



BOM SFG FRP球形浅层砂过滤器

BOM SFG FRP spherical shallow sand filter

产品简介

Product introduction

BOM SFG FRP 椭圆形结构配合内部独特的布水形式可确保过滤时水流平稳，高效过滤，过滤器反冲洗时通过三维立体布置伞状梯形加强筋滤水帽形成73个湍流通道，更加有效去除砂层中的污染物。相比传统砂滤具有自动化程度高、节省滤料、自耗水少、安装简单、维护方便等优点。特别适用于空调换热系统冷却循环水、中水回用、海水预过滤、污水过滤等。

The BOM SFG FRP elliptical structure, combined with its unique internal water distribution system, ensures smooth water flow, efficient filtration, and during backwashing, the umbrella-shaped reinforced water cap forms 73 turbulent channels in a three-dimensional layout, effectively removing pollutants from the sand layer. Compared to traditional sand filters, it offers advantages such as high automation, reduced filter media consumption, minimal water loss, easy installation, and convenient maintenance. It is particularly suitable for applications in cooling water circulation of air conditioning heat exchange systems, water reuse, pre-filtration of seawater, and wastewater filtration.



产品特点

Product features

- 高强度FRP外壳内衬PE，内、外耐腐蚀性优越。

High-strength FRP shell lined with PE, superior corrosion resistance both internally and externally.

- 直径1200mm椭圆形过滤单元，具有高效过滤，反洗彻底，性能稳定。

A 1200mm diameter elliptical filter unit with high-efficiency filtration, thorough backwashing, and stable performance.

- 模块化设计的BOWNT BOM SFG系列浅层砂过滤器，可以根据流量、占地、安装形式等要求设计多单元灵活组合排列。

The BOWNT BOM SFG series shallow bed sand filters feature a modular design, allowing for flexible arrangement of multiple units based on requirements such as flow rate, footprint, and installation method.



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PURIFICATION IN ACTION

- 🤖 系统占地紧凑，可在楼顶安装（节省占用土地）；地面布置无需考虑地基承重问题，常规水平混凝土地面即可安装使用。

The system has a compact footprint, making it suitable for installation on rooftops (saving land space). It can be installed and used on a conventional horizontal concrete surface without the need to consider foundation load-bearing issues.

- 🤖 可采用时间、压差、远程等多种方式自动启动反冲洗，系统内各过滤单元依次进行反冲洗，其他单元仍然在过滤反洗过程中不断流。

The backwashing process can be automatically initiated using various methods such as time-based, pressure-based, or remote control. During backwashing, each filtering unit within the system is backwashed sequentially, while the remaining units continue to provide uninterrupted filtration.

- 🤖 反洗效果好、反洗时间短、反洗自耗水 < 2.5%。

Good backwashing efficiency, short backwashing time, and backwash water consumption less than 2.5%.

结构介绍

Structure introduction

- ① 过滤器配有上部人孔、下部维护卸料口。

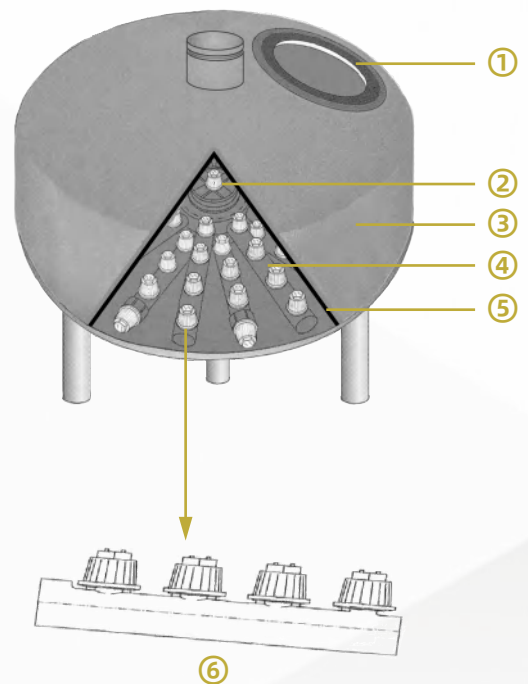
The filter is equipped with an upper manhole and a lower maintenance discharge port.

- ② 椭圆外型配合多层专用补偿布水器，原水即使在较高流速的情况下亦能平稳均匀过流。

The elliptical shape, combined with the multi-layer specialized compensating cloth water distributor, allows the raw water to flow smoothly and evenly even at higher flow rates.

