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Supumps Integrated Axial Flow Pump Station **SPS-AP**

Innovative Solution for Flood and
Waterlogging Mitigation



Overview

Pain Points

With the rapid urbanization, the proportion of impervious surface hardening in cities has increased significantly, leading to a higher comprehensive runoff coefficient. This has drastically altered urban hydrological processes: rainfall generates large runoff volumes with earlier peak flows, causing water levels in receiving water bodies to rise rapidly. Coupled with insufficient drainage modulus, the high water level in receiving water bodies creates a backwater effect on the regional drainage system, exacerbating urban waterlogging.

Solution

The system integrates axial flow pumps and an intelligent control system, designed for high-flow stormwater discharge. Specifically, an Integrated Axial Flow Pump Station is installed at the end of drainage pipelines or adjacent to receiving water bodies. During continuous rainfall, when the water level in upstream pipelines or receiving water bodies approaches the warning level, the pumps start automatically to discharge accumulated stormwater into the external river. The station operates continuously until water levels drop below the safe threshold, reducing or eliminating urban waterlogging risks caused by backwater effects.

Application Scope

Low-head, high-flow applications, including flood control and drainage, as well as water level regulation for irrigation.

Core Advantages

The first in the industry to adopt computer-controlled continuous winding and one-piece molding process for the cylinder body

CFD-based flow simulation and optimization design

Unmanned operation

Zero leakage, reduced sedimentation and odor formation

Low capital cost

Standardized factory prefabrication

Short construction period, minimal footprint

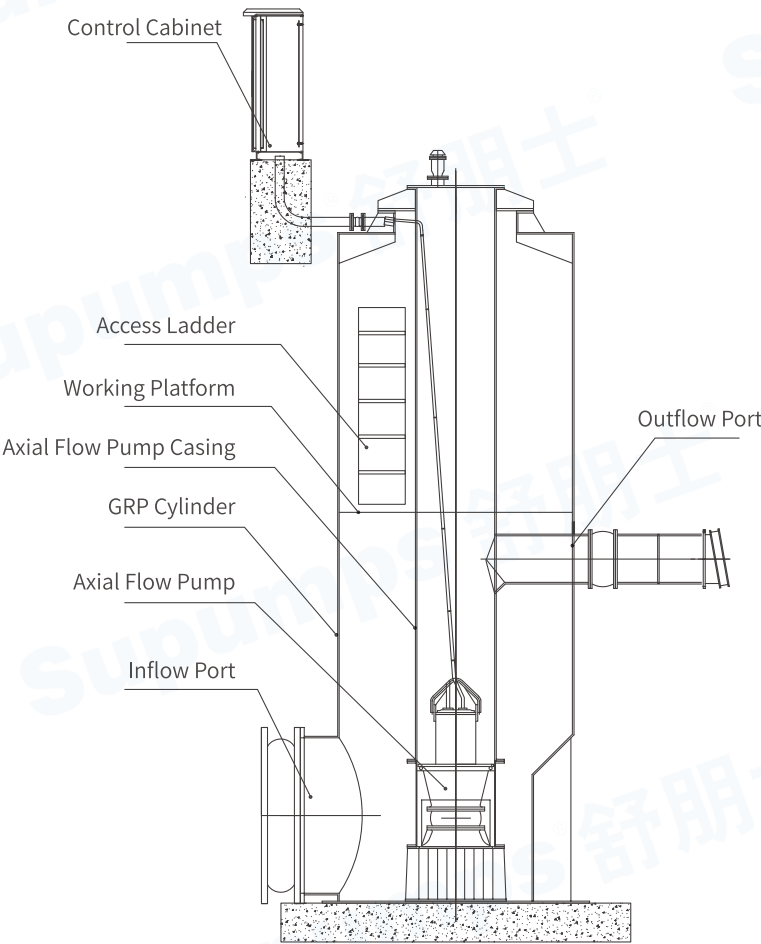
Patented anti-flotation system

Easy installation and maintenance

High-Quality Cylinder Body

- Service life of the cylinder exceeds 50 years
 - High-strength wound GRP (Glass Reinforced Plastic) cylinder
 - Alkali-free glass fiber content up to 75%
- Eliminates risks of leakage and cracking caused by manual secondary splicing
 - Bottom wall thickness increased by over 20% to withstand higher pressures
 - Manufactured with high-quality 100% pure resin (no additives) and premium alkali-free glass fiber, free of any fillers

Structural Schematic Diagram



Pump Station Diameter
3m、3.8m、4.2m、6.5m



Max. Flow Rate per Cylinder
4.5m³/s



Max. Pump Head
15m

Case Studies



Zhuhai Xiangzhou Axial Flow Pump Station
Dual Cylinder Parallel Configuration

Rainwater-Sewage
Separation System

Single Cylinder Capacity:
130,000 tons/day