x510	1400x1000x200
1900	XARUC3207GL	2.24	DN250	1800x250x510	1400x1000x200
2000	XARUC3207GL	2.24	DN250	1800x250x510	1400x1000x200

注：此表选型水量适用于污水消毒一级A排放标准，该尺寸为带清洗装置。  
Remarks: The water volume selected in this table is applicable to the first level A discharge standard of sewage disinfection, and this size is with a cleaning device.

## 中压紫外线消毒设备

### MEDIUM-PRESSURE ULTRAVIOLET DISINFECTION EQUIPMENT



#### 技术背景 Technical background

目前为止我国绝大多数自来水厂均采用单一的氯法消毒。氯法消毒具有一定的局限性和不稳定性，如很难对所有微生物进行控制，特别是在杀灭“两虫”方面，没有明显的去除作用；中压紫外线技术因为可以灭活包括隐孢子虫和肠贾第氏鞭毛虫在内的各类原生单细胞细菌和病毒，而且没有化学副产物，具有绿色环保，占用空间小，安装操作简单，运行费用低，工作寿命长等优势。

So far, most water plants in my country have adopted a single chlorine method for disinfection. Chlorine disinfection has certain limitations and instability. For example, it is difficult to control all microorganisms, especially in terms of killing "two insects". It has no obvious removal effect; medium-pressure ultraviolet technology can inactivate cryptosporidia including cryptosporidia. All kinds of native single-cell bacteria and viruses, including worms and Giardia intestines, have no chemical by-products. They are environmentally friendly, occupy a small space, simple installation and operation, low operating costs, and long working life.

#### 设备特征 Equipment characteristics

- 强杀菌性：杀菌效率高、杀菌速度快，对常见的细菌、病毒的杀灭作用一般在1秒的时间内即可完成；
- 杀菌的广谱性高：对所有的细菌和病毒都能高效杀灭，能够永久灭活抗氯性微生物组织，例如嗜肺军团菌、大肠杆菌、假单胞菌、隐孢子虫、阿米巴虫和细菌等，紫外线通过破坏这些微生物的DNA和DNA修复酶来达到灭活效果；
- 在消毒过程中不会产生有毒及有害副产物，不改变被消毒水的成分和性质，对水体和周围环境不产生二次污染；
- 中压紫外线杀菌系统具备降解化合氯的能力，包括一氯胺、二氯胺、三氯胺等，这样有效杜绝了致癌物质三卤甲烷(THMs)的产生，杜绝了化合氯对人体的影响；
- 中压紫外线消毒设备占地面积小、运行安全、可靠、维修简单、费用低。
- Strong bactericidal properties. The sterilization efficiency is high, the sterilization speed is fast, and the killing effect on common bacteria and viruses can generally be completed within 1 second;
- The broad spectrum of sterilization is high. It can effectively kill all bacteria and viruses, and can permanently inactivate chlorine-resistant microorganisms, such as Legionella pneumophila, Escherichia coli, Pseudomonas, Cryptosporidium, Amoeba and bacteria, etc., through ultraviolet light Destroy the DNA and DNA repair enzymes of these microorganisms to achieve the inactivation effect;
- No toxic and harmful by-products will be produced during the disinfection process, the composition and properties of the disinfected water will not be changed, and no secondary pollution will occur to the water body and the surrounding environment;
- The medium-pressure ultraviolet sterilization system has the ability to degrade compound chlorine, including monochloramine, dichloramine, trichloramine, etc., which effectively eliminates the production of carcinogens, trihalomethanes (THMs), and eliminates the effects of compound chlorine on the human body. Impact;
- Medium-pressure ultraviolet disinfection equipment has a small footprint, safe and reliable operation, simple maintenance and low cost.

专用电子式镇流器，不仅可以保证高度稳定性，而且还有节能的效果。具有以下特点：

The special electronic ballast can not only ensure high stability, but also has the effect of energy saving. Has the following characteristics:

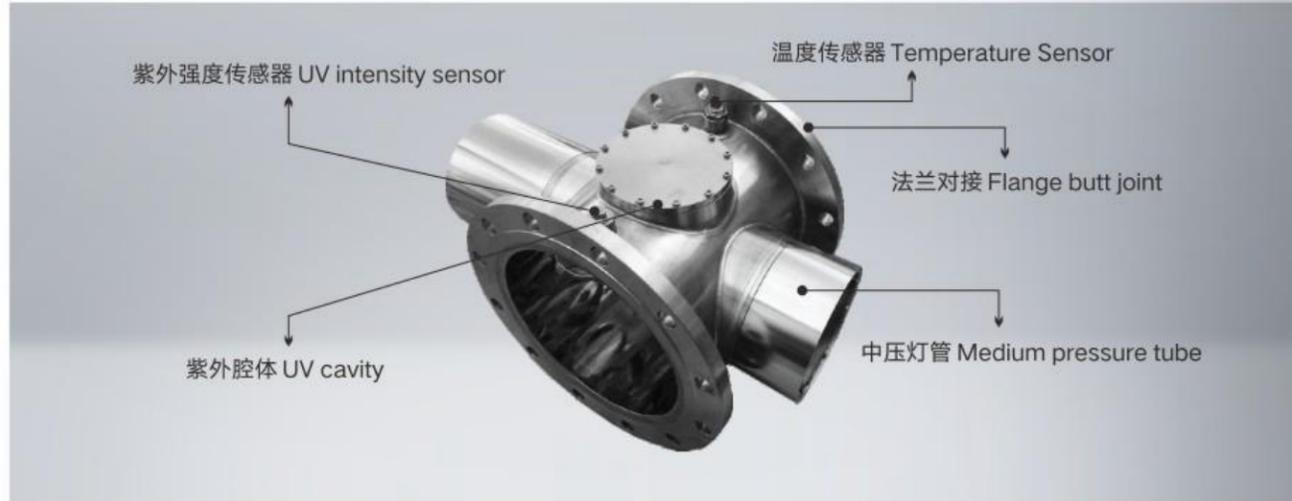
- 节能：相同的电能损耗，更高的UV能量输出，特有的特殊功能待机模式，智能无级调节，这些特性使得比普通的UV节能30%以上；
- 温度低：同样的UV能量，需要更少的电能；智能无级调节，不需要额外的电能损耗；让灯管发热更少，配合高效的冷却系统，干燥温度更低；
- 灯管寿命更长：恒功率/恒电流全闭环输出控制，更稳定，无输出电压，无频闪现象，灯管损耗更少，寿命更长；
- 体积小，重量轻：电源内部程序智能控制，无大体积的变压器等，节约空间资源；
- 全面智能电路保护：全闭环控制，对各个参数异常情况进行保护；
- 多重通讯模式选择：与PLC连接可以选择RS485、RS232、Modbus等通讯协议。
- 在中压紫外线消毒设备的设计制造上，除了核心产品的选型以外，设备的集成非常重要。中压灯的灯壁表面温度高达600-800℃，套管的选型和配置对灯管的寿命和效果有重大的影响；因为灯管的高温，对系统的密封设计和冷却系统提出了极高的要求；镇流器和灯管调光的控制系统和其它的控制系统将对系统是否稳定运行至关重要。另外一个水处理消毒系统能否成为可靠的杀菌灭活系统，还需要专业的UV剂量计算和核定。
- Energy saving: the same power consumption, higher UV energy output, unique special function standby mode, intelligent stepless adjustment, these features make it more than 30% energy saving than ordinary UV;
- Low temperature: The same UV energy requires less electrical energy; intelligent stepless adjustment, no additional electrical energy loss; less heat generated by the lamp, with an efficient cooling system, lower drying temperature;
- Longer lamp life: constant power/constant current full closed-loop output control, more stable, no output voltage, no stroboscopic phenomenon, less lamp loss, longer life;
- Small size and light weight: Intelligent control of the internal program of the power supply, no large-volume transformer, etc., saving space and resources;
- Comprehensive intelligent circuit protection: full closed-loop control, protection for abnormal conditions of various parameters;
- Multiple communication mode selection: RS485, RS232, Modbus and other communication protocols can be selected for connection with PLC.
- In the design and manufacture of medium-pressure ultraviolet disinfection equipment, in addition to the selection of core products, the integration of equipment is very important. The surface temperature of the lamp wall of the medium pressure lamp is as high as 600-800°C. The selection and configuration of the sleeve have a significant impact on the life and effect of the lamp; because of the high temperature of the lamp, the sealing design and cooling system of the system are proposed Extremely high requirements; the control system of ballast and lamp dimming and other control systems will be crucial to the stable operation of the system. Whether another water treatment and disinfection system can become a reliable sterilization and inactivation system requires professional UV dose calculation and approval

