

# Techase<sup>®</sup> Multi-plate Screw Press

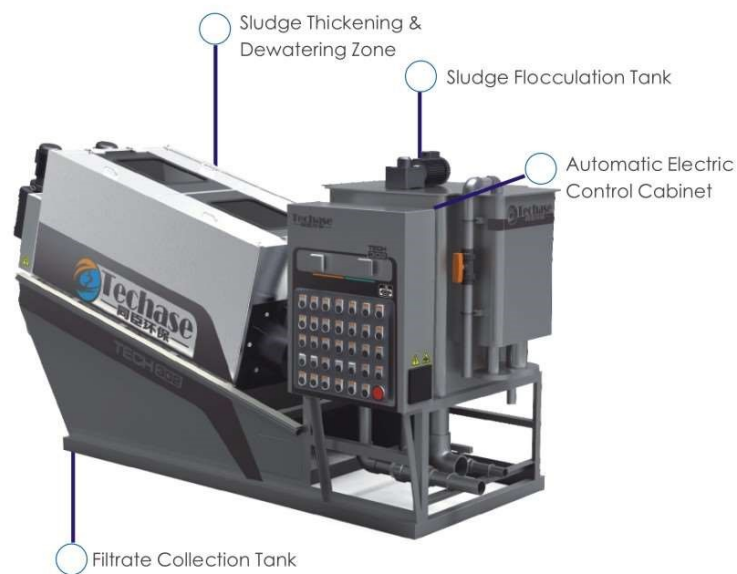


# Multi-plate Screw Press

## Introduction

The Multi-plate Screw Press developed by Techase utilizes the dewatering principles of force-water homo-direction, thin-layer dewatering, proper pressure and extension of the sludge dewatering path. The new equipment, more advanced than the traditional dewatering equipment which are easily blocked, unsuitable for low-concentrated sludge and oily sludge, of high consumption and difficult to operate, well eliminate these problems and are of higher efficiency and power saving.

The multi-plate screw press, which is controlled by the electric control cabinet, allows automatic continuous operation of sludge flocculation, thickening, dewatering and the filtrate discharging.



TECH-100 series



TECH-200 series



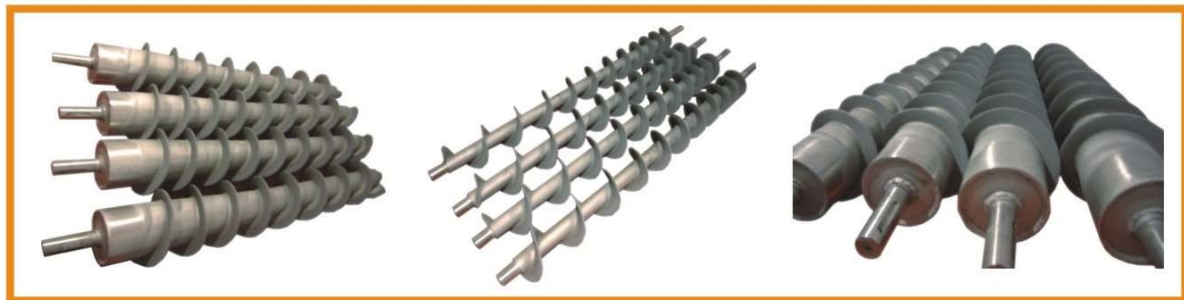
TECH-300 series



TECH-400 series

Techase, as the industry leader and first brand of Multi – plate Screw Press, have the strongest R & D capability, most application cases, largest production capacity, richest product lines and highest recognition from professional users.

Under the cooperation with Tongji University, Techase built the finite element model according to ANSYS screw shaft pressing theory, which basically solved the problems of the product design, technical innovation and equipment operation. On the basis of the advanced model, Techase successfully developed following significant technology innovations:



● The special shafts for different industry

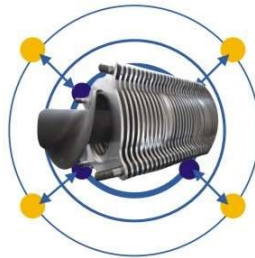
- ◎ 400 Series Screw Shaft (Industry First)
- ◎ Wear-free type of Multi-plate Screw Press (Industry First)
- ◎ Special screw shaft for Sludge Thickener (Industry Only)
- ◎ Special screw shaft and machine for inorganic material (Industry Only)
- ◎ Special screw shaft and machine for petrochemical, pectin, paper industry (Industry Only)

