

JV-SANTECH



HYDRAULIC BOTTOM SLUDGE SCRAPER

JV2100



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INTRODUCTION

JV SAN TECH CO., LTD. is a specialist company in manufacturing water treatment equipments . Established in Taoyuan , Taiwan since 20 years ago , capitalizing on its vast technical experience , the company has developed its 4th generation Hydraulic Bottom Sludge Scraper , the JV SAN TECH JV2100 Hydraulic Bottom Sludge Scraper .

To ensure high quality products and services , the manufacturing process is guided under the ISO9001 standard which the company has obtained the certificate .

Today , the JV2100 Hydraulic Bottom Sludge Scraper has been widely used in Grit Chambers , Primary Clarifiers , Secondary Clarifiers , Sedimentation Tanks , Flocculation Tanks and Other Industrial Processes .



Product Features

- Few moving parts
- Very little and simple maintenance required
- Continuous sludge transportation
- No interruption in sedimentation process
- Reliable operation
- Simple to install and easy to adapt for use in existing tanks
- Sludge can be thickened at the same time

OPERATING PRINCIPLE

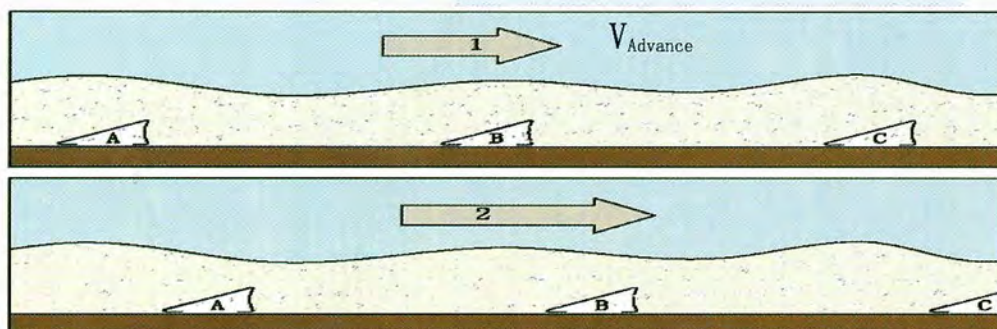
The scraper is driven by a hydraulic cylinder and a lever system. Wedge-shaped sections welded together on the main frames to form a single unit so that it functions as a moving floor over the bottom of the tank.

The forward and return movement of the sections is powered by the hydraulic system. When the sections move forward, they transport the sludge with them to the sludge pit. During the return movement, the points of the wedges slide under the blanket of sludge, so that its top layer flows over them. The speed of the return movement is approximately three times that of the sludge.

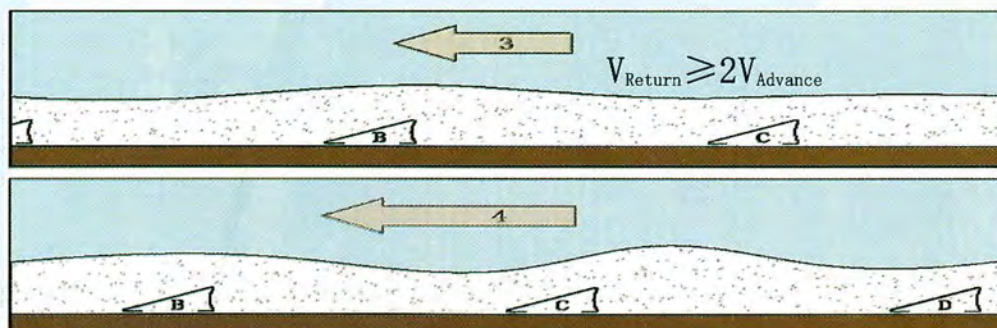
Where the sludge has such a low total solids content that no blanket is formed, the sections scrape a stream of sludge along the bottom of the tank. The repeated movements of the sections have the effect of thickening the sludge. Thus increasing its total solids content while at the same time guiding it towards the sludge pit, the sludge has thickened and its thickness has improved to more than 3%.

Advance speed: $V_{\text{Advance}} = 0-5 \text{ m/min}$,

Return speed: $V_{\text{Return}} = 0-10 \text{ m/min}$ ($\geq 2V_{\text{Advance}}$ Base of sludge condition) .