根据新奥多年的研发数据得出以下最优的配置方案：

According to NEAO's research and development data for many years, the following optimal configuration schemes are obtained:

- 温度探头：随时监测水的温度，确保设备在合适的工作温度中运行。
- 紫外线强度探头：中压紫外线所使用的强度监测器仅对有灭菌效果的特定紫外线波长有响应。它可以与电脑和PLC相连，为系统的运行节约了电耗。
- 石英套管：为了更好的保护紫外线灯管，每一根紫外线灯管外面都会有一支石英套管。因此石英套管的品质在很大程度上决定了紫外线的杀菌效果，高品质的石英套管可以确保紫外线的穿透率达到90%以上。
- 自动清洗系统：由于水质和紫外线光的照射，使用一段时间以后石英套管表面会结晶，结晶的厚度达到一定程度就会影响紫外线的穿透比例，因此石英套管需要定时清洗。中压紫外线系统配有新奥独特的中央磁力驱动机械+化学自动清洗系统，对石英套管定时进行自动清洗。清洗过程中系统正常运行，无需停水，也无需人工参与，大大降低了现场人员的工作负荷。
- 电柜控制系统：人性化的操作界面，可实时显示UV灯工作状态、工作电压、工作电流以及故障时的故障状态。
- Temperature probe: monitor the temperature of the water at any time to ensure that the equipment is running at the proper working temperature.
- Ultraviolet intensity probe: The intensity monitor used for medium pressure ultraviolet rays only responds to specific ultraviolet wavelengths with sterilization effects. It can be connected with a computer and a PLC, which saves power consumption for the operation of the system.
- Quartz sleeve: In order to better protect the ultraviolet lamp, there will be a quartz sleeve outside each ultraviolet lamp. Therefore, the quality of quartz sleeves largely determines the sterilization effect of ultraviolet rays, and high-quality quartz sleeves can ensure that the penetration rate of ultraviolet rays reaches more than 90%.
- Automatic cleaning system: Due to the water quality and ultraviolet light, the surface of the quartz sleeve will crystallize after a period of use. The thickness of the crystal will affect the penetration ratio of ultraviolet light to a certain extent, so the quartz sleeve needs to be cleaned regularly. The medium-pressure ultraviolet system is equipped with ENN's unique central magnetic power drive mechanical + chemical automatic cleaning system, which automatically cleans the quartz sleeve at regular intervals. During the cleaning process, the system runs normally without water shut-off or manual participation, which greatly reduces the workload of on-site personnel.
- Electric cabinet control system: The user-friendly operation interface can display the working status of the UV lamp, working voltage, working current, and the fault status in the event of a fault in real time.

## 中压紫外线消毒设备结构 Medium-pressure ultraviolet disinfection equipment structure



## 设备选型表 Equipment selection table

型号 model	ZARZY-4	ZARZY-8	ZARZY-16
最大水量 Maximum water volume	1000m <sup>3</sup> /h	3000m <sup>3</sup> /h	6000m <sup>3</sup> /h
灯管数 Number of tubes	≤4	≤8	≤16
紫外灯总功率 Total UV lamp power	1.5-14KW	5.2-75KW	15-180KW
清洗系统 Cleaning system	机械清洗/机械加化学清洗 Mechanical cleaning / Mechanical and chemical cleaning		
水质透光率 Water quality transmittance	70~90%		
运行环境最高温度 Maximum operating environment temperature	40℃		
最高水温 Maximum water temperature	30℃		
消毒器材质 Sterilizer material	SS 304/316L		
法兰口径 Flange diameter	根据实际的灯管数选配 Optional according to the actual number of tubes		



紫外场景 UV scenario



# ADVANCED OXIDATION DEVICE

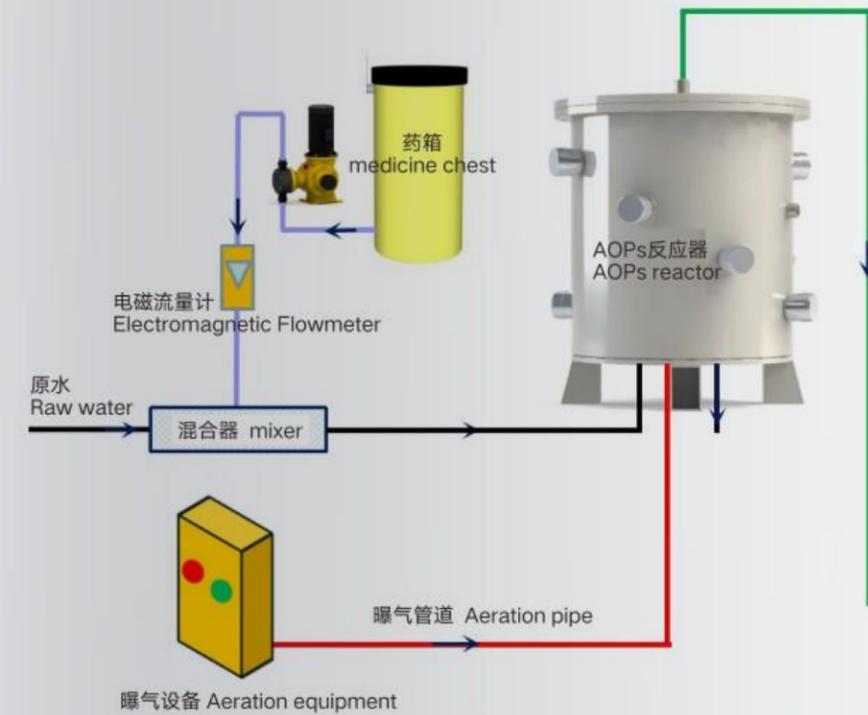
## 高级氧化装置

### 系统简介 Introduction

高级氧化装置 (AOPs) 是主要用于处理高浓度COD, 且COD难降解的废水装置, 同时该系统可用于净水厂的回用水系统, 保证回用水质满足对应的标准, 整套装置包含了紫外系统, 光催化剂, 加药系统, 预曝气系统, 仪表, 以及自控系统组成, 原水通过管道输送, 药剂投加到管道混合器中, 通过管道混合器的混合后进入预曝气系统中, 根据水质的情况采用不同的气体进行曝气, 曝气后的污水进入到紫外系统中, 在紫外线的照射下以及光催化剂的共同作用下, 产生大量的羟基自由基 (-OH), 羟基自由基 (-OH) 具有很高的氧化还原电位 (E0=+2.80V), 可以将水中有机污染物直接氧化为无毒小分子物质甚至CO<sub>2</sub>和H<sub>2</sub>O。

Advanced oxidation devices (AOPs) are devices that are mainly used to treat high-concentration COD and difficult-to-degrade wastewater. At the same time, the system can be used in the reuse system of water purification plants to ensure that the quality of the reused water meets the corresponding standards. The entire device includes UV System, photocatalyst, dosing system, pre-aeration system, instrumentation, and automatic control system. The raw water is transported through pipelines, the medicament is added to the pipeline mixer, and after mixing through the pipeline mixer, it enters the pre-aeration system. The water quality uses different gases for aeration. After aeration, the sewage enters the UV system. Under the combined action of the ultraviolet rays and the photocatalyst, a large number of hydroxyl radicals (OH) and hydroxyl radicals (-OH) has a very high oxidation-reduction potential (E0=+2.80V), which can directly oxidize organic pollutants in water into non-toxic small molecules and even CO<sub>2</sub> and H<sub>2</sub>O.