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## Working Principle

**Force-water cocurrent**  
 Makes the free water separated from the sludge at the fastest speed

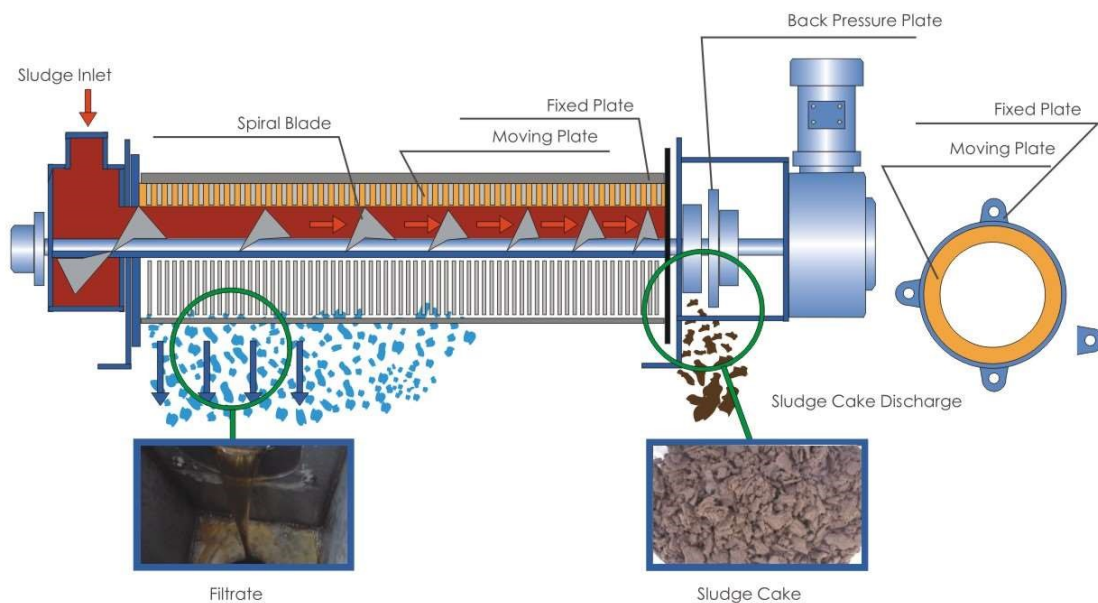
**Moderate pressure**  
 Moderate pressure for minimum power consumption and equipment wear



**Thin-layer dewatering**  
 Makes the free water separated from the sludge along a shortest path

**Extension of the dewatering path**  
 Provides sufficient pressing time and allows continuous operation

The conditioned sludge flows into the filter chamber from the flocculation tank and is pushed forward the discharging end. With the gap between the thread of the shaft is getting more and more narrow, the pressure on the sludge is getting higher and higher. Then the water is separated from the sludge and flows out from the gap between the movings and the fixed rings. The movement of the moving rings and the fixed rings cleans the gap between them and prevent the machine from blockage. The filtered sludge cakes are pushed forward by the shaft and finally discharged from the end.

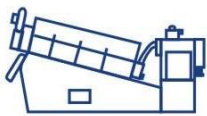


## Technical Advantages

For its special structure, accurate design and processing, Techase® Multi-plate Screw Press is characterized by following features:

Exclusive pre-thickening device enables a wide solid concentration ranging from 3000mg/l to 50000mg/l

The thickening zone and the dewatering zone make the machine applicable to both highly concentrated sludge and that with a high water content. It's able to directly treat sludge with a solid content from 3000mg/l to 50000mg/l.



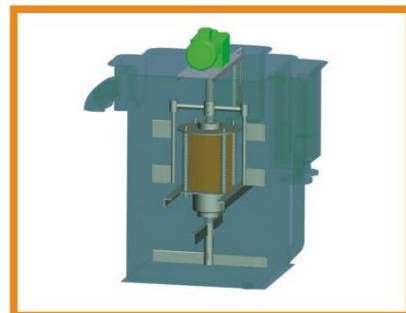
Sludge Concentration: 2000mg/L-50000mg/L

Multi-plate Screw Press



The exclusive pre-thickening device enables excellent performance while dewatering sludge with high water content

- ⦿ The problems of gravitational thickening disappear and highly efficient thickening is achieved.
- ⦿ Flocculating and thickening in same time reduce the subsequent dewatering pressure.
- ⦿ Adjusting the expansion valve to make the sludge to be the best state for dewatering.