- ③ 椭圆外型配合配合三维立体布置伞状梯形加强筋滤水帽，过滤时可以有效防止漏沙，反洗时形成内湍流，高效反洗。

The elliptical shape, combined with the three-dimensional arrangement of umbrella-shaped trapezoidal reinforced ribs filter cap, effectively prevents sand leakage during filtration and creates internal turbulence during backwashing, resulting in efficient backwashing.



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- ④ 过滤器外表面由高强度FRP材料构成，具有耐高压抗腐蚀特性。椭圆型外壳，可承受1.0Mpa的压力。

The exterior surface of the filter is made of high-strength FRP material, which has high-pressure resistance and corrosion resistance properties. The elliptical-shaped casing is capable of withstanding a pressure of 1.0 Mpa.

- ⑤ 过滤器内衬PE，具有防腐、耐磨、耐酸碱等优点。

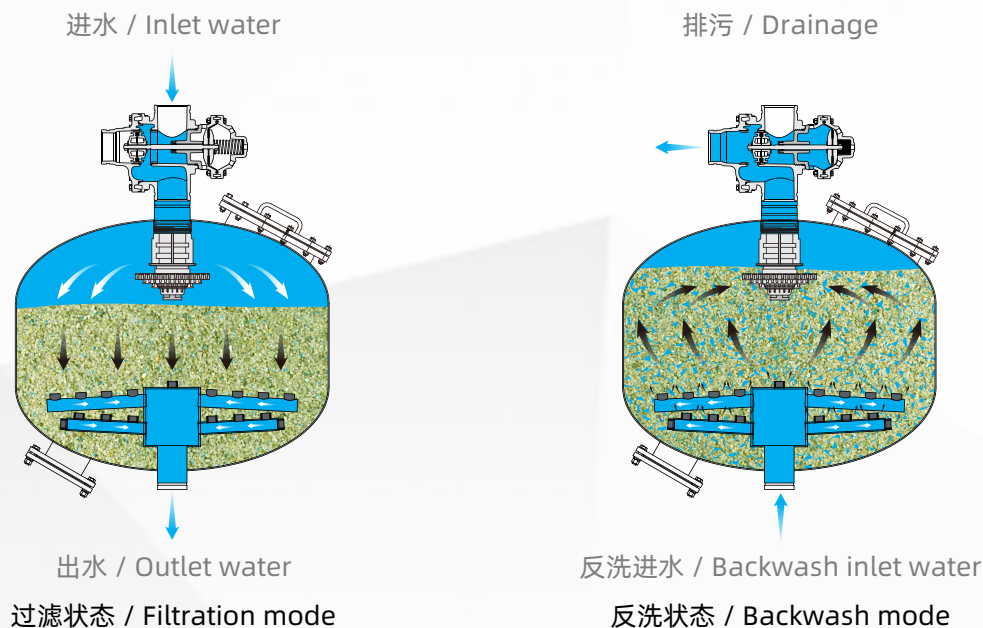
The filter is lined with PE, which has advantages such as corrosion resistance, wear resistance, and resistance to acid and alkali.

- ⑥ 压力补偿式集水管，使集水器出口到集水管末端的压力保持一致，达到均匀反洗的效果。

The pressure compensating collection pipe is designed to maintain a consistent pressure from the outlet of the collector to the end of the collection pipe. This helps achieve uniform backwashing.

工作原理

Working principle



过滤状态

当系统处于过滤状态时，原水通过三通阀进入多层专用补偿布水器，配合椭圆型外壳，以均匀平流的状态通过过滤器内填料层，原水中的杂质被截留在填料层内。过滤器底部通过集水管上的73个三维立体布置伞状梯形加强筋滤水帽，将过滤后的水均匀汇聚到集水器流出。平流过滤使过滤器在高流速下过滤，仍可达到非常好的过滤效果。



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反洗状态

随着杂质在填料层中不断积器，压力损失将不断增大，当压差达到设定值（0.05Mpa），或者时间达到设定值时，系统将系统自动转换至反洗状态，反洗水通过伞状梯形加强筋滤水帽在滤层内形成内湍流，以清洗聚集起来的杂质，反洗水通过三通阀排出。

Filtering State

When the system is in the filtration mode, the raw water passes through a three-way valve and enters the multi-layer dedicated compensating distributor. Together with the elliptical-shaped housing, the water flows through the filter media layer in a uniform and parallel manner. Impurities in the raw water are trapped within the media layer. At the bottom of the filter, there is a water collection pipe with 73 three-dimensional umbrella-shaped reinforced filter caps, which evenly collect the filtered water and direct it to the water collector for discharge. The counter-current filtration allows the filter to achieve excellent filtration performance even at high flow rates.