### 工艺流程 Process flow



## 高级氧化法特点 Features of advanced oxidation method

- 具有高效性。氧化过程中产生大量的羟基自由基，其氧化能力仅次于氟(2.87V)。
- 羟基自由基为中间产物，可以诱发后续反应的持续进行；
- 羟基自由基与水中的自由基直接进行反应，氧化为CO<sub>2</sub>和H<sub>2</sub>O，不会产生二次污染，适用范围广。
- 羟基自由基的电子亲和力强，可直接将饱和烃中的H直接拖拽出来，使有机物自身得以氧化，实现有机物的降解；最后具有可控性。
- AOPs实际是一种物理-化学处理过程，其过程易控制。
- High efficiency. During the oxidation process, a large number of hydroxyl radicals are produced, and its oxidation ability is second only to fluorine (2.87V).
- Hydroxyl radicals are intermediate products, which can induce the continued progress of subsequent reactions;
- The hydroxyl radical reacts directly with the free radicals in the water, and is oxidized to CO<sub>2</sub> and H<sub>2</sub>O without secondary pollution; again, it has a wide range of applications.
- Hydroxyl radicals have strong electron affinity, which can directly drag the H in saturated hydrocarbons, so that the organic matter itself can be oxidized, and the degradation of the organic matter can be realized; finally, it is controllable.
- AOPs is actually a physical-chemical treatment process, and the process is easy to control.

## 应用领域 Application field

- 高浓度难降解的废水，制药，石油，化工等；
- 回用水的深度处理，用于脱色，消毒，除臭以及降解COD；
- 饮用水的预处理或者深度处理，用于减少消毒副产物或者提高水质的口感；
- 用于电子行业超纯水的前处理，可降解TOC等。
- High-concentration and non-degradable wastewater, pharmaceuticals, petroleum, chemical industries, etc.;
- Advanced treatment of recycled water for decolorization, disinfection, deodorization and COD degradation;
- Pretreatment or advanced treatment of drinking water to reduce disinfection by-products or improve the taste of water quality;
- Used for the pretreatment of ultrapure water in the electronics industry, degradable TOC, etc.;

# OZONE GENERATOR

## 臭氧发生器

## 设计原理 Design principle

臭氧又称活氧、三氧，英文名：OZONE，分子式O<sub>3</sub>，分子质量为48，气体密度2.144 (0°C, g/L)，比空气重，常温常压下呈气态，具强氧化性；臭氧具有较强的氧化、催化等作用。病毒及细菌在臭氧气体中由于受到多种自由基的作用，使蛋白质解变性，核酸和酶的活性降低，从而有消毒、灭菌、除味效果。

本臭氧发生器是利用高压电弧击穿空气，将空气或氧气进行电离产生臭氧。或者使用紫外线照射式产生臭氧。臭氧的不稳定性使其很难实现瓶装贮存，一般只能利用臭氧发生器现场生产，随产随用。

按臭氧产生的方式划分，臭氧发生器主要有三种：一是高压放电式，二是紫外线照射式，三是电解式。我司主要生产高压放电式和紫外线照射式。

我司研发的臭氧设备以内置氧气发生器产生的氧气为气源，采用臭氧发生技术产生高浓度臭氧。本机内置无油空气压缩机、过滤装置，通电即可产生臭氧。采用耐高温钛HQQ,非玻璃结构放电单元，该结构使用极其稳定、使用寿命长，具有放电效率高、遇回水不易损坏等特点。

Ozone is also known as active oxygen and trioxigen. It's English name is OZONE, molecular formula O<sub>3</sub>, molecular weight 48, gas density 2.144 (0°C, g/L), heavier than air, and gaseous under normal temperature and pressure, with strong oxidizing properties; Ozone has strong oxidation and catalysis effects. Viruses and bacteria are affected by a variety of free radicals in the ozone gas, so that proteins are dissociated and denatured, and the activities of nucleic acids and enzymes are reduced, thereby having disinfection, sterilization and deodorization effects.

The ozone generator uses a high-voltage arc to break down the air and ionize the air or oxygen to produce ozone. Or use ultraviolet radiation to generate ozone. The instability of ozone makes it difficult to achieve bottled storage. Generally, the ozone generator can only be produced on site and used as it is produced.

According to the way of ozone generation, there are three main types of ozone generators: one is the high-voltage discharge type, the other is the ultraviolet irradiation type, and the third is the electrolysis type. Our company mainly produces high-voltage discharge type and ultraviolet radiation type.

The ozone equipment developed by our company uses the oxygen generated by the built-in oxygen generator as the gas source and adopts the ozone generation technology to produce high concentration ozone. The machine has a built-in oil-free air compressor and filter device, which can produce ozone when it is energized. It adopts high temperature resistant titanium HQG, non-glass structure discharge unit, this structure is extremely stable in use, long service life, high discharge efficiency, and it is not easy to be damaged when encountering backwater.

## 应用范围 Scope of application

臭氧作为一种强氧化剂、消毒剂、精制剂、催化剂等被广泛应用于石油、化工纺织、食品、制药、香料、环保等部门。1905年起臭氧开始用于水处理，它可以解决饮用水的质量问题。目前，日本及欧美等大部分国家已把臭氧技术应用于医疗器械、餐具杀菌等。臭氧作为氧化剂在纺织、印染、造纸、除臭脱色、漂白、老化技术处理、生物工程等领域中亦在逐步得到应用。臭氧的最大特点是气体（由三个氧原子组成），并且具有极强的氧化能力。它的氧化能力仅次于氟而高于氯，效率高而无害残留物，因而具有广泛的应用领域。主要应用于纯水消毒，泳池消毒，污水厂消毒，医疗废水消毒，养殖水消毒。

As a strong oxidant, disinfectant, refined preparation, catalyst, ozone is widely used in petroleum, chemical textiles, food, pharmaceuticals, spices, environmental protection and other sectors. Ozone has been used in water treatment since 1905, and it can solve drinking water quality problems. At present, most countries such as Japan, Europe and the United States have applied ozone technology to medical equipment and tableware sterilization. As an oxidant, ozone is also gradually being used in the fields of textiles, printing and dyeing, papermaking, deodorization and decolorization, bleaching, aging technology treatment, and biological engineering. The biggest feature of ozone is gas (composed of three oxygen atoms), and it has a strong oxidizing ability. Its oxidizing ability is second only to fluorine but higher than chlorine, with high efficiency and harmless residues, so it has a wide range of applications. Mainly used in pure water disinfection, swimming pool disinfection, sewage treatment plant disinfection, medical wastewater disinfection, and breeding water disinfection.

## 工艺流程 Process flow

### 空气源 Air source



### 氧气源 Oxygen source



每小时最大处理水量 (t/h) \* 每吨水的臭氧投加量 (g/t) = 每小时需要的臭氧含量(g/h)

Maximum processing water volume per hour (t/h) \* Effective chlorine dosage per ton of water (g/t) = Available chlorine content required per hour (g/h)

处理水质 Treatment water quality	自来水 Tap water	医院废水 Hospital wastewater		市政污水厂 Municipal Wastewater Treatment Plant	泳池杀菌 Swimming pool sterilization	循环水杀菌 Circulating water sterilization
出水要求 Water requirement	自来水厂 Waterworks	预处理 Pretreatment	生化处理 Biochemical treatment			
臭氧投加量(mg/L) Effective chlorine dosage	0.5~5	20~40	10~30	5~15	1~3	1~3

## XAR-SOZ中小型臭氧发生器

### XAR-SOZ SMALL AND MEDIUM OZONE GENERATOR

XAR-SOZ中小型系列强力臭氧发生器采用耐高温HQG非玻璃结构放电单元，该结构使用及其稳定，使用寿命长，具有放电效率高，遇回水不易损坏等特点，现已被国内外众多水处理公司指定使用产品。

XAR-SOZ medium and small series powerful ozone generator adopts high temperature resistant HQG non-glass structure discharge unit. This structure is extremely stable in use, long service life, high discharge efficiency, and it is not easy to be damaged in case of backwater. It has been widely used at home and abroad. The water treatment company specifies the product to be used.

#### 产品特点 Features

- 多个故障点监测功能，主板温度检测、高压包温度检测、冷却水温度检测、臭氧发生管回水检测等，系统检测到故障后，设备停止运行，控制板上相应的故障灯亮。
- 臭氧发生量无极可调。
- 标准4~20mA模拟量信号接口，设备的臭氧发生量可由外部各类检测仪自动精确控制，该技术为臭氧行业率先采用，世界领先。
- 电路主部件为西门子产品（IGBT、IGBT模块）
- Multiple failure point monitoring functions, such as main board temperature detection, high pressure package temperature detection, cooling water temperature detection, ozone generating tube return water detection, etc. After the system detects a failure, the equipment stops running and the corresponding failure light on the control panel lights up.
- The amount of ozone generated is infinitely adjustable.
- The standard 4-20mA analog signal access port, the ozone generation of the equipment can be automatically and accurately controlled by various external detectors. This technology is the first to be adopted by the ozone industry and is the world's leading.

