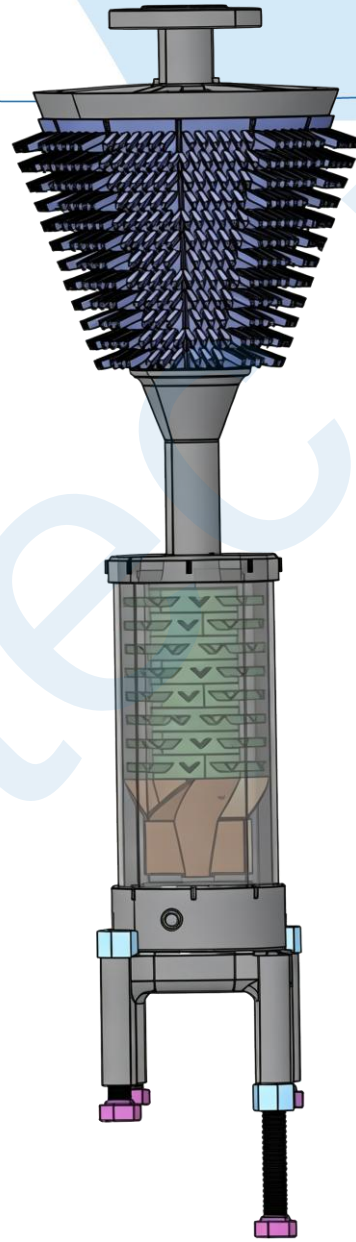
Innovative
Solutions

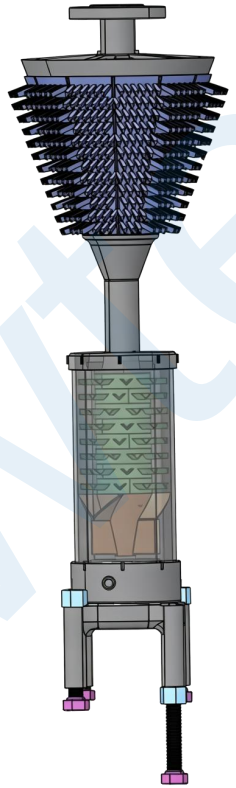
VAS Aerator In Wastewater Treatment

Newtec Umwelttechnik GmbH
www.newtec-berlin.de



Robust and Innovative Design

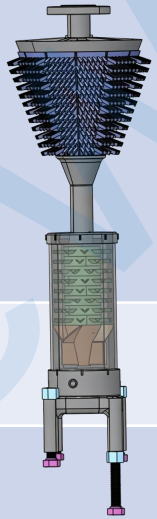
1. Top flange vertical connection
2. Large aeration outlet aperture (20mm)
3. Spiral ascending staggered blade design
4. Inverted umbrella-type wedge cutting column
5. Height-adjustable supporting legs
6. No vulnerable parts
7. PA66+GF material, wear-resistant and corrosion-resistant
8. Height: 825–925 mm
9. Diameter: Max. 265 mm, barrel section 120 mm



Hassle-Free Installation

- **Flexible Installation:** Can be piped at tank top, installed vertically, and arranged at intervals.
- **Online Installation & Replacement:** No need to shut down the system or empty the tank.
- **Key Advantage:** Low workload, short cycle, and minimal cost for maintenance.

Comparison with Micro-pore Aerator

	VAS Aerator	Micro-pore Aerator
View		 
Service Life	**> 10 years**	3–5 years (limited by diaphragm)
Clogging Risk	**Zero** (no membrane)	High
System Impact	**Single unit failure does not affect the whole**	Single unit failure impacts the whole system
Maintenance	**Maintenance-free**	Frequent diaphragm replacement required

Technical Parameters

Item	Specification
Model	TS-100
Material	PA66 + 30%GF
Air flow rate	20–30 m³/h
Oxygen utilization	**15%–25%**
Pressure loss	0.5–1.5 kPa
Service area	4–6 m²/unit
Suitable water depth	4–12 m
Sludge concentration	**2–30 g/L** (max. up to 60 g/L)
Service life	**>10 years**
Operating temperature	0–80 ° C
Applications	Activated sludge process, SBR, MBR, adjustment tank mixing, anoxic tank denitrification