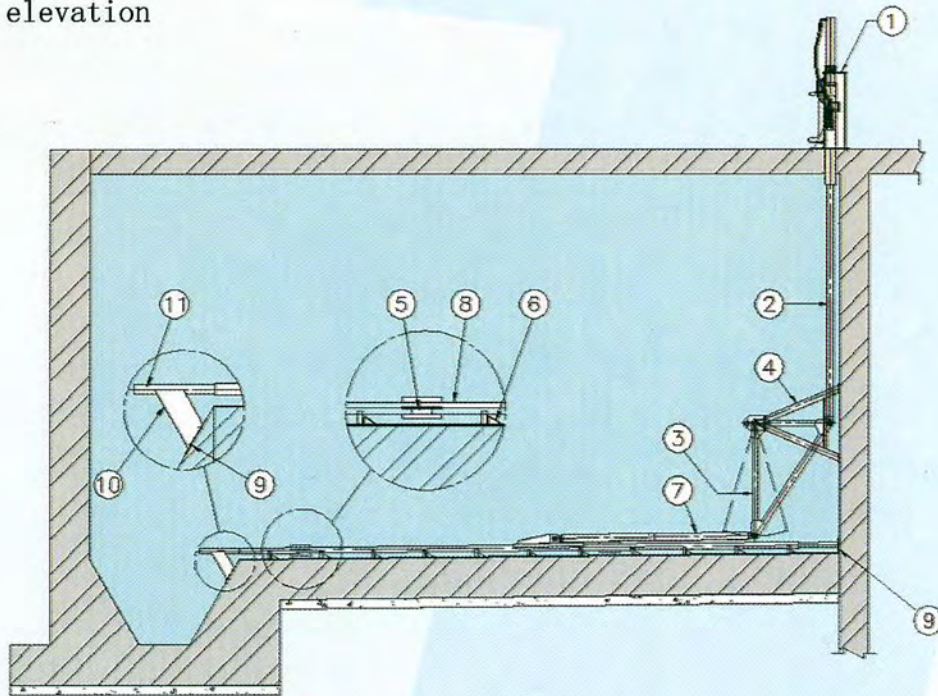
Advance of scraper movement



Return of scraper movement

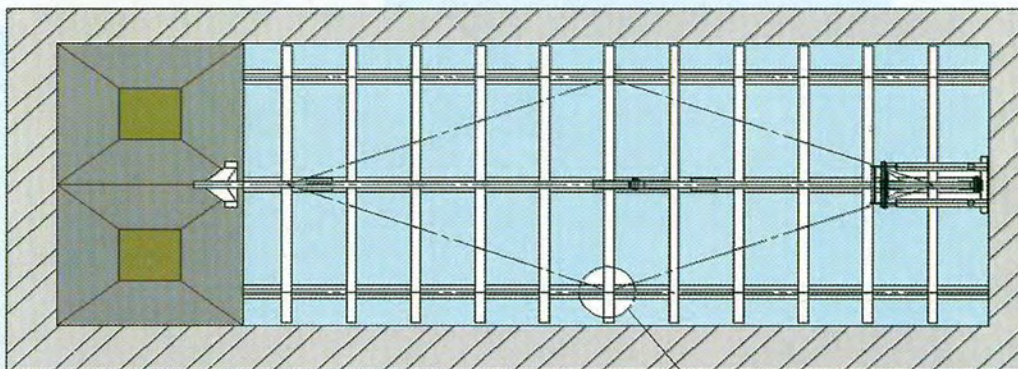
CONFIGURATION

JV2100 elevation

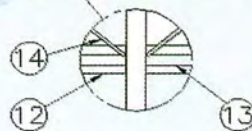


- | | | | |
|---------------|----------------------|--------------------|---------------------|
| 1, Cylinder | 4, Angle arm support | 7, Posit handspike | 10, Fix rod support |
| 2, Piston rod | 5, Sludge hole | 8, Central pipe | 11, Fix pipe |
| 3, Angle arm | 6, Cuneiform scraper | 9, Support plate | |

JV2100 PLAN



- | |
|--------------------|
| 12, Sidle plate |
| 13, Movement plate |
| 14, Connects bar |



Design of Cuneiform scraper



The design of the sections has been arrived at as a result of scientific tests. Experiments in testing tanks have shown that the concave format offers the optimum solution with different types of sludge and at different speeds.

The concave faces of the sections also combine the best hydrodynamic design with the best sludge transportation solution.