#### 设备选型表 Equipment selection table

型号/参数 Model/ Parameter	XAR-SOZ -100	XAR-SOZ -150	XAR-SOZ -200	XAR-SOZ -300	XAR-SOZ -400	XAR-SOZ -500	XAR-SOZ -600	XAR-SOZ -1000	XAR-SOZ -1500	XAR-SOZ -2000
臭氧产量 Ozone production (g/h)	100	150	200	300	400	500	600	1000	1500	2000
冷却方式 cooling method (m3/h)	水冷 Water cooling 0.3-1.0	水冷 Water cooling 0.5-1.5	水冷 Water cooling 1-2	水冷 Water cooling 1-3	水冷 Water cooling 1.5-4	水冷 Water cooling 2-6	水冷 Water cooling 3-8			
最大臭氧浓度 Maximum ozone concentration (g/m3)	氧气源:50-100 空气源:16-30		Oxygen source:50-100 Air source:16-30		氧气源: 50-120 空气源: 16-35		Oxygen source: 50-120 Air source: 16-35			
长×宽×高 Length×width ×height	770×500×1200			800×600×1450		1200×600×1450		2000×600 ×1450	2600×600 ×1450	3500×600 ×1450
重量 weight(kg)	85	90	95	120	150	200	250	350	500	700
功率 power(KW)	1.3	1.8	2.5	3.2	4.5	5.5	6.5	10.2	15.5	22
使用气源 Use air source	220V 50Hz(中国销售)110V50-60Hz(国外部分地区销售)220V 50Hz (China Sales) 110V50-60Hz (Sales in some areas abroad)									
使用电源 Using electric	使用氧气(瓶装气或氧气发生器)气源或使用洁净干燥空气源 Use oxygen(bottled gas or oxygen generator)gas source or use clean and dry air source									



## XAR-WOZ大型臭氧发生器

### XAR-WOZ LARGE OZONE GENERATOR

XAR-WOZ大型系列强力臭氧发生器采用自动化控制系统，人机界面控制，中英液晶菜单显示，可实时监测系统状态及运行参数，自控系统可根据用户现场对自控系统的要求进行设计和配置，PLC操作系统为德国西门子。每个臭氧发生单元带有独立的高压熔断器，保证了放电整体正常、可靠、有效的工作且可定期拆卸清洗和更换维护费用低。稳定运行时间长，发生器的外电极系316L不锈钢制造，臭氧发生单元有多种排布方式，并使用水冷却不蓄热有利于稳定臭氧产量，使用寿命长，给用户节省了可观的维护费用。臭氧浓度高，结构紧凑，结实耐用！设备的开关机实现就地和远程控制，并能显示设备的工作或待机、报警状态，能对臭氧泄露报警反应，并自动关机，能对系统产生的尾气中的剩余臭氧进行自动破坏，能根据要求控制臭氧发生器冷却水系统，能根据要求控制空气源系统，自动调节臭氧产量。为了保证多组臭氧放电体组成的放电室系统的正常工作。当放电体出现击穿故障时，高压保险能在设定的时间内熔断，以保证不因电流过大而影响系统正常工作，使整个系统安全可靠运行。

XAR-WOZ large series powerful ozone generator adopts automatic control system, man-machine interface control, Chinese and English LCD menu display, which can monitor the system status and operating parameters in real time. The automatic control system can be designed and configured according to the requirements of the user on-site. The PLC operating system is Siemens of Germany. Each ozone generating unit is equipped with an independent high-voltage fuse, which ensures the overall normal, reliable and effective work of the discharge, and can be disassembled, cleaned and replaced regularly, and the maintenance cost is low. Long stable operation time. The outer electrode of the generator is made of 316L stainless steel. The ozone generating unit has a variety of arrangements, and the use of water cooling without heat storage is beneficial to stabilize the ozone production, long service life, and saves considerable maintenance costs for users. High ozone concentration, compact structure, strong and durable! The switch machine of the equipment can be controlled locally and remotely, and can display the working or standby and alarm status of the equipment, can react to ozone leakage alarm, and automatically shut down, can automatically destroy the remaining ozone in the exhaust gas generated by the system, and can automatically destroy the remaining ozone in the exhaust gas generated by the system. It is required to control the cooling water system of the ozone generator, control the air source system according to the requirements, and automatically adjust the ozone output. In order to ensure the normal operation of the discharge chamber system composed of multiple groups of ozone discharge bodies. When the discharge body has a breakdown fault, the high-voltage fuse can be blown within a set time to ensure that the normal operation of the system is not affected by the excessive current, and the entire system is safe and reliable.

#### 产品特点 Features

- 温升高，适合连续稳定运行。
- 内置单循环水冷系统进行高效冷却。
- 臭氧出口浓度高，产量可调，无臭氧报警，回水报警，过温报警。
- 高端触摸屏控制系统，智能化设计操作简单（为降低成本可选配非智能模拟控制系统）。
- 先进的IGBT供电单元
- Low temperature rise, suitable for continuous and stable operation.
- Built-in single-cycle water cooling system for efficient cooling.
- High ozone outlet concentration, adjustable output, no ozone alarm, backwater alarm, over-temperature alarm.
- High-end touch screen control system, intelligent design and easy operation (lower non-intelligent analog control system can be selected to reduce costs).
- Advanced IGBT power supply unit

#### 设备选型表 Equipment selection table

型号/参数 Model/Parameter	XAR-WOZ -5000	XAR-WOZ -8000	XAR-WOZ -10000	XAR-WOZ -15000	XAR-WOZ -20000	XAR-WOZ -30000	XAR-WOZ -50000
臭氧产量 Ozone production (g/h)	5000	8000	10000	15000	20000	30000	50000
冷却方式 cooling method (m3/h)	水冷 Water cooling 8-20		水冷 Water cooling 20-30		水冷 Water cooling 30-40	水冷 Water cooling 50-65	水冷 Water cooling 900-100
最大臭氧浓度 Maximum ozone concentration (wt%)	氧气源: 6-10 空气源: 2-3 Oxygen source: 6-10 Air source: 2-3						
长×宽×高 Length×width ×height (mm)	3000×2200×2000		3200×2500×2200		3600×2800 ×2200	5000×3000 ×2600	6000×3600 ×2900
重量 weight(t)	4.5	5	8	8	10.5	13	20
使用气源 Use air source	使用氧气(瓶装气或氧气发生器)气源或使用洁净干燥空气源 Use oxygen (bottled gas or oxygen generator) gas source or use clean and dry air source						

# PRECISE AUTOMATIC DOSING DEVICE

## 精准自动加药装置

### 加药装置用途 Dosing device use

XARJY系列加药系统是一种具有投药、搅拌、液体输送、自动控制于一体的成套设备，它被广泛应用于电厂的原水、锅炉给水、油田地面集输脱水处理系统，石油化工各种加药系统和废水处理系统。如投加混凝剂、磷酸盐、氨液、石灰水、缓蚀剂、阻垢剂、杀菌灭藻剂等。

XARJY series dosing system is a complete set of equipment with dosing, mixing, liquid transportation and automatic control. It is widely used in power plant raw water, boiler feed water, oil field ground gathering and transportation dehydration treatment system, and various petrochemical dosing systems. Systems and wastewater treatment systems. Such as adding coagulant, phosphate, ammonia solution, lime water, corrosion inhibitor, scale inhibitor, bactericidal and algicide etc.

### 工作结构原理 Working structure principle

加药装置主要由溶液箱、搅拌器、计量泵、液位计、电控柜、管路、阀门、安全阀、背压阀、止回阀、脉动阻尼器、压力表、Y型过滤器等组成。加药装置根据所需药剂浓度，在搅拌箱内配置，经搅拌器搅拌均匀后投入溶液箱、用计量泵向投药点或指定系统中输送所配制的溶液。成套加药装置具有结构紧凑、安全简单、操作使用简便等特点。加药装置还可根据用户不同工艺流程的要求，进行有针对性的设计、配置必要的部件，实现自动远程控制等功能。

The dosing device is mainly composed of solution tank, agitator, metering pump, level gauge, electric control cabinet, pipeline, valve, safety valve, back pressure valve, check valve, pulsation damper, pressure gauge, Y-type filter, etc. composition.