Application in Municipal Wastewater Treatment

Application in High-hardness Wastewater Treatment

Application in Printing and Dyeing Wastewater Treatment

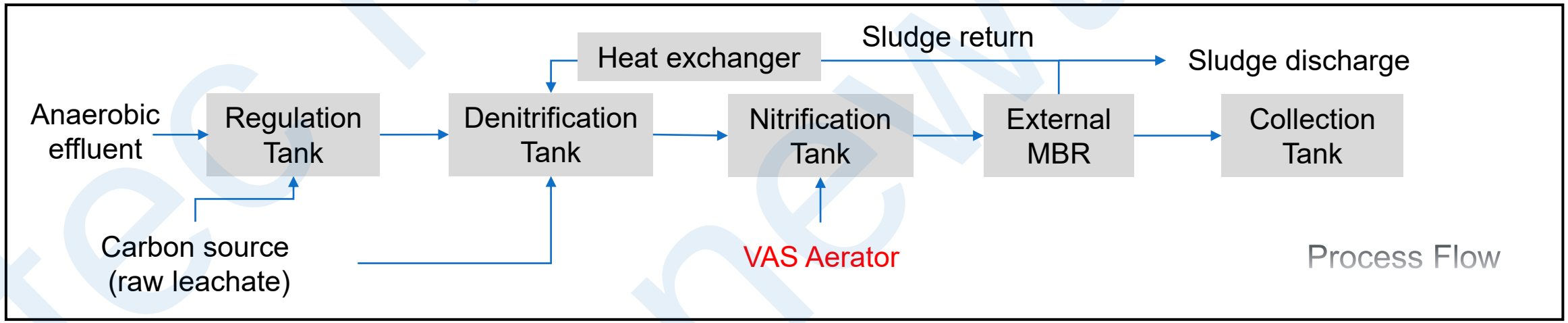
Application in Landfill Leachate Treatment

Case - Landfill Leachate Treatment Upgrade Project

Capacity: 200 m³/h

- Cope with peak leachate treatment in summer
- Serve as backup system during shutdown and maintenance of existing facilities
- Aeration energy-saving evaluation (compared with jet aeration)

	Design Influent	Design Effluent
pH	4.0-6.0	6.5-8.5
SS (mg/L)	2000	
COD (mg/L)	15000	800
BOD_5 (mg/L)	6000	
NH_3-N (mg/L)	1500	15
TN (mg/L)	2500	



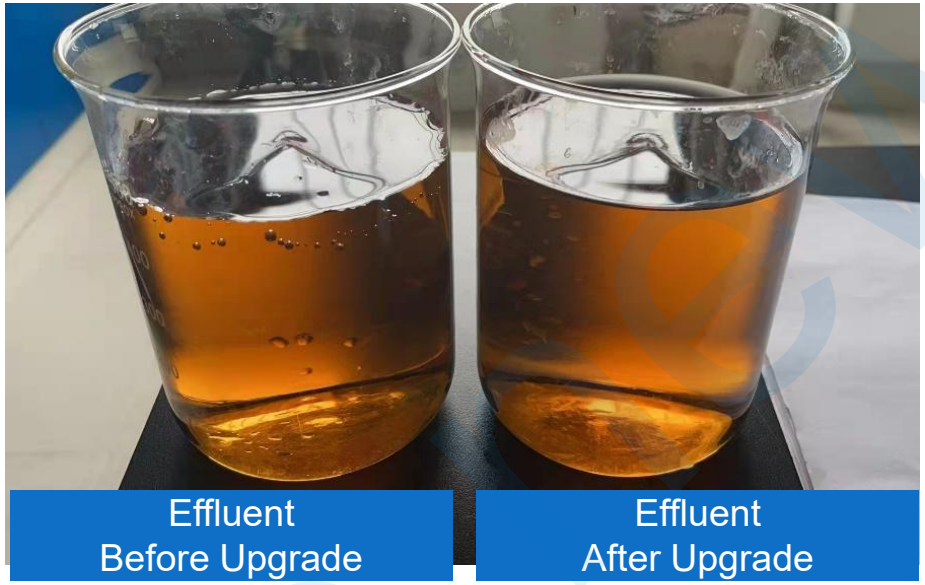
Case - Landfill Leachate Treatment Upgrade Project

VAS aerators: 140 sets

External MBR

Case - Landfill Leachate Treatment Upgrade Project

Comparison of Effluent Before and After the System Upgrade



	Influent	Effluent Before Upgrade	**Effluent After Upgrade**
COD (mg/l)	4300~8900 (avg. 5500)	720~880 (avg. 805)	**300~950 (avg. 630)**
NH_3-N (mg/l)	1800~2400 (avg. 2100)	8~16 (avg. 12)	**<1**

Conclusion:

VAS aerators ensure stable effluent quality that fully complies with discharge standards.