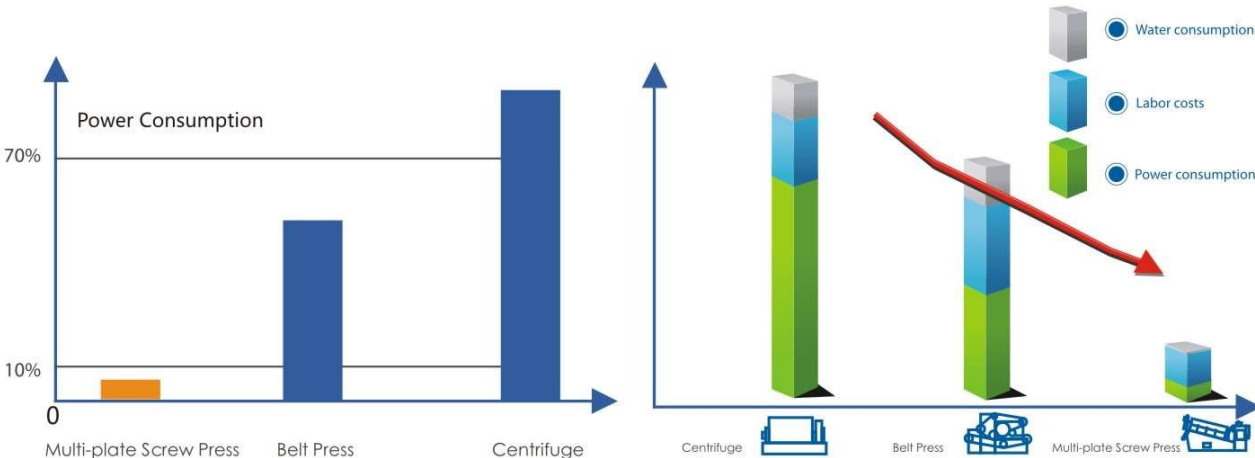
Fixed and moving plates replace filter cloth, self-cleaning, clog-free, easy to handle oily sludge

The traditional dewatering equipment are easily got blocked while the multi-plate screw press allows continuous operation with no blocking due to that the moving of the fixed rings and moving rings cleans itself. Therefore, it's especially good at the oily sludge with excellent performance. Moreover, it doesn't need additional water for high-pressure cleaning so that no smell or secondary pollution will be produced.



Low running speed, low noise, low power consumption, 1/8 of Belt Press and 1/20 of centrifuge

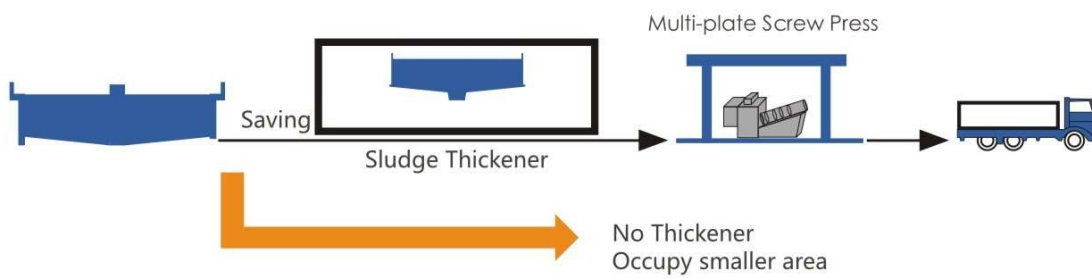
The dewatering of the multi-plate screw press relies on the inner pressure of the filter chamber and the rotating speed is as slow as 2~4 r/min. Therefore, its power consumption is as low as 0.01~0.1 kw/h/kg-DS, only 1/8 of that of belt presses and 1/20 of that of centrifugal machines. In addition, of course there is little noise. Eventually, the operating cost can be greatly saved.