The dosing device is configured in the mixing box according to the required concentration of the medicine, and after being evenly stirred by the agitator, it is put into the solution box, and the metering pump is used to deliver the prepared solution to the dosing point or the designated system. The complete set of dosing device has the characteristics of compact structure, safety and simplicity, and easy operation and use. The dosing device can also be designed and configured with necessary components according to the requirements of the user's different process flows to realize automatic remote control and other functions.

### 选型注意事项 Precautions for selection

- 用户选用加药装置时，首先根据系统需要投加溶液量来确定选用规格(包括计量泵参数、溶液箱容积等条件)，再根据投加情况，确定投加方式(一般采用“一用一备”的方式)。
- 根据需要选取加药装置各部件的材质(不锈钢、碳钢、非金属材料)、计量泵型号(隔膜泵、柱塞泵)或向我公司提供所加药剂的参数(名称、浓度、温度、密度、粘度、腐蚀性等)。
- When the user chooses the dosing device, first determine the selection specifications (including the metering pump parameters, the volume of the solution tank, etc.) according to the amount of solution needed by the system, and then determine the dosing method according to the dosing situation (usually "one use" "One preparation" approach).
- According to the needs, select the material of each component of the dosing device (stainless steel, carbon steel, non-metallic materials), the metering pump model (diaphragm pump, plunger pump) or provide our company with the parameters of the dosing agent (name, concentration, temperature), Density, viscosity, corrosiveness, etc.).



### 主要特点 main feature

- 集约化设计、占地面积小、结构简单、性能稳定；
- 计量采用进口品牌，计量精确、调节方便、经济性能好，便于安装维护；
- 泵为吸入式安装，不易堵塞，无故障运行时间长、操作费低；
- 耐腐蚀性能优、使用寿命长；
- 溶液箱材质：PE、玻璃钢、碳钢衬胶、304不锈钢、316不锈钢；
- 搅拌器材质；304不锈钢、316不锈钢；
- 计量泵过流部分材质：PP、PVC、PVDE、SS316；
- 我司的加药系统可集成在线电导仪、PH、ORP、余氯仪表等，可以通过仪表的在线监测自动调节加药量。
- Intensive design, small footprint, simple structure and stable performance;
- The metering adopts imported brands, with accurate measurement, convenient adjustment, good economic performance, and easy installation and maintenance;
- The pump is suction-type installation, which is not easy to be blocked, has a long trouble-free running time and low operating cost;
- Excellent corrosion resistance and long service life;
- Material of solution tank: PE, FRP, carbon steel rubber lined, 304 stainless steel, 316 stainless steel;
- Stirrer material: 304 stainless steel, 316 stainless steel;
- Material of flow-through part of metering pump: PP, PVC, PVDE, Ss316;
- The dosing system of our company can integrate online conductivity meter, PH, ORP, residual chlorine meter, etc., and the dosing amount can be automatically adjusted through the online monitoring of the meter.

### 应用范围 Scope of application

- 锅炉注入化学药液，主要用于火力发电厂、化工、冶金、船舶、集中供热等使用锅炉的场合。
- 用于自来水给水预处理加药，主要使用场合有城市自来水厂、大型企业自备水厂、纺织印染、钢铁、造纸等行业等。
- 环境保护中废水、污水处理中的加药，主要用于城市、工矿企业、大型宾馆、饭店的废水、污水处理。
- The boiler is injected with chemical liquid, mainly used in thermal power plants, chemical industry, metallurgy, shipbuilding, central heating and other occasions where boilers are used.
- It is used for pretreatment and dosing of tap water, mainly used in urban water plants, large-scale enterprises' own water plants, textile printing and dyeing, iron and steel, papermaking and other industries.
- The dosing of wastewater and sewage treatment in environmental protection is mainly used for wastewater and sewage treatment in cities, industrial and mining enterprises, large hotels and restaurants.

### 单罐选型表 Single tank selection table

型号 model	加药量 Dosing amount L/h	药箱尺寸 Medicine box size φ×h (mm)	单药箱容积 Medicine box size m <sup>3</sup>	加药口径 Dosing calibermm mm	功率(含搅拌机) power (With blender) KW	设备尺寸 Equipment size L×W×H(mm)
XARJY-1.0-I	0~30	1025X1400	1.0	DN15	0.25(1.0)	1200x1200x1700
XARJY-1.5-I	0~50	1050X1700	1.5	DN15	0.25(1.0)	1200x1200x2000
XARJY-2.0-I	0~70	1280X1700	2.0	DN15	0.37(1.12)	1400x1400x2000
XARJY-2.5-I	0~90	1310X2070	2.5	DN20	0.37(1.12)	1500x1500x2300
XARJY-3.0-I	0~110	1470X1900	3.0	DN20	0.37(1.12)	1700x1700x2300
XARJY-4.0-I	0~130	1660X2050	4.0	DN25	0.37(1.87)	1900x1900x2300
XARJY-5.0-I	0~150	1750X2300	5.0	DN25	0.37(1.87)	2000x2000x2600
XARJY-10.0-I	0~170	2220X2720	10.0	DN32	0.37(2.62)	2500x2500x3000

备注：单药箱标准配置为一台计量泵，一个药罐，一个控制箱，如需要配置多台计量泵请咨询我司。  
Remarks: The standard configuration of a single medicine tank is one metering pump, one medicine tank, and one control box. If you need to configure multiple metering pumps, please consult our company.

双罐选型表 Double tank selection table

型号 model	加药量 Dosing amount L/h	药箱尺寸 Medicine box size φ × h (mm)	单药箱容积 Medicine box size m <sup>3</sup>	加药口径 Dosing calibermm mm	功率(含搅拌机) power (With blender) KW	设备尺寸 Equipment size L × W × H(mm)
XARJY-1.0-II	0 ~ 30	1025X1400	1.0	DN15	0.70(2.2)	2400x1700x1700
XARJY-1.5-II	0 ~ 50	1050X1700	1.5	DN15	0.70(2.2)	2400x1700x2000
XARJY-2.0-II	0 ~ 70	1280X1700	2.0	DN15	0.90(2.5)	2800x1900x2000
XARJY-2.5-II	0 ~ 90	1310X2070	2.5	DN20	0.90(2.5)	3000x2000x2300
XARJY-3.0-II	0 ~ 110	1470X1900	3.0	DN20	0.90(2.5)	3400x2200x2300
XARJY-4.0-II	0 ~ 130	1660X2050	4.0	DN25	0.90(3.9)	4000x2400x2300
XARJY-5.0-II	0 ~ 150	1750X2300	5.0	DN25	0.90(3.9)	4000x2500x2600
XARJY-10.0-II	0 ~ 170	2220X2720	10.0	DN32	0.90(5.5)	5000x3000x3000

备注：双药箱运行工况可以为一用一备，也可以同时运行投加相同的药剂或者同时投加不同药剂。  
Remarks: The operating conditions of the double medicine tanks can be one for one use and one for preparation, and it can also be operated at the same time and dosing the same agent or dosing different agents at the same time.



加药系统-员作业中 Dosing system - Staff in operation

## 微型螺旋干粉定量投加机

MICRO SPIRAL DRY POWDER QUANTITATIVE DOSING MACHINE



### PAM干粉投加机说明

#### PAM dry powder dosing machine description

干粉投加机由三腔式箱体、干粉投加系统、溶解系统、熟化系统、储药系统、控制系统、液体投加系统构成。本装置是粉状高分子凝聚剂的自动连续配置及投加系统。干粉凝聚剂从螺旋推进器内进入速溶器内与清水进行预混，被湿润的物料进入配制槽进行搅拌稀释，按要求的浓度进行配制；若为液态凝聚剂则由螺杆泵直接投加到配制槽中。配制过程中，进水量在流量计观测下必须相对稳定，从而保证在整个工作过程中，配制溶液浓度不变。具有误差小，调节方便等优点。设备全采用PLC控制，设有手动、自动两种工作方式。

The dry powder dosing machine consists of a three-chamber box, a dry powder dosing system, a dissolving system, a curing system, a medicine storage system, a control system, and a liquid dosing system. This device is an automatic continuous configuration and dosing system of powdery polymer flocculant. The dry powder flocculant enters the instant dissolver from the screw propeller for premixing with clean water, and the wetted material enters the preparation tank for stirring and dilution, and is prepared according to the required concentration; if it is a liquid flocculant, it is directly added to the preparation tank by the screw pump middle. During the preparation process, the water inflow must be relatively stable under the observation of the flow meter, so as to ensure that the concentration of the prepared solution remains unchanged during the entire working process. It has the advantages of small error and convenient adjustment. The equipment is fully controlled by PLC, with manual and automatic working modes.