Case - Landfill Leachate Treatment Upgrade Project

Easy installation and removal:
Operable by a single person

No clogging or scaling observed, proving its robustness in challenging conditions.

Case - Landfill Leachate Treatment Upgrade Project

Comparison of Energy Consumption Before and After Upgrade

	Before Upgrade (Jet)	**After Upgrade (VAS)**	**Reduction**
Aeration Energy (kWh/d)	Avg. 3035	**Avg. 1118**	**63%**
Specific Energy (kWh/m^3)	18.51	**7.17**	**61%**

Conclusion:

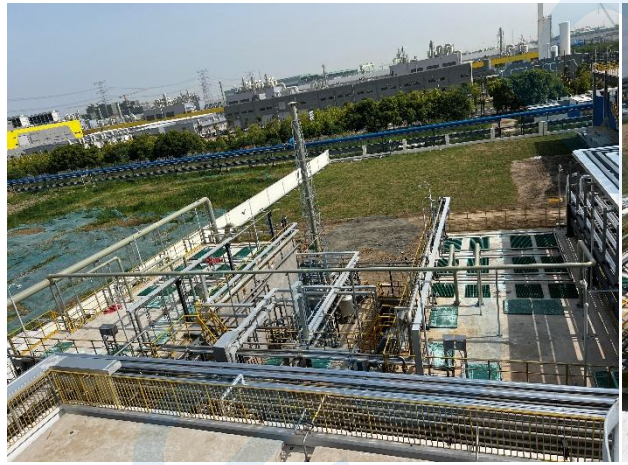
VAS aeration achieves a more than 60% reduction in energy consumption compared to traditional methods.

Case - Phenolic Resin Production Wastewater Treatment

	High-strength wastewater (MLSS 6–20 g/L)		Low-strength wastewater (MLSS 6–13 g/L)	
	Influent	Effluent	Influent	Effluent
COD	70000	<150	6000	<100
Phenol	4000	<0.5	700	<0.5

Case - High-strength Organic Wastewater Treatment

	COD (mg/L)	Formaldehyde (mg/L)
Influent	120000~150000	—
Effluent	<500	<1



Case - High-strength Organic Wastewater Treatment

Full Biochemical Process

	COD (mg/L)	Formaldehyde (mg/L)
Influent	25000	13000
Effluent	<100	<5

Case - Pesticide Production Wastewater Treatment

	COD (mg/L)	Formaldehyde (mg/L)
Influent	61000~147600	22000~100000
Effluent	<100	<5

Case - Pesticide Production Wastewater Treatment

600m^3/d, Biochemical stage

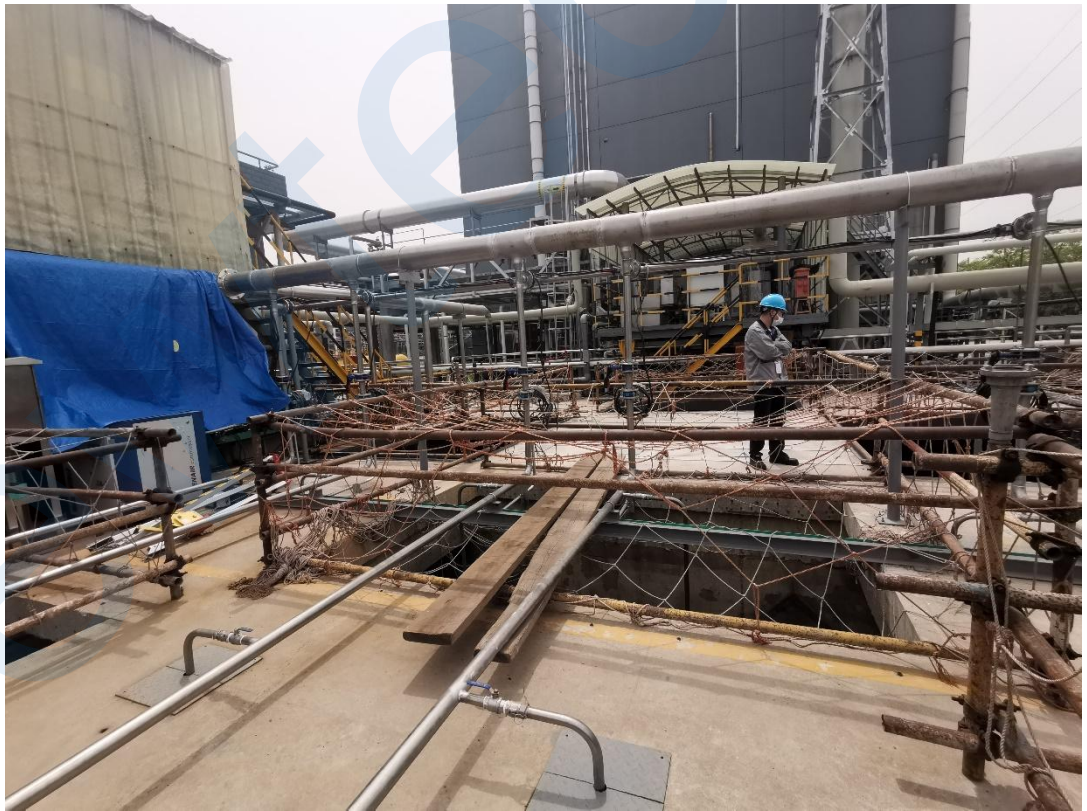
	Influent	Effluent
COD (mg/L)	<4500	Avg. 50
NH_3-N (mg/L)	<40	Avg. 0.6
Volatile phenol (mg/L)	<8	Avg. 0.02