Backwashing State

As impurities continuously accumulate in the media layer, the pressure loss will gradually increase. When the pressure difference reaches the set value (0.05 MPa) or the set time is reached, the system will automatically switch to the backwash state. Backwash water flows through the umbrella-shaped reinforced filter cap to create turbulence within the filter layer, effectively cleaning the accumulated impurities. The backwash water is then discharged through a three-way valve.

考虑到介质过滤器特性，定期反洗以清洗聚集起来的杂质是非常必要的。BOM SFG FRP系统进入反洗状态后，一个单元配套的三通阀切换位置停止过滤开始排污（排污管常压），系统中其它过滤单元过滤后的水在压力的作用下反向进入反洗单元，此时反洗水通过集水器到达集水管，反洗水通过伞状滤水帽梯形缝隙增压后放射喷出，反洗单元内滤料在反洗水压力的作用下形成内湍流，滤料会相互碰撞搓洗（有效提高反洗反洗效果、减少反洗耗水），过滤器椭圆形和多层布水结构，避免过滤器反洗跑砂现象。反洗后的污水通过三通阀的排污口被排出。反洗单元反洗结束后，三通阀切换到过滤状态，其它过滤单元依次进入反洗状态，当所有单元反洗结束，系统恢复正常过滤状态。

Considering the characteristics of the media filter, regular backwashing to clean the accumulated impurities is necessary. When the BOM SFG FRP system enters the backwashing state, a three-way valve in each unit switches position to stop filtration and initiate the drainage (drainage pipe at atmospheric pressure). The water filtered by other units in the system flows back into the backwashing unit under pressure, and the backwashing water reaches the collection pipe through the collector. The backwashing water is pressurized and sprayed out through the umbrella-shaped filter cap with trapezoidal slots, causing turbulence inside the backwashing unit. The filter media in the unit collide and rub against each other under the pressure of the backwashing water, effectively improving the backwashing effect and reducing water consumption. The elliptical shape and multi-layered water distribution structure of the filter prevent sand flushing during backwashing. After backwashing, the wastewater is discharged through the drainage outlet of the three-way valve. Once the backwashing of the unit is complete, the three-way valve switches to the filtration state, and the other units enter the backwashing state one by one. When all units have completed backwashing, the system returns to normal filtration state.



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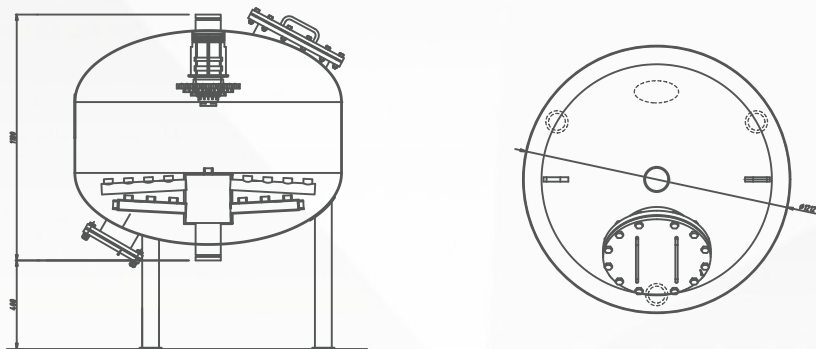
技术参数

Technical parameters

最大工作压力 / Max. working pressure	1.0 bar
单台最大工作流量 / Max. operating flow per unit	60 m³/h
进口出口尺寸 / Import export size	3" / 4"
过滤器本体直径 / Filter body diameter	48" (1212mm)
过滤器本体高 / The filter body is high	1100mm
重量 / Weight	330kg