#### 主要特点 Main feature

- 三槽式结构，一槽溶解，二槽熟化，三槽储存，可以连续制备，降低操作强度；
  - 配比浓度可在0.05%-0.5%之间任意设置，系统根据水量自动调节给料量，精准，方便；
  - 具有多种保护功能，可以在停水、水量较低或者水量较大时发出报警，并自动停止制备；
  - 在水、电、原料正常的条件下，设备根据药剂的消耗量自动进行制备，直至料斗内原料不足；
  - 喂料机设置了振动和加热功能，可以有效地减少药剂吸水结块的问题，保证了制备的稳定性；
  - 搅拌机具有定时自动搅拌功能，确保药剂浓度的均匀以及避免药剂的沉积；
  - 可为用户提供自动送料设备，实现投药全程自动化。
- Three-tank structure, one tank for dissolving, two tanks for maturation, and three tanks for storage, which can be prepared continuously and reduce the operation intensity;
  - The proportioning concentration can be set arbitrarily between 0.05%-0.5%, and the system automatically adjusts the feeding amount according to the water volume, which is accurate and convenient;
  - With a variety of protection functions, it can alarm when the water is stopped, the water volume is low or the water volume is large, and the preparation is automatically stopped;
  - Under normal conditions of water, electricity, and raw materials, the equipment will automatically prepare according to the consumption of the agent until the raw material in the hopper is insufficient;
  - The feeder is equipped with vibration and heating functions, which can effectively reduce the problem of water absorption and agglomeration of the medicine, and ensure the stability of preparation;
  - The mixer has the function of timing and automatic stirring to ensure the uniformity of the drug concentration and avoid the deposition of the drug;
  - It can provide users with automatic feeding equipment to realize the automation of the whole process of drug administration.

设备选型表 Equipment selection table

型号 model	项目 project							
设备型号 Device model	XARGF-500	XARGF-1000	XARGF-1500	XARGF-2000	XARGF-2500	XARGF-3000	XARGF-4000	XARGF-5000
制备能力(L/h) Preparation ability	500	1000	1500	2000	2500	3000	4000	5000
药剂浓度 Agent concentration	0.5‰-3‰	0.5‰-3‰	0.5‰-3‰	0.5‰-3‰	0.5‰-3‰	0.5‰-3‰	0.5‰-3‰	0.5‰-3‰
干粉投加量(kg/h) Dosing amount of dry powder	0.25-1.5	0.5-3.0	0.75-4.5	0.75-4.5	1.25-7.5	1.5-9.0	3.0-12.0	2.5-15.0
进水压力(bar) Water inlet pressure	2-3.0	2-3.0	2.5-3.0	2.5-3.0	2.5-3.0	2.5-3.0	2.5-3.0	2.5-3.0
外形尺寸 Dimensions								
设备材质 Equipment material	SUS304	SUS304	SUS304	SUS304	SUS304	SUS304	SUS304	SUS304
设备长度(mm) Equipment length	1500	1600	1800	2200	2200	2400	3000	3200
	700	800	1000	1200	1200	1400	1400	1600
	1000/1500	1200/1700	1300/1800	1300/1800	1300/2000	1500/2200	1600/2400	1600/2400
空箱/运行重量(t) empty box/ Running weight	300x250x400 (11L)	350x300x450 (21L)	400x350x500 (35L)	400x350x500 (35L)	400x400x600 (56L)	400x400x600 (56L)	500x400x600 (70L)	500x400x600 (70L)
进水管(UPVC) Inlet pipe	0.5/1.2	0.7/2.4	0.8/3.2	0.9/3.8	1.0/4.2	1.1/4.8	1.2/6.8	1.8/7.5
出药管(UPVC) Dispensing tube	De32	De32	De32	De32	De40	De40	De40	De40
排空管(UPVC) Empty pipe	De32	G1-1/4	G1-1/4	G1-1/4	De40	De40	De40	De40
料斗尺寸 Hopper size LxBxH(mm)	De32	G1-1/4	G1-1/4	G1-1/4	De40	De40	De40	De40
设备总功率 Total power of equipment ( KW )								
搅拌机1 ( KW ) Blender 1	0.55	0.55	0.55	0.75	0.75	0.75	1.5	1.5
搅拌机2 ( KW ) Blender 2	0.55	0.55	0.55	0.75	0.75	0.75	1.5	1.5
喂料机 ( KW ) Feeder	0.15	0.15	0.15	0.15	0.15	0.55	0.55	0.55
加热装置 ( KW ) heating equipment	0.25	0.25	0.04	0.25	0.25	0.55	0.55	0.55
真空吸料机 ( 选配 ) Vacuum suction machine ( Optional )								
真空吸料机功率(KW) Total power of vacuum suction machine	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55
漩涡气泵功率(KW) Vortex pump power	1	1	1	1	1	1	1	1
空压机功率(KW) Air compressor power	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
加药泵 Dosing pump	机械隔膜计量泵 Mechanical diaphragm metering pump	螺杆泵 Screw pump	螺杆泵 Screw pump	螺杆泵 Screw pump	螺杆泵 Screw pump	螺杆泵 Screw pump	螺杆泵 Screw pump	螺杆泵 Screw pump
加药泵 ( KW ) Dosing pump power	0.35	0.75	0.75	0.75	1.5	1.5	1.5	1.5
压力pressure ( bar )	2	2	2.5	3	3	3	3	3
说明 instructions	可选择配置变频电机，也可以选配普通电机 Optional variable frequency motor can be selected, or ordinary motor can be selected							

## 二氧化氯发生器

### CHLORINE DIOXIDE GENERATOR



### 设计原理 Design principle

二氧化氯发生器是由釜式反应器通过耐酸导管，水射式真空机组和电控柜组成。釜式反应器采用耐高温、防腐、高寿命的改性四氟材料或钛合金材料，主反应釜内设有空气分布器，副反应釜设置有平衡管，原料供应系统内的氯酸钠水溶液和盐酸（浓度30-31%）在计量调节系统、电控系统的作用下被定量输送到反应器内，在一定温度下经过负压曝气反应生成二氧化氯和氯气的气液混合物，经吸收系统吸收制成一定浓度的二氧化氯混合消毒液，投加到待处理的水中或需要消毒的物体，完成二氧化氯和氯气的协同消毒、氧化等作用。

The chlorine dioxide generator is composed of a kettle-type reactor through an acid-resistant conduit, a water jet vacuum unit and an electric control cabinet. The kettle type reactor adopts high-temperature, corrosion-resistant, and long-life modified tetrafluoride or titanium alloy materials. The main reactor is equipped with an air distributor, the auxiliary reactor is equipped with a balance pipe, and the sodium chlorate in the raw material supply system. The aqueous solution and hydrochloric acid (concentration 30-31%) are quantitatively transported into the reactor under the action of the metering adjustment system and the electronic control system, and undergo a negative pressure aeration reaction at a certain temperature to generate a gas-liquid mixture of chlorine dioxide and chlorine. The chlorine dioxide mixed disinfectant with a certain concentration is absorbed by the absorption system and added to the water to be treated or the objects to be disinfected to complete the synergistic disinfection and oxidation of chlorine dioxide and chlorine.