Case - High Ammonia Nitrogen Wastewater Treatment

Non-shutdown Retrofit

300 m³/d

	COD (mg/L)	NH_3-N (mg/L)	TN (mg/L)
Influent	<9000	<900	<900
Effluent	<150	<3	<20



Case - Brewery Wastewater Treatment

800m^3/d

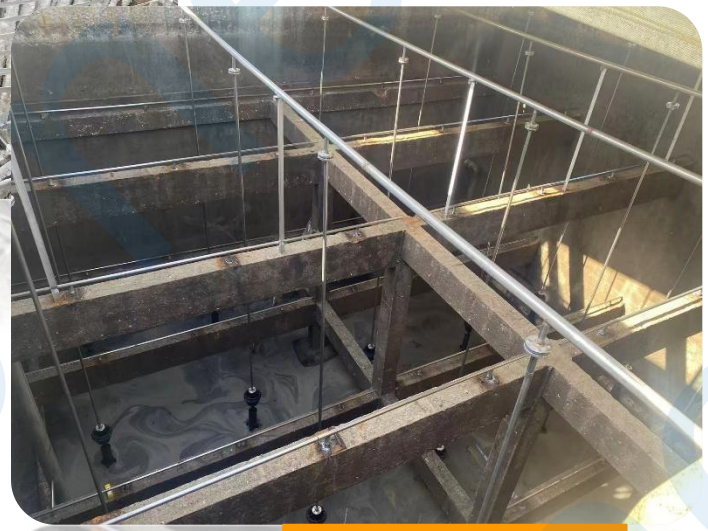
Process: Anoxia + Aerobic + MBR + Physicochemical Phosphorus Removal

	Influent	Effluent	Discharge Standard
COD (mg/L)	~5000	< 50	500
TN (mg/L)	~800	< 25	70
NH_3-N (mg/L)	~400	< 1	45
TP (mg/L)	~30	< 0.5	8
SS (mg/L)	~800	< 2	400