The speed at which the scraper is operated is determined by the type of sludge.

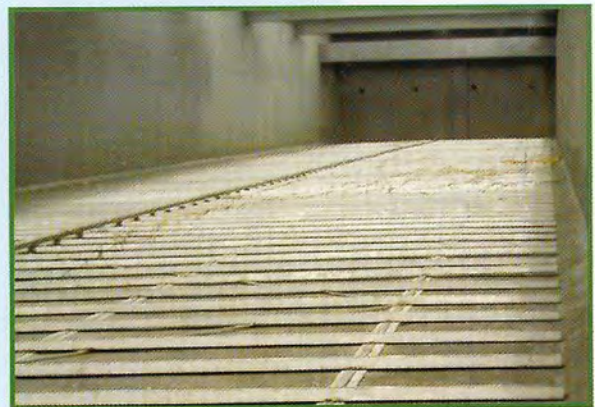
Design of the slides

The sections rest on either three or five longitudinal slides made of high-density polythene. The slides reduce wear on the sections to a minimum, so that their economic life is usually about ten years.

The slides are supplied in lengths of 3m, and are simple to fasten to the bottom of a concrete tank with spiked bolts. Where the tank is a steel tank, they can be glued to the bottom with a special adhesive.

No adaptation needed for most tanks and bottoms

The design of the scraper makes very few demands of the condition of the bottom of the tank. Even where the bottom slopes sideways or there are longitudinal depressions, the JV2100 will function satisfactorily. However, protruding stones and poorly finished construction joints should be leveled off. Just as they should be when installing any other type of bottom scraper.



The JV2100 can also be adapted for use in tanks with varying widths.

Hydraulic units

There are two different standard hydraulic units available for use with the JV2100 sludge scraper. The single-motor unit for use with double installations.

The units are of low pressure type and high pressure, and are fitted with manometers and regulating valves that make it possible to adjust the speed of both the forward and return movements. Outgoing pressure to the cylinder is 20-70bar. Maximum pressure can high to 100bard.

Noise levels

Hydraulic units are designed for installation either under cover or outdoors without constituting any undue disturbance to their surroundings.

Noise levels are lower than 70dB(A), measured at a distance of 1m from an installed unit with no weatherproof housing over the motors.

Hydraulic oil

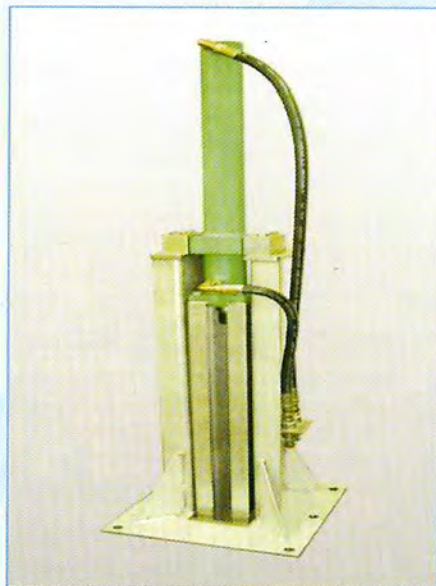
The hydraulic oil used is a 100% vegetable rape seed oil free of mineral additives. It is thus non-hazardous and contains no known carcinogenic substances. The oil is 97% biodegradable, so that oil spills do not constitute a problem in the treatment process.

After filling, the oil will withstand temperatures of from -30°C to +100°C without the need for adding glycol.

The single-motor unit holds 50 litres of oil, the double motor unit 70 litres.



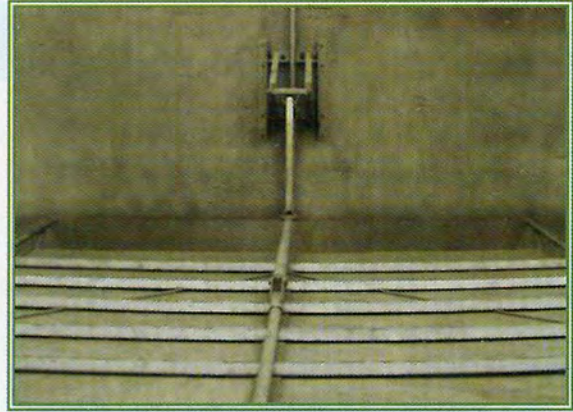
PISTON Eccentric hydraulic cylinder frame