组合参数 Combine parameters	48-2	48-3	48-4	48-5	48-6	48-7	48-8
最大工作压力 / Max. working pressure	10 bar	10 bar	10 bar	10 bar	10 bar	10 bar	10 bar
最大处理流量 / Max. flow	120 m³/h	180 m³/h	240 m³/h	300 m³/h	360 m³/h	420 m³/h	480 m³/h
连接主管尺寸 / Connection main size	6 "	8 "	8 "	8 "	10 "	10 "	12 "
组合系统高度 / Combined system height	2000mm	2100mm	2100mm	2100mm	2200mm	2200mm	2300mm
组合系统长度 / Combined system length	2640mm	3960mm	5280mm	6600mm	7920mm	9240mm	10560mm

- 更大的流量可用更多单元连接在一起;其他规格请咨询我公司。
- Filter units can be assmbled to meet with large flowrate, please consult our company for specific conditions.



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BOWNT BOM 亚微米活性滤料

BOWNT BOM Submicron Activated Filter Media

BOWNT BOM 亚微米活性滤料,是一种非晶体铝硅酸盐新型合成过滤材料。通过专业的工业设计(包括化学、物理的纯化手段,催化活化,表面结构的纳米化改造等工艺过程)而生产的一种新型过滤材料。适用于直接取代大多数传统的砂过滤系统滤料或新建的过滤系统。由于具有抗菌性。

BOWNT BOM 亚微米活性滤料对于颗粒尺寸及颗粒分布控制非常精准,确保最大的比表面积和合理的过滤压差,同时,也避免了传统设备的漏滤现象。并且,每一颗亚微米活性滤料的表面都是一个多孔的催化分子筛,在有溶解氧或氧化剂存在时,其催化表面会产生自由基并氧化污染物,达到自我消毒杀菌的功能。









BOWNT BOM Submicron Activated Filter Media is a novel synthetic filtration material made of amorphous aluminosilicate. It is produced through professional industrial design, including purification methods in chemistry and physics, catalytic activation, and nanostructural modification of the surface. It is suitable for direct replacement of most traditional sand filtration media or for new filtration systems. Additionally, it possesses antimicrobial properties.

BOWNT BOM Submicron Activated Filter Media offers precise control over particle size and distribution, ensuring maximum specific surface area and reasonable filtration pressure drop. It also eliminates the phenomenon of leakage that is common in traditional equipment. Moreover, the surface of each submicron activated filter media particle is a porous catalytic molecular sieve. In the presence of dissolved oxygen or oxidants, the catalytic surface generates free radicals and oxidizes pollutants, thereby achieving self-disinfection and sterilization functionality.

产品特点

Product features

-  **高表面积, 微孔结构的滤料表面:** 表面积达到100万m²/吨。
High surface area, microporous filter surface: Surface area reaches 1 million m²/ton.
-  **亲水性好, 表面带负电荷:** 非常容易吸附水中带正电荷的微生物污染的细小颗粒和大分子有机物, 过滤出水效果好。
Good hydrophilicity and negative surface charge: It is very effective in adsorbing small particles and large organic molecules in water that are positively charged, resulting in excellent water filtration performance.
-  **表面有稀有金属催化剂, 具有自我杀菌功能:** 可以催化氧化滤料表面吸附的大分子有机物, 并杀死吸附的细菌等微生物, 确保过滤介质不被细菌和大分子有机物污染。
The surface is equipped with rare metal catalysts, providing self-disinfection functionality: It can catalyze the oxidation of large organic molecules adsorbed on the filter surface, effectively killing bacteria and other microorganisms, ensuring that the filtration medium remains free from bacterial and large organic matter contamination.
-  **过滤精度高:** 过滤精度可达1微米。
High filtration precision: The filtration precision can reach 1 micron.
-  **耐磨、强度高:** 非金属熔体的强度和耐磨性能良好, 在连续1000小时的的反冲洗实验显示其磨损率小于0.1%, 使用寿命10年以上。
Durable and high strength: The non-metallic melt has excellent strength and wear resistance. In continuous backwashing experiments lasting for 1000 hours, the wear rate was found to be less than 0.1%, indicating a lifespan of over 10 years.
-  **化学稳定性:** 化学性能稳定的非金属熔体, 可在PH2-11范围内工作, 且不被油类有机物破坏, 不会析出硅类物质。
Chemical Stability: Chemically stable in non-metallic melts, capable of operating within the pH range of 2-11, and not susceptible to degradation by oily organic substances, without the precipitation of silicon-based materials.

