



WSZ 型组合式一体化污水处理设备

TYPE-WSZ COMBINED INTEGRATED EQUIPMENT FOR SEWAGE TREATMENT

● 用途 Applications

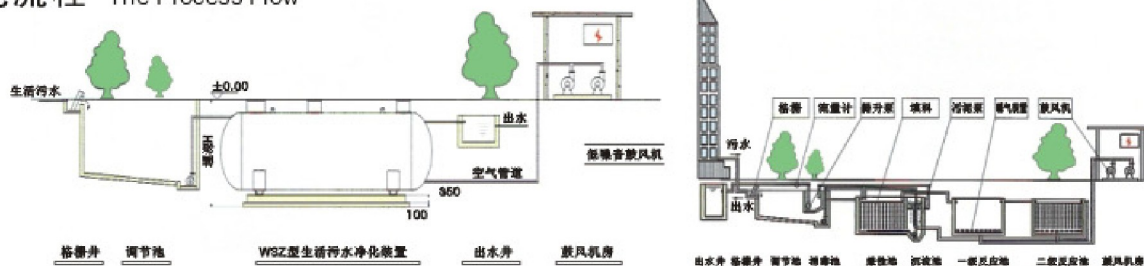
WSZ型污水处理装置是我公司在充分吸收和消化国内外同类先进技术的基础上，综合多种生活污水处理的工程实践，针对生活污水和与生活污水相似的工业有机废水，采用以生物膜法为基础的接触氧化处理工艺而开发的系列产品。

The WSZ series type sewage treatment equipments are new products developed on the basis of full digestion and absorption of advanced technology both at home and abroad and a combination of sewage treatment works in practice, aimed at domestic sewage and industrial organic waste waters whose quality similar to domestic sewages, adopt a bio-film-based contact oxidation process.

项目	COD _{cr}	BOD ₅	SS	PH
进口水质 (mg/L)	400	200	300	6-9
出口水质 (mg/L)	90	30	30	6-9
去除率	75%	85%	90%	---

出水水质达GB8978-1996国家排放标准,增加活性炭和砂滤、消毒装置可达GB18918-2002标准。

● 工艺流程 The Process Flow



污水首先进入集水调节池进行水量和水质调节。集水调节池由用户自备，一般选用混凝土池体，用户可根据生产工艺、水质、水量的稳定性来确定调节时间，调节池停留时间一般为4-8h,然后通过提升泵提升进入一体化污水处理装置，装置出水即可排放。

- 1、初沉池：采用竖流式沉淀池，污水流速为0.5-0.8mm/s，污泥利用空气提至污泥池。处理水量 $\leq 2\text{m}^3/\text{h}$ 时，可以与集水调节池合并改为初沉调节池。停留时间为2.5-6.0h。
- 2、接触氧化池：接触氧化池分为三级，总停留时间为4.5-6.0h，内置组合填料。曝气系统采用微孔曝气器，大大提高了氧的使用效率，从而降低能耗，水气比一般为1:15-20。
- 3、二沉池：二沉池为斜板沉淀池，总停留时间为1-2h。
- 4、消毒池：消毒池接触时间按TJ14-74标准为30min，特殊污水可延长至1-1.5h，一般采用固体氯片消毒（可根据用户要求配备其它消毒装置），工业有机污水处理完后排放，可省去消毒池。
- 5、污泥池：初沉池和二沉池所有污泥均排至污泥池进行好氧消化，上清液回流到接触氧化池，因剩余污泥量很少，一般在运行9-15月左右清理一次。

The sewage enters into water catchment and adjustment pool which is provided by the customers themselves for regulating water quantity and quality. Generally choose concrete pool body. The adjusting time can be determined on the process, water quality and the stability of water quantity. The resident time of the adjustment pool usually is 4-8 hours. Then sewage goes into unified sewage treatment equipments by the elevating pumps. The effluent can be discharged.