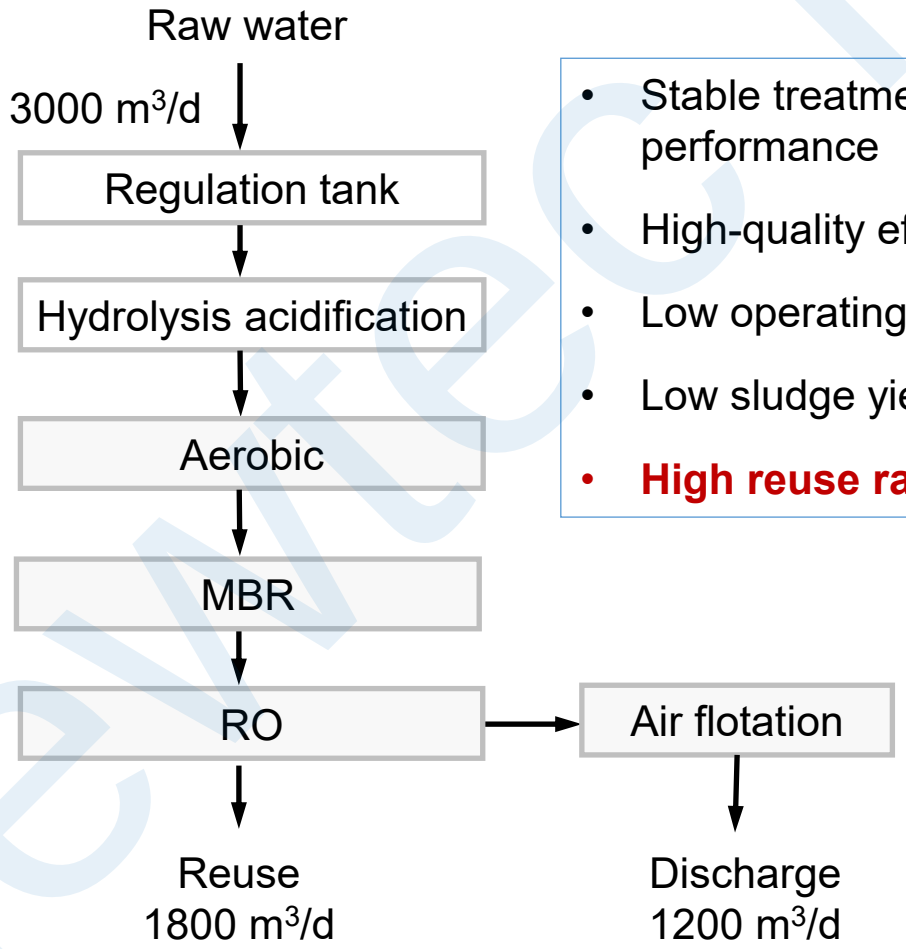
Case - Printing & Dyeing Wastewater Treatment

Requirement → 50% reuse rate, effluent meets reuse standard (color < 10 times)

Hydrolysis acidification Tank



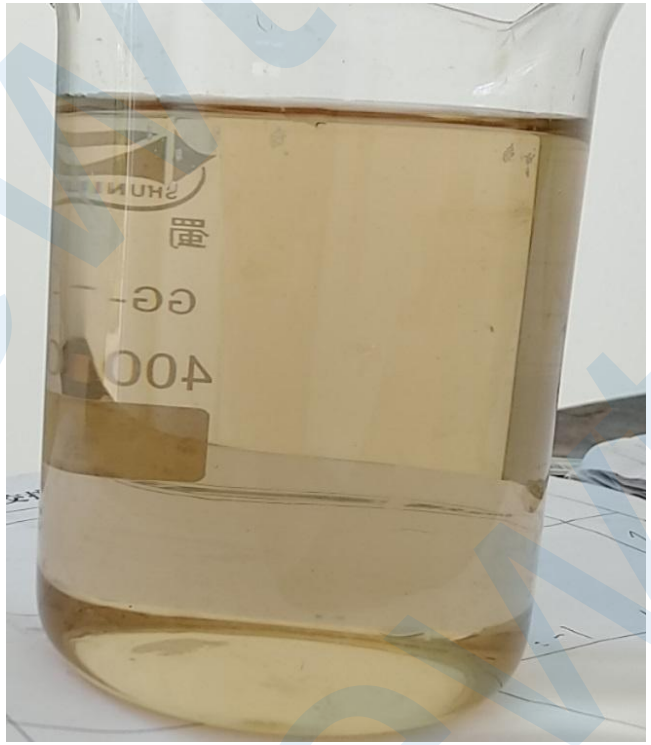
Aerobic Tank



- Stable treatment performance
- High-quality effluent
- Low operating cost
- Low sludge yield (1.25 t/d)
- **High reuse rate (60%)**