### Less capital construction cost, more excellent working performance

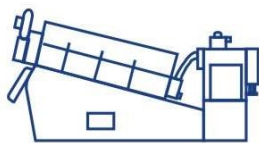
The multi-plate screw press can directly treating the sludge from the aeration tank and the secondary sedimentation tank so that the sludge thickening tank is not needed any longer. Therefore, the capital construction cost can be greatly saved and the phosphorus releasing problem is well avoided.

- ⊙ Save construction investment on sludge thickeners and costs on mixers, air compressors, flushing pumps, and other auxiliary equipments.
- ⊙ Occupy smaller area, reduce construction investment for dewatering room.

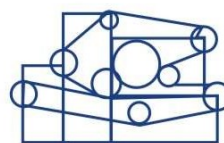


### Fully automatic control, Easy operation and simple maintenance

The multi-plate screw press hasn't any devices like filter clothes or filter pore that are easily blocked. Its operation is safe and easy. It also can be set to operate automatically via the electric control cabinet.



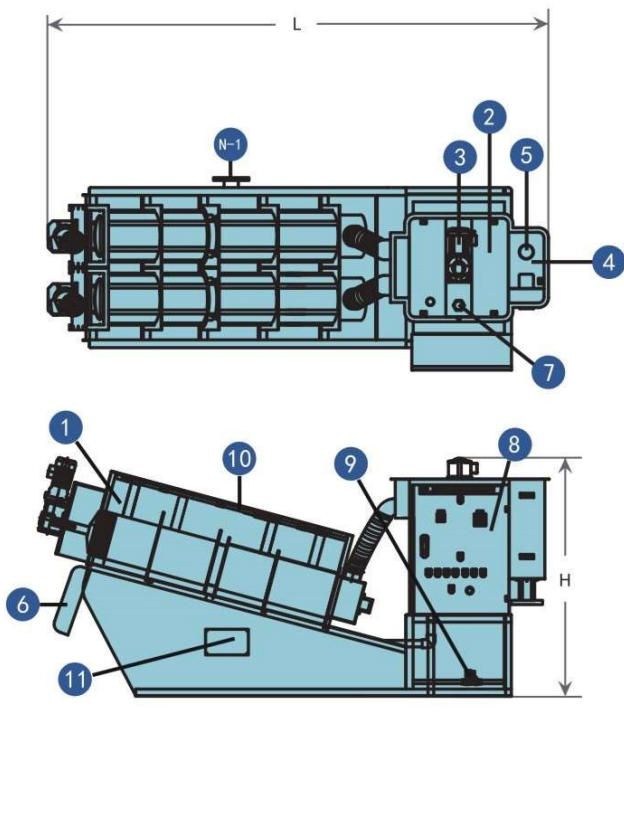
24-hour unattended operation



Operate Manually

## Ovreal Structure

Main Components Table	
1	Filtration Body
2	Flocculation Reactor
3	Mixer for Flocculation Reactor
4	V-type Metering Tank
5	Water Level Regulator
6	Sludge Cake Discharge Hopper
7	Level Electrode
8	Electric Control Cabinet
9	Cleaning Electric Valve
10	Spray Planes
11	Filtrate Collection Tank



Pipe Joint Table	
N-1	Filtrate Discharge Outlet
N-2	Sludge Inlet
N-3	Wastewater Return Flow Inlet
N-4	Dosing Port 1
N-5	Washing Water Inlet
N-6	Sludge Emptying Outlet

## Comparison Chart

Content	Multi-plate Screw Press	Frame Filter Press	Belt Press	Centrifuge
Dewatering of Low Concentrated Sludge	✓	×	×	×
no Thickener	✓	×	×	×
24-hour automatic operation	✓	×	×	×
Occupied Area	▲	▲▲▲	▲▲▲	▲▲
Energy Consumption	▲	▲▲▲	▲▲▲	▲▲▲▲
Labor Intensity	▲	▲▲▲	▲▲	▲
Noise	▲	▲▲▲	▲▲	▲▲▲▲
Maintenance	▲	▲▲	▲▲▲	▲▲▲
Operation Cost	▲	▲▲▲	▲▲▲	▲▲▲▲