1. The primary sedimentation tank: adopting vertical flow sedimentation tank, the velocity of the sewage flow is 0.5-0.8mm/s, the sludge is elevated to sludge tank by air. When the treatment capacity is less than $2\text{m}^3/\text{h}$, the tank can be constructed combined with the adjustment tank to be primary sedimentation-adjustment tank. The resident time is about 2.5-6.0 hours.
2. Bio-contact oxidation: it is three stage bio-contact oxidation filled with combined packing. Total resident time is about 4.5-6.0 hours. The aeration system adopts micro-porous aerators, which can largely improve the oxygen usage efficiency. Thereby reduce energy consumption. The air-water ratio is 1:15-1:20.
3. Secondary sedimentation tank: it is inclined tube sedimentation tank and the total resident time is 1-2 hours.
4. Disinfection tank: the disinfection contact time is 30 minutes according to the TJ14-74 standard. For special sewage the contact time can be prolonged to 1-1.5 hours. Usually use solid chlorine tablets as disinfectant. We can equip other disinfection equipments according to the customers' requirements. The industrial sewage treated can be discharged without disinfection.
5. Sludge tank: both primary sludge and secondary sludge are discharged into the sludge tank to undergo aerobic digestion. The supernatant fluid is returned to the bio-contact oxidation tank. Because the sludge is very low for this process, the sludge tank is cleaned for about 9-15 months.

● 技术参数 Technical Parameters

型号	WSZ-1	WSZ-2	WSZ-3	WSZ-4	WSZ-7	WSZ-10	WSZ-20	WSZ-30
处理量 (m ³ /h)	1.0	2.0	3.0	4.0	7.0	10	20	30
设备组数	1	1	1	1	1	1	2	3
占地面积 (m ²)	4.5	6.50	11.0	14.5	21.0	29.5	54.0	75.0
风机	型号	SSR50			SSR80		SSR100	
	功率 (kW)	2.2			3.0	5.5	5.5	7.5
	数量 (台)	2	2	2	2	2	2	2
水泵	型号	AS10-2CB				AS16-2CB		
	功率 (kW)	1.1	1.1	1.1	1.1	1.1	2.2	2.2
	数量 (台)	2	2	2	2	2	2	2

● 供货说明 Explanations for The Delivery of goods

- 1.由于设备为埋地式设备,维护保养较为困难,故设计制作该设备时我们考虑了它的免维修性,同时配以检查孔,方便突发性故障的修理。
- 2.设备一般用Q235钢板进行制作,内部采用普通防腐(也可按用户要求进行特殊防腐),也可采用玻璃钢制作,一般使用寿命可达15年以上。
- 3.设备配套的提升水泵采用抗堵塞撕裂型潜水泵,能有效通过 $\Phi 30-80\text{mm}$ 的固体颗粒并可长纤维物质撕裂,不需在水泵入口增设滤网。水泵安全运行达8000小时以上。风机房单独设置。
- 4.用户选用设备以后只需将本设备电源接通、联通设备进出口管道及设备各单体间的管道,进水后即可进行调试运行。
- 5.若用户所在地区冻土层有特殊要求必须在订货时特殊声明,以便根据用户设备使用地区的冻土层厚度调整检查孔的高度。

- 1.As for the equipment are buried, maintenance is more difficult, so we consider its maintenance-free when design and manufacture for the equipment, but accompany it with inspection hole to facilitate the repairman for sudden faults.
- 2.Equipment normally is made of Q235 steel, with ordinary internal anticorrosion (special anticorrosion can be made according to users' requirements). Fiber glass can be used as the material too; the general life of the equipment can be up to 15 years or more.
- 3.Equipment matched elevating pumps are tear and plug resistant immersible pump, which can make solid particles whose effective diameters are 30-80mm overpass and can tear long fiber without additional filter on the intake. Pumps can operate safely for about 8000 hours and more. The blower room is set up separately.
- 4.The equipment can be put into operation by connecting the equipment to power and connecting pipes in the intake and outtake of the equipment and other pipes between monosonic equipments after the equipments selected. It can be put into commission after water entering into the tank.
- 5.If the users' permafrost region has special requirements for the frozen layer, please make a special statement when order. So we can adjust the height of the inspection holes according to the frozen layer.