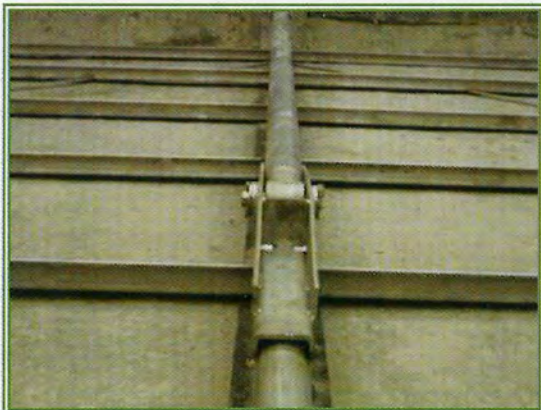
Centric hydraulic frame



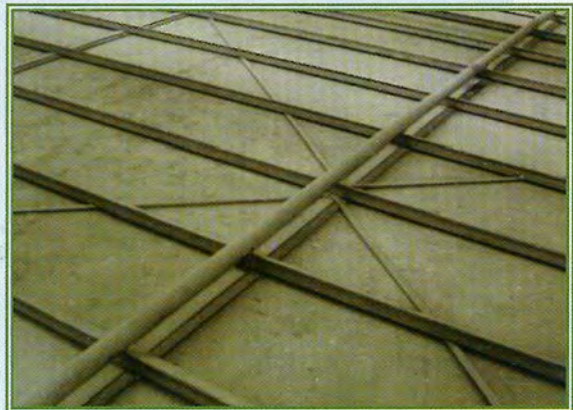
Angle arm



Central rod



Cuneiform scraper



Automatic system control

All the electrical equipment required for controlling and monitoring the system is gathered together in a single control box.

Standard control boxes are in SUS-304 material that meets most requirements just as it withstands most environments.

The version illustrated here is available as an alternative. And features a PLC and touch screen that can be connected to most types of process computer currently available on the market.



PRODUCT FEATURES

■ FEW MOVING PARTS

When the equipment working, only welded scrapers, angle arms and rod move.

■ LITTLE AND SIMPLE MAINTENANCE, AND LONG OPERATION LIFE

Few moving parts leads to simple and little maintenance. When the movement plate slide on the slide plate, the water lubricate the movement plate as a natural lubricant. So the driving force required is little. Above factors make the equipment sensitive operating and long work life.

■ Continuous sludge transportation

To and fro moving make the sludge flow into the sludge tank, and form a inertial flow.

■ NO INTERRUPT TO SEDIMENTATION

The scraper moves slowly in the bottom of the sludge, doesn' t agitate the sludge and cumber the sedimentation process.

■ HIGH RELIABILITY

Few moving parts, work slowly, water naturally lubricated, high reliability.

■ Easy to adapt for use in existing tanks

The design of the JV2100 allows considerable latitude where positioning of the hydraulic cylinder is concerned. Whether drawn of propelled, the scraper will produce the same results. It is even possible to position the cylinder horizontally below the surface of the water, in which case the number of moving parts is reduced from four to one.

Nor does the bottom of the tank need to be level for the JV2100 to produce good results. It should, however, be either horizontal or slope towards the sludge pit.

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■ SIMPLE TO INSTALL

The JV2000 is simple to install, and only two men are required for the job. No lifting devices or other complicated equipment are required. The total time taken to install a 20 × 6 m scraper on site is usually 2-5 working days.

■ THICKEN SLUDGE TO MORE THAN 3% SS

Special and original hydro-force design make the sludge thickened to more than 3% SS in the to-an-fro moving process.