## MSP Sludge Dewatering System

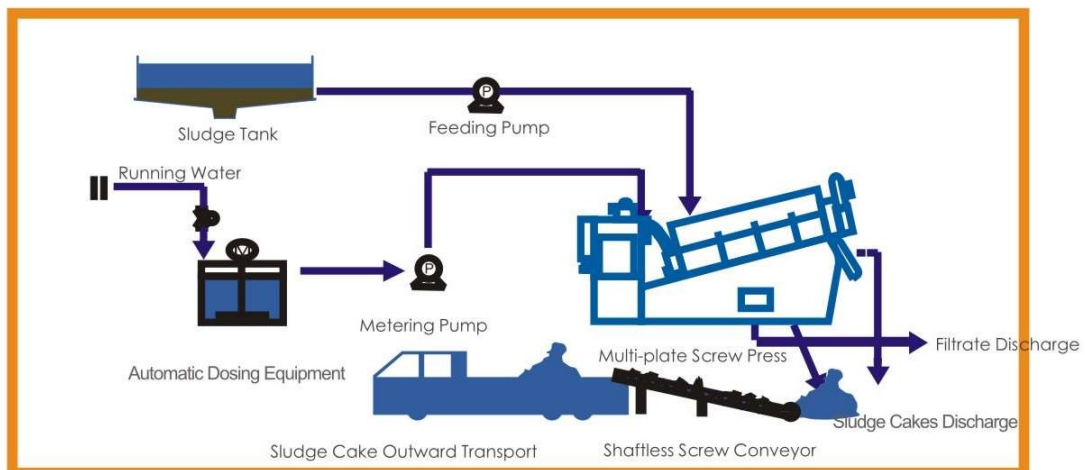
Besides the core equipment Techase® Multi-plate Screw Press, we also provide advanced environmental sludge treatment & disposal solutions for the customers as well as devices needed by the system.

### System Components

- ⦿ Automatic Polymer Station: accurate metering, chemical saving, operation cost saving
- ⦿ Shaftless Sludge Conveyor: smooth conveying, little noise, low power consumption
- ⦿ Pumps: pumps of high safety and reliability, such as submersible sewage pumps, screw pumps, metering pumps
- ⦿ Flocculant: of good flocculation performance, harmless, no smell, no secondary pollution

### Key Features

- ⦿ Simple process, high efficiency, power saving, low investment
- ⦿ Programme setting makes the operation convenient and accurate
- ⦿ Exclusive flocculent helps with the dewatering performance
- ⦿ Accurate chemical preparation and dosage saves much operation cost.



## Typical Cases

Multi-plate Screw Press can be widely used for various wastewater treatment systems such as municipal, petrochemical, chemical fiber, paper-making, pharmaceutical, leather and other industrial water treatment system. The practical operation shows that Techase® Multi-plate Screw Press can bring considerable economic and social benefits for users.



(Project): Visen Industries

(Industry): Textile dyeing

(Project): Shanghai Laogang Landfill

(Industry): Municipal Wastewater



(Project): Chongming Chenjiashen Wastewater Treatment Plant of Shanghai

(Industry): Municipal Wastewater

(Project): The Wastewater Treatment Project of Ho Chi Minh City, Vietnam

(Industry): Municipal Wastewater



中国石油天然气集团公司  
CHINA NATIONAL PETROLEUM CORPORATION

(Project): Karamay oilfield of Xinjiang

(Industry): Petrochemical Wastewater

(Project): The Rubber Factory of SINOPEC Qilu Branch

(Industry): Petrochemical Wastewater





(Project) : Russia UST- LUGA WWTP

(Industry) : Muncipal Wastewater

(Project) : Unilever Sri lanka

(Industry) : Chemical Wastewater



(Project) : Faw Jiefang Automotive co., Ltd Wuxi Diesel Engine Works

(Industry) : Petrochemical Wastewater

(Project) : China PEPSI (Shanghai) branch of sewage treatment plant

(Industry) : Domestic Sewage Wastewater



(Project) : Shanghai Financial Center Hang Seng Bank

(Industry) : Domestic Sewage Wastewater

(Project) : Montecarlo Ltd.

(Industry) : Waste Water Treatment



(Project) : Zhejiang Kan Specialities Material Co., Ltd

(Industry) : Papermaking Wastewater

(Project) : Medilux laboratories Pvt. Ltd.

(Industry) : Pharmaceutical





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