### 产品优势 Product advantages

- 进口品牌的PLC控制元件和人机界面显示屏，操作方便，安全稳定；
- 采用领先的三级反应技术专利，能够确保药剂的反应完全，减少药剂的消耗；
- 控制系统可独立自动运行，亦可与主系统连接实现联动，无需单独的编程处理；
- 自动恒温控制技术，确保了反应温度在70℃左右，保证反应的最佳温度使药剂的转化率达到最大；
- 采用特殊定制的耐腐蚀材料，具有超强的耐腐蚀性；
- 系统设有四重安全防爆装置，可以在突发情况下保证设备的安全性能。

- Imported brand PLC control components and man-machine interface display screen, easy to operate, safe and stable;
- The use of leading three-stage reaction technology patents can ensure the complete reaction of the drug and reduce the consumption of the drug;
- The control system can run independently and automatically, and can also be connected with the main system to achieve linkage, without separate programming processing;
- Automatic constant temperature control technology ensures that the reaction temperature is around 70 ° C, ensuring the best reaction temperature to maximize the conversion rate of the agent;
- The use of specially customized corrosion-resistant materials has superior corrosion resistance;
- The system is equipped with quadruple safety explosion-proof devices which can ensure the safety performance of the equipment in emergencies.

### 应用范围 Scope of application

广泛应用于自来水厂、游泳池水、医院废水、生活污水及回用水的消毒处理；同时也可以用于工业循环冷却水杀菌灭藻；工业废水脱色、油田回注水处理等。

It is widely used in the disinfection treatment of water plants, swimming pool water, hospital wastewater, domestic sewage and reused water; At the same time, it can also be used for sterilization and algae killing of industrial circulating cooling water; Industrial wastewater decolorization, oil field reinjection water treatment, etc.

### 设备选型表 Equipment selection table

型号 model	XAR-500	XAR-800	XAR-1000	XAR-2000	XAR-3000	XAR-4000	XAR-5000	XAR-7000	XAR-10000	XAR-20000	XAR-30000
有效氯产量(g/h) Available chlorine production	500	800	1000	2000	3000	4000	5000	7000	10000	20000	30000
功率(KW) power	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	2.0	2.0
动力水 Power water	管径(DN) Pipe diameter	25	32	32	40	40	50	50	50	50	65
	压力(MPa) pressure	>=0.2	>=0.25	>=0.25	>=0.25	>=0.30	>=0.30	>=0.30	>=0.35	>=0.40	>=0.40
设备重量(kg) equipment weight	92	112	130	148	162	375	400	620	700	800	900
外形尺寸(mm) Dimensions	长 long	660	680	680	760	760	800	800	850	100000	1200
	宽 width	500	500	500	600	600	600	650	700	800	900
	高 high	1250	1250	1350	1450	1500	1600	1600	1650	1800	1850
设备间尺寸 Equipment room	长 long	3	3	4	5	5	6	7	8	10	12
	宽 width	2	2	3	3	4	5	6	7	9	10

备注：以上设备间尺寸为最小尺寸，设备间换气次数需要在12次/小时以上，设备间高度不低于2.5m；设备产氯量≥2000g/h，务必将主机与原料罐分别放置于不同的设备间。

Remarks: The size of the above equipment room is the minimum size. The air exchange frequency between the equipment needs to be more than 12 times/hour, and the height of the equipment room is not less than 2.5m; the chlorine output of the equipment is ≥2000g/h, and the host and raw material tank must be placed separately Different equipment rooms.

设备选型计算：

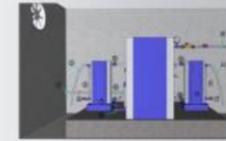
每小时最大处理水量 (t/h) x 每吨水的有效氯投加量 (g/t) = 每小时需要有效氯含量(g/h)

Equipment selection calculation:

Maximum processing water volume per hour (t/h) x Effective chlorine dosage per ton of water (g/t) = The amount of available chlorine required per hour (g/h)

处理水质 Treatment water quality	自来水 Tap water	医疗废水 Medical wastewater		市污水厂 Municipal Wastewater Treatment Plant		泳池杀菌 Swimming pool sterilization	循环水杀菌 Circulating water sterilization
	出水要求 Water requirement	饮用水 drinking water	预处理 Pretreatment	生化处理 Biochemical treatment	一级A/B First level A/B		
有效氯投加量(mg/L) Effective chlorine dosage	1~3	20~40	10~20	5~8	8~15	1~3	1~3

### 设备安装示意图 Schematic diagram of equipment installation



正面图  
Front view



侧面图  
Side view

- |          |                                    |          |                                    |
|----------|------------------------------------|----------|------------------------------------|
| • 消毒液排放管 | • Disinfectant drain pipe          | • 氯酸钠排空阀 | • Sodium chlorate drain valve      |
| • 盐酸吸料管  | • Hydrochloric acid suction pipe   | • 水射器    | • The water injector               |
| • 盐酸液位计  | • Hydrochloric acid level gauge    | • 电接点压力表 | • Electric contact pressure gauges |
| • 盐酸排空口  | • Hydrochloric acid discharge port | • 加药电磁阀  | • Dosing solenoid valve            |
| • 盐酸吸料阀  | • Hydrochloric acid suction valve  | • 加药球阀   | • Dosing ball valve                |
| • 盐酸加药阀  | • Hydrochloric acid dosing valve   | • 动力水管   | • Power conduit                    |
| • 反应室排空阀 | • Reaction chamber drain valve     | • 通气口    | • vent                             |
| • 加热箱排空阀 | • Heating box emptying valve       | • 消毒液出口  | • Outlet of disinfectant           |
| • 氯酸钠加药阀 | • Sodium chlorate dosing valve     | • 背压阀    | • Back pressure valve              |
| • 氯酸钠加药阀 | • Sodium chlorate dosing valve     | • 防爆口    | • Explosion-proof port             |
| • 氯酸钠吸料管 | • Ammonium chlorate suction pipe   | • 计量泵    | • Metering pumps                   |
| • 氯酸钠液位计 | • Sodium chlorate level gauge      |          |                                    |

### 案例展示 Case



湖南省株洲首创河西污水处理厂  
Zhuzhou Hexi Sewage Treatment Plant in Hunan Province



江西省新余市污水处理厂  
Xinyu Sewage Treatment Plant in Jiangxi Province

## 平板陶瓷膜

### PLATE CERAMIC MEMBRANE

#### 产品介绍 Product introduction

平板陶瓷膜是新一代陶瓷膜技术，采用 $Al_2O_3$ 、 $ZrO_2$ 、 $TiO_2$ 、 $SiO_2$ 、 $SiC$ 等无机材料，利用中国千年传统烧结工艺制备而成。它主要是依据物理筛分理论，根据在一定的膜孔径范围内渗透的物质分子直径不同则渗透率不同，利用压力差为推动力，使小分子物质可以通过，大分子物质则被截留，从而实现它们之间的分离。

平板陶瓷膜具有过滤面积大、分离效率高、效果稳定、化学稳定性好、耐酸碱、耐有机溶剂、耐菌、耐高温、抗污染、机械强度高、再生性能好、分离过程简单、能耗低、操作维护简便、使用寿命长等众多优势，对水体中的悬浮固体颗粒及细菌等微生物进行有效地截留和去除，适合在饮用水处理工艺中使用。

陶瓷膜相较于传统有机膜，机械强度较高，化学稳定性更好，不易发生破损和氧化剂危害等问题，保持稳定性能使用的年限更长。陶瓷膜过滤工艺结合高效絮凝、沉淀工艺，可为新建、扩建以及提标改造的水厂提供安全、稳定、高效的饮用水陶瓷膜集成处理工艺，保障国民的饮水安全。

Plate Ceramic Membrane is a new generation of ceramic membrane technology, using  $Al_2O_3$ ,  $ZrO_2$ ,  $TiO_2$ ,  $SiO_2$ ,  $SiC$  and other inorganic materials, prepared by the traditional Chinese sintering process for thousands of years. It is mainly based on the physical sieving theory. According to the different molecular diameters of the substances that penetrate within a certain membrane pore size, the permeability is different. The pressure difference is used as the driving force to allow small molecular substances to pass through and large molecular substances to be intercepted. Thus separation between them.

The Plate ceramic membrane has a large filtration area, high separation efficiency, stable effect, good chemical stability, acid and alkali resistance, organic solvent resistance, bacteria resistance, high temperature resistance, pollution resistance, high mechanical strength, good regeneration performance, Many advantages such as low consumption, simple operation and maintenance, long service life, etc., Suspended solid particles and bacteria are effectively intercepted and removed, suitable for use in the drinking water treatment process.