■ PLC AND TOUCH SCREEN CONTROL

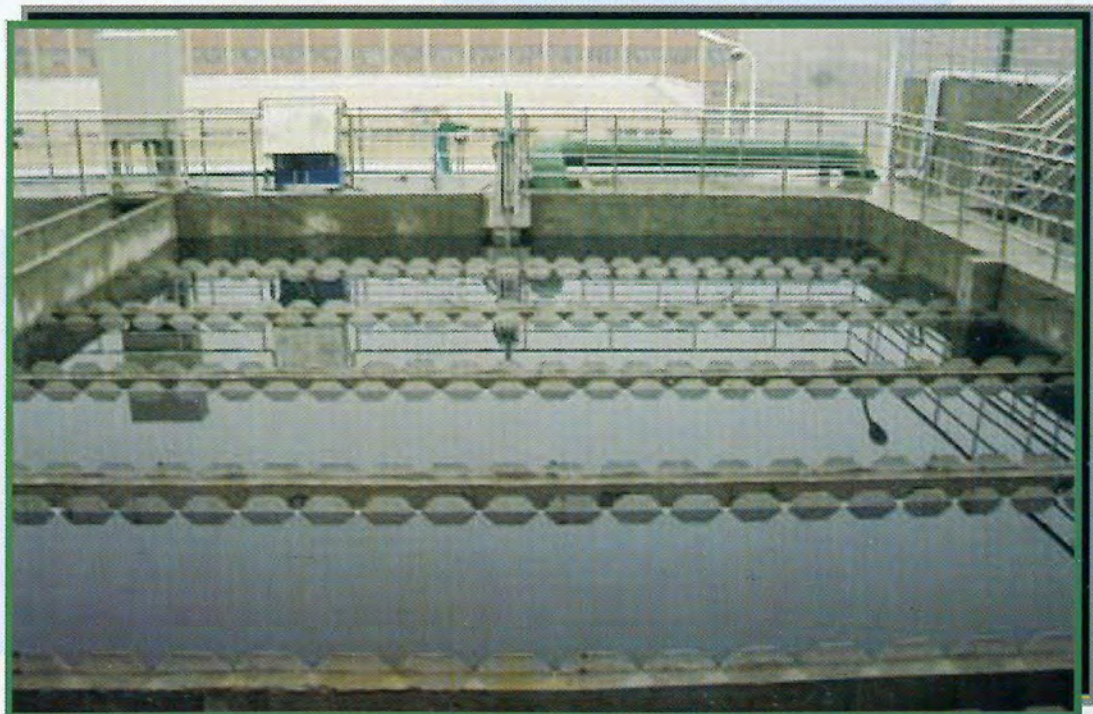
Full automatic PLC and touch screen: Easy to change the operation data

APPLICATION

Applied in quadrate sedimentation tanks in WTP and WWTP, or used with inclined pipe or gas-float.

JV2000 TECHNICAL SPECIFICATION

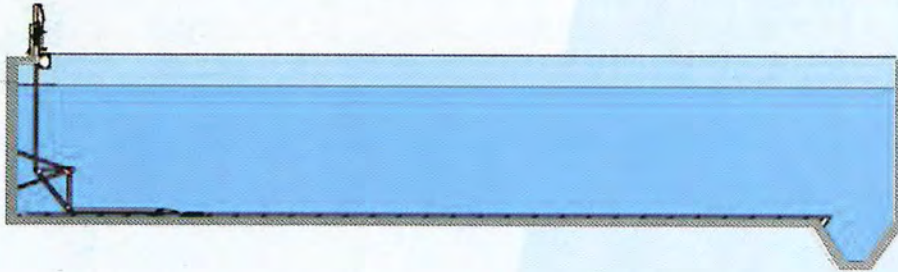
Applied sludge	SS of sludge = 0.5%~6%
SIZE	LONG = 100m, WIDE = 12m, MAX SURFACE AREA = 1200m ² .
MATERIAL	SUS304 OR SUS316



INSTALLATION

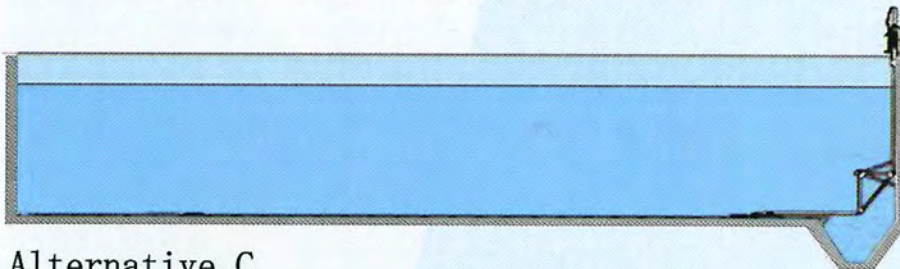
Alternative A

Propelled scraper with centric hydraulic cylinder frame.