● 自动控制 The Automatic Control

- 1.采用PLC集中自动控制,提升水泵由浮球自动控制,调节池中水位达到一定的高度时,自动启动整个设备,水位到达一定低位时,整个设备自动停机、处于待机状态。
- 2.当水位超过报警水位时(即水量特别大时)可以自动开启两台提升水泵同时工作。
- 3.两台风机交替使用,一台损坏时,另一台自动连续使用,并在设备处于待机时,风机会自动间歇运作以保证接触氧化池中微生物的需氧要求。
- 4.污泥阀可根据现场调试情况确定每天自动排泥次数。
- 5.设备内各电机的缺相、欠压、过压等故障有保护并有声光报警。

- 1.Using PCL centralized control. The elevating pumps are controlled by floating ball. When the water level in the adjustment tank exceeds a certain value, the whole system operates automatically when some value the whole system stop automatically and machines are in standby state.
- 2.When the water level exceeded alarm levels (i.e. when the flow is very large) the control system can automatically open two elevating pumps and make them work together.
- 3.Two blowers work alternately, when one is damaged, another one can be used automatically and continuously. When the equipments are in standby, the blower automatically goes to intermittent operation to ensure the oxygen requirements of microorganisms in contact oxidation tanks.
- 4.The sludge valve can determine automatic sludge discharge times for a day according to the on site adjustment condition.
- 5.There are fault protections for the electrical equipment within the phase missing, undervoltage, overvoltage and a sound and light alarm.

● 安装、调试、维护 Installation, Adjustment and Maintenance

安装 Installation

- 1.用户提供安装方式:埋地或地上,同时按本公司设备平面布置图及设备基础(混凝土基础)进行安装,要求基础平均承压为 $5000\text{kg}/\text{m}^2$ 以上。
- 2.基础必须水平,相对标准准确,土方施工时,宽度必须距离基础边缘线500mm以上,便于设备管道安装。
- 3.联接完管道后先用清水试压,确认管道连接不漏水,同时调整沉淀池出水堰板的水平度及出水高度。检查各电机设备的正反转。

- 1.The users should provide the installing type: buried or on over ground. At the same time, the treatment system can be installed according to our company's equipments plane arrangement drawing and equipments' foundation (concrete foundation) requires the foundation's average bearing pressure is more than $5000\text{kg}/\text{m}^2$.
- 2.The foundations must be horizontal; the relative elevation should be accurate. When in the earthwork construction, there must be a distance more than 500mm between the foundations' edge line and the construction position to facilitate the installation of equipment and pipeline.
- 3.After the pipes connection, using clean water make pressure test to confirm pipes are connected and no water leakage. Adjust the horizontal degree and outtake height of the effluent weir plates in the sedimentation tank simultaneously. Check electrical motors' forward rotation and backward rotation.

调试 Adjustment

- 1.调试时污水泵将额定流量的污水提升至设备。打开曝气系统(调试初期可适当增加曝气量)每天通过检查口检查接触池内生物膜生长情况,有条件的用户可用显微镜观察池内生物种类及大致数量,待填料上附着褐色或黄色生物时即可认为生物膜培养已成功。可以进入正常运行。
- 2.若原水为工厂有机废水时,可以先用生活污水或人工投加部分生物营养物质来培养生物膜再逐渐加入工业有机废水生物进行驯化接种。
- 3.平均气温在 20°C 时,生活污水生物膜培养时间一般需1-2周,工业有机废水生物膜培养及驯化时间一般需3-4周。

- 1.Sewage with rated flow is elevated to equipments by adjusting sewage pumps. Open the aeration system (at the initial stage of the adjustment, the aeration quantity can be increased appropriately). Check the bio-film's growth everyday from the inspection holes. The customers with good conditions can use microscope to observe the species and approximate number of the microorganisms. When there are brown or yellow biological attached on the fillers, it is deemed the bio-film has been successfully cultured. And the system can access to normal operation.
- 2.If the original water is industrial organic sewage, can use domestic sewage or add some biological nutrient materials manually to culture the bio-films and adding industrial organic sewage gradually to domesticate and inoculate.
- 3.When the average temperature is 20°C , sewage bio-film culture time normally takes 1-2 weeks, the industrial organic sewage bio-film cultivation and domestication of time it normally takes 3-4 weeks.

维护 Maintenance

- 1.为了使设备更好地使用并保证出水水质稳定,必须对设备进行必要的维护保养。泵、风机等需定期加注或更换机油,一般情况下,风机运行10000-12000小时需保养一次,潜水泵运行8000-10000小时保养一次。
- 2.本设备大修周期一般为10年。

- 1.To make better use of equipment and to guarantee water quality and stability, it is necessary to carry out the necessary equipment maintenance. Pumps, blowers need periodic replacement or replacement of oil, under normal circumstances, the blowers running 10000-12000 hours and immersible pumps running 8000-10000 hours should be maintained a time.
- 2.Generally, the equipment's heavy repair period is 10 years.

