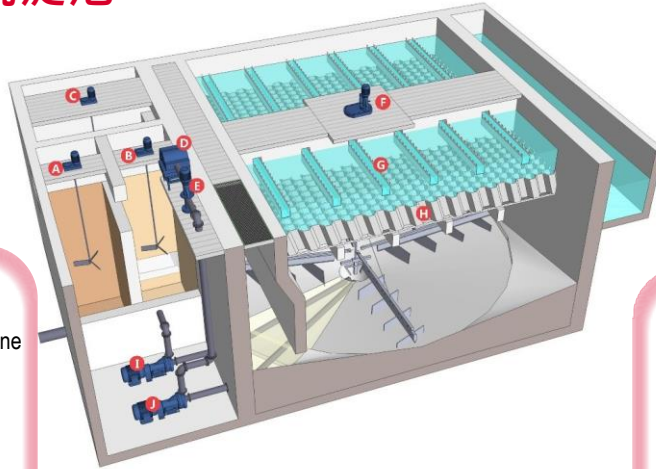


ATAL Multi-Stages Flocculation Sedimentation II 磁介质高效沉淀池 (AMSFS II)

Engineering with passion
用心創造

Introduction 简介

ATAL Multi-Stages Flocculation Sedimentation II (AMSFS II) 磁介质高效沉淀池



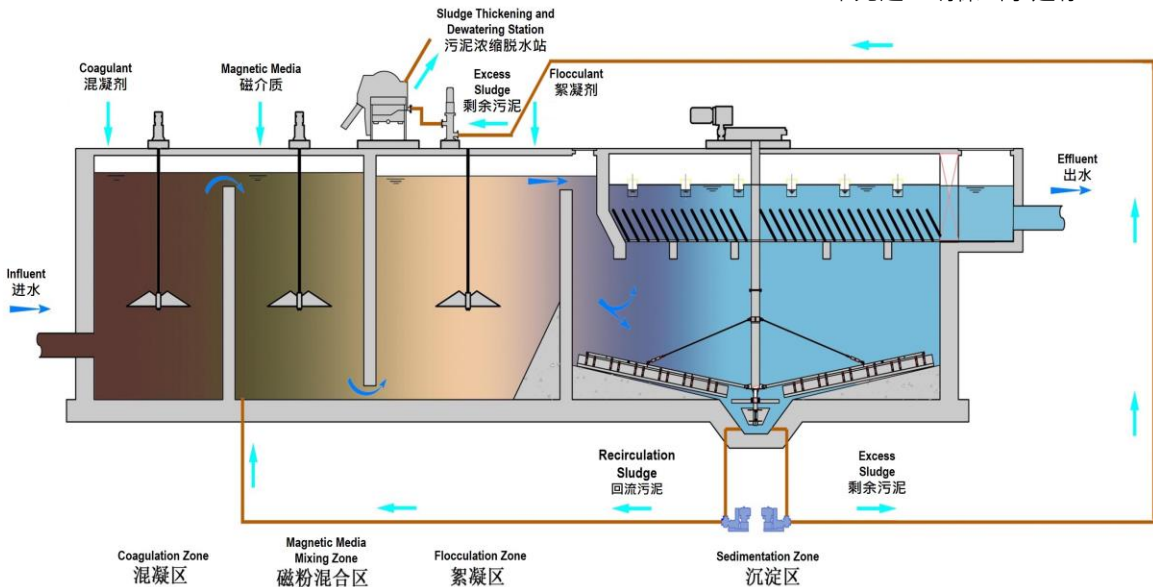
- A: Coagulation Zone Mixer
快混区搅拌机
- B: Magnetic Media Mixing Zone Mixer
磁粉混合区搅拌机
- C: Flocculation Zone Mixer
絮凝区搅拌机
- D: Magnetic Sludge Separator
磁分离机
- E: Magnetic Sludge Cutter
磁泥剪切机

3D model of AMSFS II
磁介质高效沉淀池3D效果图

- F: Centrally Driven Scraper
中心传动刮泥机
- G: Troughs and Weirs
出水槽及堰板
- H: Lamella
斜管及支架
- I: Sludge Recirculation Pump
回流污泥泵
- J: Excess Sludge Pump
剩余污泥泵

ATAL Multi-Stages Flocculation Sedimentation II (AMSFS II) is a technology developed by ATAL Engineering Limited. Our Group has accumulated rich experience and good performance in the process design, equipment integration and "turnkey" project. We have a team of engineers with strong technical capabilities and rich experience in project management. In the process design, equipment supply, installation, commissioning and operation of the process package, it is practical to achieve safety, reliability, economical application, advanced technology, and ensure that the effluent meets the standards.

磁介质高效沉淀池 (AMSFS II) 是安乐工程有限公司研发的工艺。我司在此工艺的设计、成套设备集成和“交钥匙”工程上积累了丰富的经验和良好的业绩，并拥有一支专业技术能力强、工程管理经验丰富的工程师队伍。在工艺包的工艺设计、设备选购、施工、安装、调试和运营中，切实做到安全可靠、经济适用、技术先进、确保出水达标。



Schematic diagram of AMSFS II process
磁介质高效沉淀池工艺示意图

Major Features 主要特点

AMSFS II has three functions simultaneously:

- Removal of non-solvable COD;
- Effective removal of SS;
- Effective removal of TP.

磁介质高效沉淀池 同时具有三个功能：

- 去除部分COD；
- 有效去除SS；
- 有效去除TP。

Floc Formation 矾花的形成

Colloidal and suspended particles of the wastewater quickly react with a ferric or aluminum coagulant, destabilize, and then aggregate into micro flocs. The added magnetic media act as crystal nuclei that enable easier floc formation and increase floc's density.