Alternative B

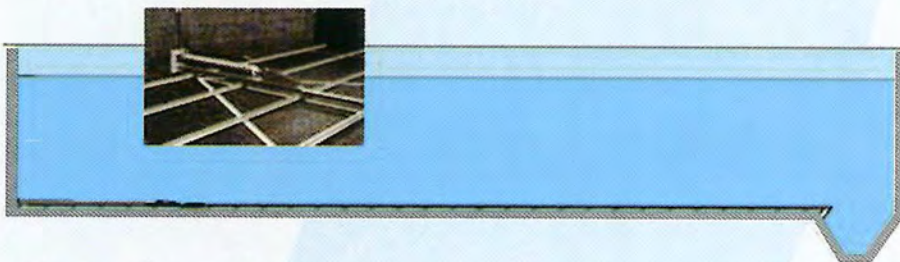
Drawn scraper with eccentric hydraulic cylinder



Alternative C

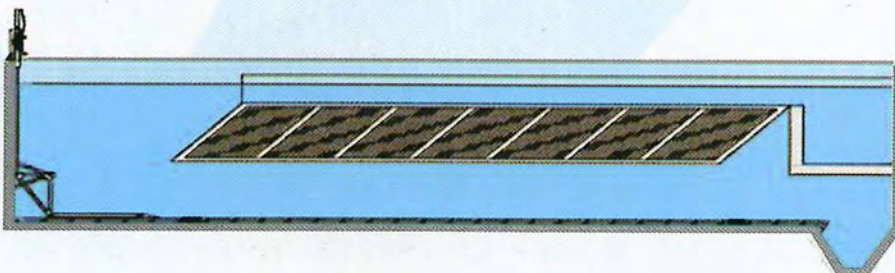
Scraper with horizontal hydraulic cylinder. The scraper may be either drawn or propelled.

The position of the piston eliminates the need for a lever



Alternative D

Propelled scraper with eccentric hydraulic cylinder frame. Here the scraper is combined with lamellas.



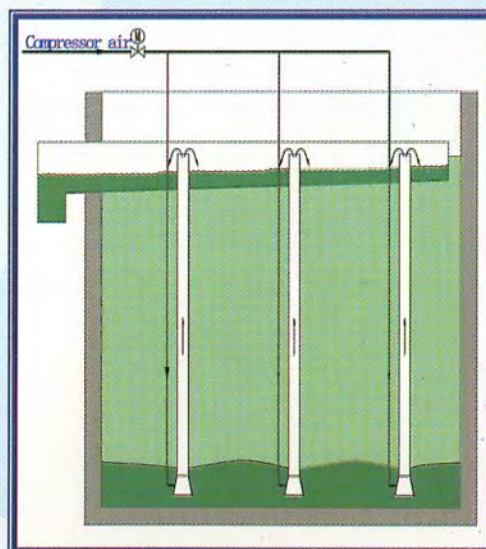
JV2100S SURFACE SLUDGE SCRAPER:

The JV2100S surface sludge scraper can be combined with the JV-600 rotating scum pipe to give higher dry solids content in the surface sludge at the sludge outlet, with minimum transportation water being used, in fact considerably less than with many other types of surface scraper.

The JV2100S is suitable for use in most local authority waste water treatment installations and in industrial applications, and can also be adapted for flotation tanks or where lamella systems are in use. The scraper is simple to install, is reliable in operation and has few moving parts.



SLUDGE DISCHARGE:



MODEL:

NO	DIAMETER OF CYLINDER	PRESSUR		TYPE		INSTALLATION RANGE
		LOW 100kg/cm ²	HIGH 140kg/cm ²	ECCENTRIC	CEN-TRIC	
JV2000	φ 70/L	L	H	B	P	200m ²
	φ 85/L					200m ² —400m ²
	φ 100/L					400m ² —600m ²
	φ 100/H					600m ² —1200m ²

MANUFACTURE:

JV SAN TECH CO., LTD.

SHANGHAI OFFICE:

SHANGHAI VENUS ENVIRONMENTAL EQUIPMENTCO., LTD.

VNS 上海合茂环保设备有限公司
专业环保水处理设备

- JV-TECH(台湾) 液压刮泥机
- GVE (台湾) 上流式过滤器
- NOXON (瑞典) 卧螺离心机
- SILJAN (瑞典) 转鼓浓缩机
- TEFSA(西班牙) 厢式压滤机
- ISHIGAKI(日本) 板框脱水机
- KS (美国) 污泥干化机
- WALK (美国) 厌氧消化槽

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