Compared with traditional organic membranes, ceramic membranes have higher mechanical strength and better chemical stability, are less prone to damage and oxidant damage, and maintain stable performance for a longer period of time. The ceramic membrane filtration process combined with high-efficiency flocculation and precipitation processes can provide a safe, stable and efficient ceramic membrane integrated treatment process for drinking water for newly built, expanded, and upgraded water plants to ensure the safety of drinking water for the people.

#### 规格尺寸 Size

陶瓷膜片 Ceramic diaphragm		处理效果和条件 Treatment effects and conditions	
形式 form	平板, 外进内出 flat, In and out	纯水透过性能 Pure water permeability	$40 m^3/(m^2 \cdot d)$ , 0.1MPa, 25℃
材料 Material	氧化铝 Alumina	颗粒去除率 Particle removal rate	$\geq 95\%$ for 0.1 $\mu m$ 颗粒 Granule
孔径(平均) Aperture(average)	0.1 $\mu m$	最高耐温 Highest temperature resistance	80℃
尺寸和重量 Size and weight	W250 x H1000 x T6 mm, 2kg	pH	2 ~ 12
膜面积 Membrane area	0.5 $m^2$		

#### 陶瓷膜组件构造 Ceramic membrane module structure

##### 膜片 Diaphragm

有效膜面积/Effective membrane area: 0.5  $m^2$   
尺寸/size: W280 x H1046 x T12(mm)  
材质: 氧化铝  
Material: alumina



##### 组件 Component

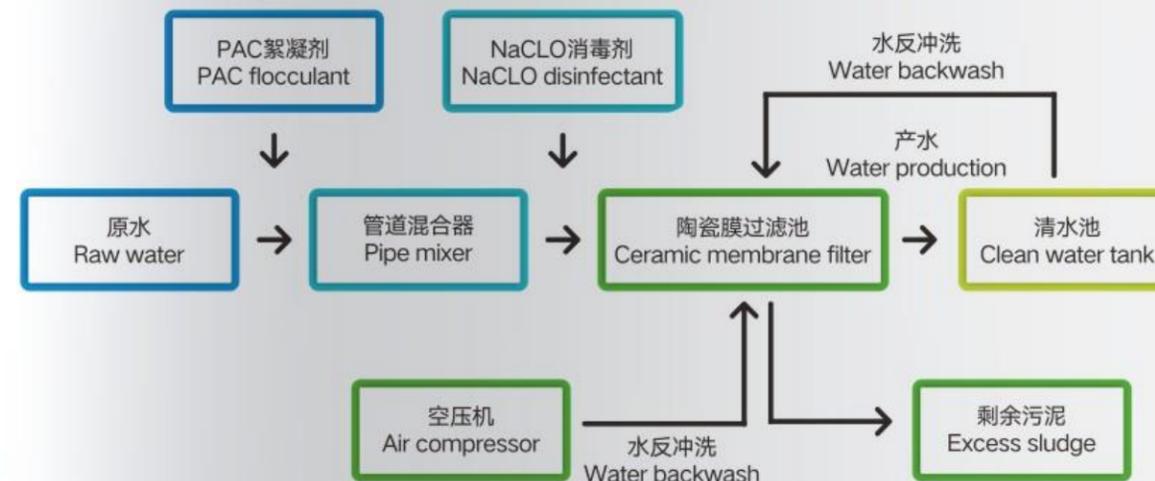
膜片/Diaphragm 有效膜面积/Effective membrane area  
200片 x 1层 100  $m^2$ /台 unit  
200 pieces x 1 layer



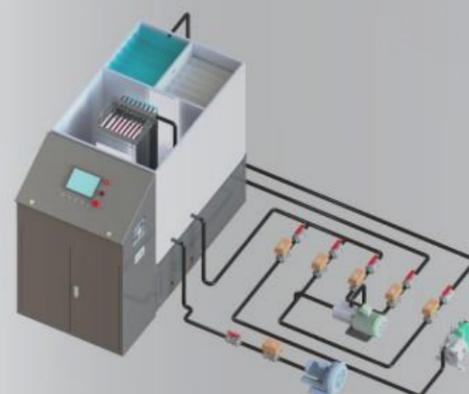
过滤水 Filtered water  
集水管 Water collecting pipe  
单元 Unit  
气洗管道 Gas washing pipeline

此膜组件产水量为500  $m^3$ /天 The water output of this membrane module is 500  $m^3$ /d

#### 陶瓷膜净水项目工艺 Ceramic membrane water purification project process



#### 项目案例 Project case



设备膜面积: 2  $m^2$   
产水流量: 500 L/h  
膜通量: 0.25  $m^3/(m^2 \cdot h)$ ,  
可实现自动产水、水冲洗、气冲洗  
Equipment membrane area: 2  $m^2$   
Product water flow: 500 L/h  
Membrane flux: 0.25  $m^3/(m^2 \cdot h)$   
Can realize automatic water production, water flushing, air flush

陶瓷膜面积: 400  $m^2$   
产水流量: 2000  $m^3$ /天  
膜通量: 0.21  $m^3/(m^2 \cdot h)$   
总占地面积: 100  $m^2$   
投资成本: 200万/千吨水  
Ceramic membrane area: 400  $m^2$   
Product water flow: 2000  $m^3$ /天  
Membrane flux: 0.21  $m^3/(m^2 \cdot h)$   
Total area: 100  $m^2$   
cost of investment:  
2 million/thousand tons of water



# PROJECT CASE PRESENTATION

## 项目案例展示

### 次氯酸钠发生器

SODIUM HYPOCHLORITE GENERATOR



云南省（通用水务）昆明第七水厂  
Yunnan Province  
(General Water) Kunming Seventh Water Plant



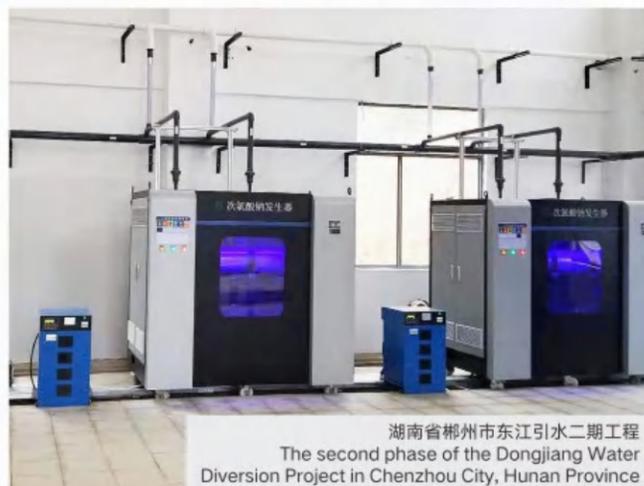
湖南省（首创）娄底市第一污水处理厂  
The First Sewage Treatment Plant in Loudi City, Hunan Province



广东省韶关市韶州自来水厂  
Shaoshou Water Plant, Shaoguan City, Guangdong Province



江西省赣州市白塔污水处理厂  
Baita Sewage Treatment Plant in Ganzhou, Jiangxi Province



湖南省郴州市东江引水二期工程  
The second phase of the Dongjiang Water  
Diversion Project in Chenzhou City, Hunan Province



海南省万宁市污水处理厂  
Hainan Wanning Sewage treatment Plant

### 紫外线消毒设备

ULTRAVIOLET DISINFECTION EQUIPMENT



湖南省益阳首创团洲污水处理厂  
The first sewage treatment plant in Yiyang, Hunan Province



福建省福州市观音埔自来水厂  
Guanyinpu Water Plant, Fuqing City, Fujian Province



广东省广东环保集团普宁市污水处理厂  
Guangdong Puning Sewage Treatment Plant of  
Guangdong Environmental Protection Group



陕西省商洛商丹工业园区污水厂  
Shaanxi Shangluo Shangdan Industrial Park sewage plant

### 精准自动加药装置

ACCURATE AUTOMATIC DOSING DEVICE



四川省自贡西部水厂  
West Water Plant in Zigong, Sichuan Province



广东省广州市荔城第二水厂  
Licheng Second Water Plant, Guangzhou City, Guangdong Province