污水中的胶体和悬浮物与混凝剂铁盐或铝盐快速反应，脱稳并聚集成微小的矾花。加入的磁粉为晶核，使矾花更易形成，并提高矾花的比重。



Alum Floc
矾花

Flocculation and Sedimentation 絮凝反应及沉淀作用

With the bridge effect of the polymer flocculant, the floc size significantly increases in Flocculation Zone. The wastewater and flocs then go into the sedimentation zone where flocs precipitate and turn into sludge and the effluent becomes clean.

在分子絮凝剂的作用下，细小的矾花进一步结成较大的絮体。污水和絮体进入沉淀区，在沉淀区中，絮体沉淀形成污泥，而出水变得澄清。

Sludge Recirculation and Excess Sludge 污泥回流和剩余污泥

The sludge in the bottom of the sedimentation zone is scrapped into the center sludge hopper by a centrally driven scraper. Part of the sludge is recirculated to the magnetic media mixing zone, while the residual sludge is discharged as excess sludge after the magnetic media is effectively recycled.

沉淀区底部的污泥被一台中心传动刮泥机刮到沉淀区中央的泥斗。一部分污泥被循环至磁粉混合区，另一部分的污泥则在磁介质被有效回收后作为剩余污泥排走。



Sludge Recirculation
污泥回流



Magnetic Sludge Cutter
磁泥剪切机



Magnetic Sludge Separator
磁分离机

Major Features 主要特点

Magnetic Media Mixing Zone 磁介质混合区

Magnetic Media Mixing Zone has six functions simultaneously:

磁粉混合区同时具有六个特点：

- The magnetic powder itself has no magnetism
- Increase the density of flocs: magnetic media density is approximately 5 g/cm³
- Magnetic Media Size: About 60-300 mesh
- Recyclable
- Hydraulic Retention Time: 1-3 minutes
- Reflux Sludge/ Raw Water Ratio: 3-8% (adjustable)
- 磁粉本身无磁性
- 提高絮体的比重：磁粉比重大约5 g/cm³
- 磁介粉粒径：约60-300目
- 可回收·循环利用
- 停留时间：1 - 3分钟
- 回流污泥/原水比：3 - 8% (可调)

Magnetic Media
磁介质 (磁粉)



Lamellar of AMSFS II under installation
安装在磁介质高效沉淀池的斜管



Chemical Dosing System of AMSFS II
磁介质高效沉淀池的加药系统



Sludge Pumps of AMSFS II
磁介质高效沉淀池的污泥泵



Influent (Left) & Effluent (Right) of AMSFS II
磁介质高效沉淀池的进水 (左) 和出水 (右)

Advantages 优点

Excellent Performance 处理能力出色

- Effluent SS: 5-8 mg/L and TP≤0.3 mg/L
- Removal of partial COD
- Resistant to hydraulic shock
- Resistant to SS shock
- 出水SS: 5-8 mg/L · TP≤0.3 mg/L
- 去除部分COD
- 抗水力负荷冲击
- 抗污染物负荷冲击

Simple and Reliable Process 工艺简单可靠

- Short start-up time
- Stable effluent quality
- High degree of automation
- Less sensitivity to temperature fluctuation
- It can replace the conventional combined coagulation-sedimentation-filtration process
- 启动时间短
- 出水水质稳定
- 自动化程度高
- 对温度变化敏感度低
- 可替代常规混凝沉淀+滤池的工艺

Low Operation Cost 运维成本低

- Less equipment maintenance
- High recovery ratio of magnetic media
- Chemical saving, 10%-50% compared with conventional coagulation-flocculation
- 设备维护少
- 磁介质回收率高
- 与常规絮凝工艺相比 · 能节省10%-50%药剂投加量

High Loading and Small Footprint 负荷高 占地小

- Require less civil cost
- 15-40 m/h surface loading
- 550 m² footprint for 100,000 m³/d treatment capacity
- 节约土建成本
- 15-40 m/h的上升流速
- 一般10万 m³/d处理量占地只需550 m²



Job Reference 案例

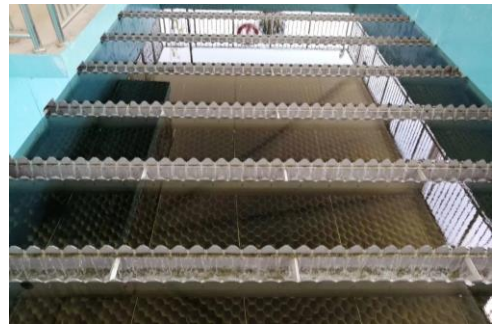
There are **more than 30 Wastewater Treatment Plants (WWTP)** using AMSFS II technology, with a total treatment capacity **over 3,000,000 m³/d** being discharged or constructed by our Group.

我司设计或者建造的采用AMFSF II 磁介质高效沉淀池技术的污水处理厂**超过30个**，涉及的污水处理量**超过3,000,000 m³/d**。

**Yanerwan Sewage Plant Extension Project,
Lan Zhou, China**
中国兰州雁儿湾污水厂扩建工程 240,000 m³/d



Guanlan WWTP, Shenzhen, China
中国深圳观澜水质净化厂 300,000 m³/d



Guangming WWTP, Shenzhen, China
中国深圳光明污水处理厂 300,000 m³/d



Beilun Yandong WWTP, Ningbo, China
中国宁波北仑岩东污水处理厂 200,000 m³/d



Yantian WWTP, Shenzhen, China
中国深圳盐田污水处理厂 120,000 m³/d



Jimo WWTP, Qingdao, China
中国青岛即墨污水处理厂 200,000 m³/d



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