Case - Printing & Dyeing Wastewater Treatment

Raw water



MBR effluent

Reused water

Case - Printing & Dyeing Wastewater Treatment

Pretreatment process for high-strength wastewater：Anaerobic Baffled Reactor（ABR）

Integrated wastewater treatment process: Hydrolysis + Anoxic + Aerobic + MBR

Raw water

Aerobic tank effluent

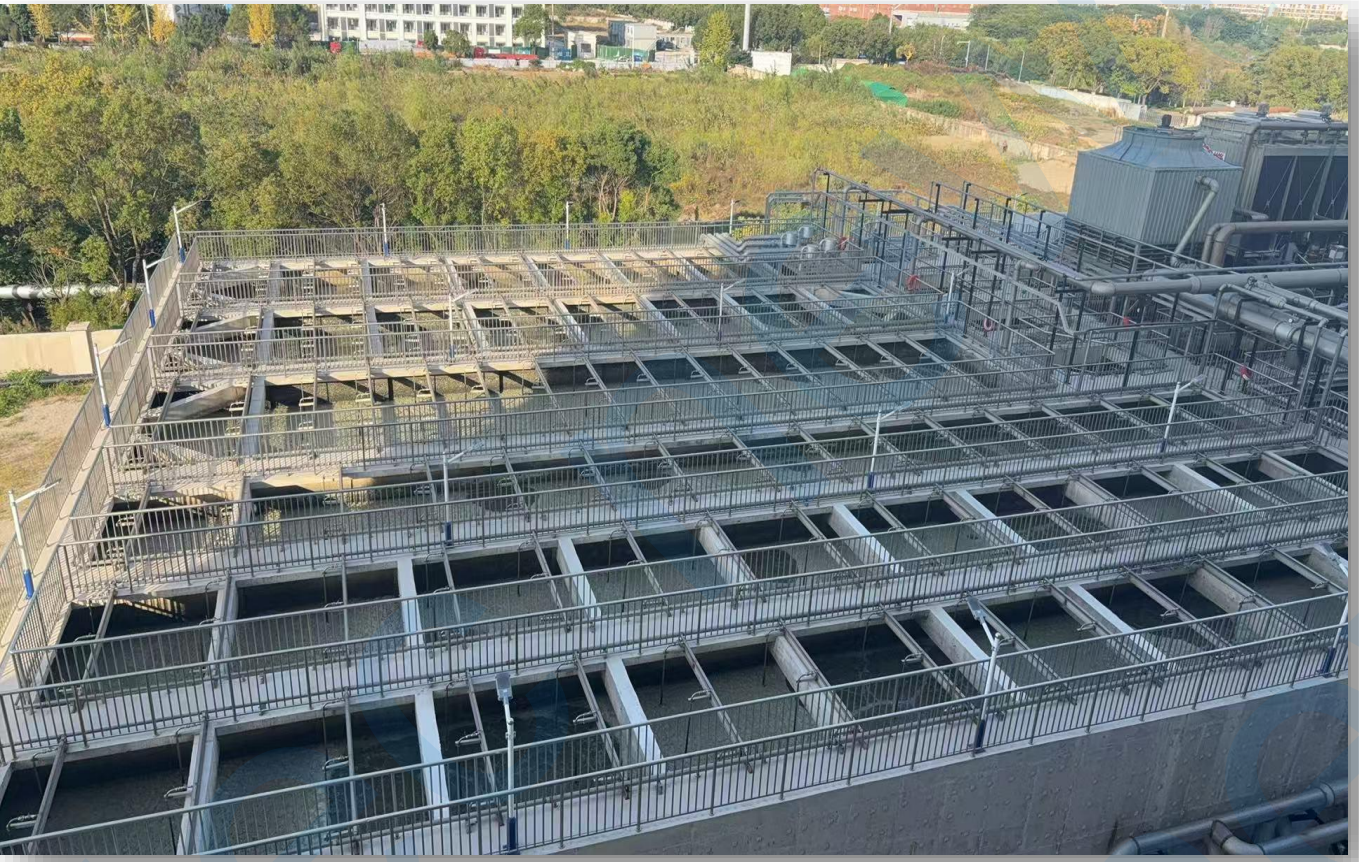
Influent Quality & Flow

Wastewater	Flow (m^3/d)	COD (mg/L)	NH_3-N (mg/L)	TN (mg/L)	TP (mg/L)
High-strength	1000	15000	300	300	5
Low-strength	2500	1000			
High NH_3-N	400	3000			

Effluent Quality vs. Discharge Standard

	Biochemical Effluent (mg/L)	Discharge Standard (mg/L)
pH	7~8	6~9
Color (times)	<40	80
COD	<140	200
BOD_5	<10	50
SS	<1	100
NH_3-N	<0.1	20
TN	<12	30
TP	<0.5	1.5

Case - Printing & Dyeing Wastewater Treatment



Thank You

Newtec Umwelttechnik GmbH
Breitenbachstr. 10, 13509 Berlin, Germany
www.newtec-berlin.de