

Diligence Integrity Development Innovation

Techase® Multi-plate Screw Press



New Generation Sludge Dewatering Machine



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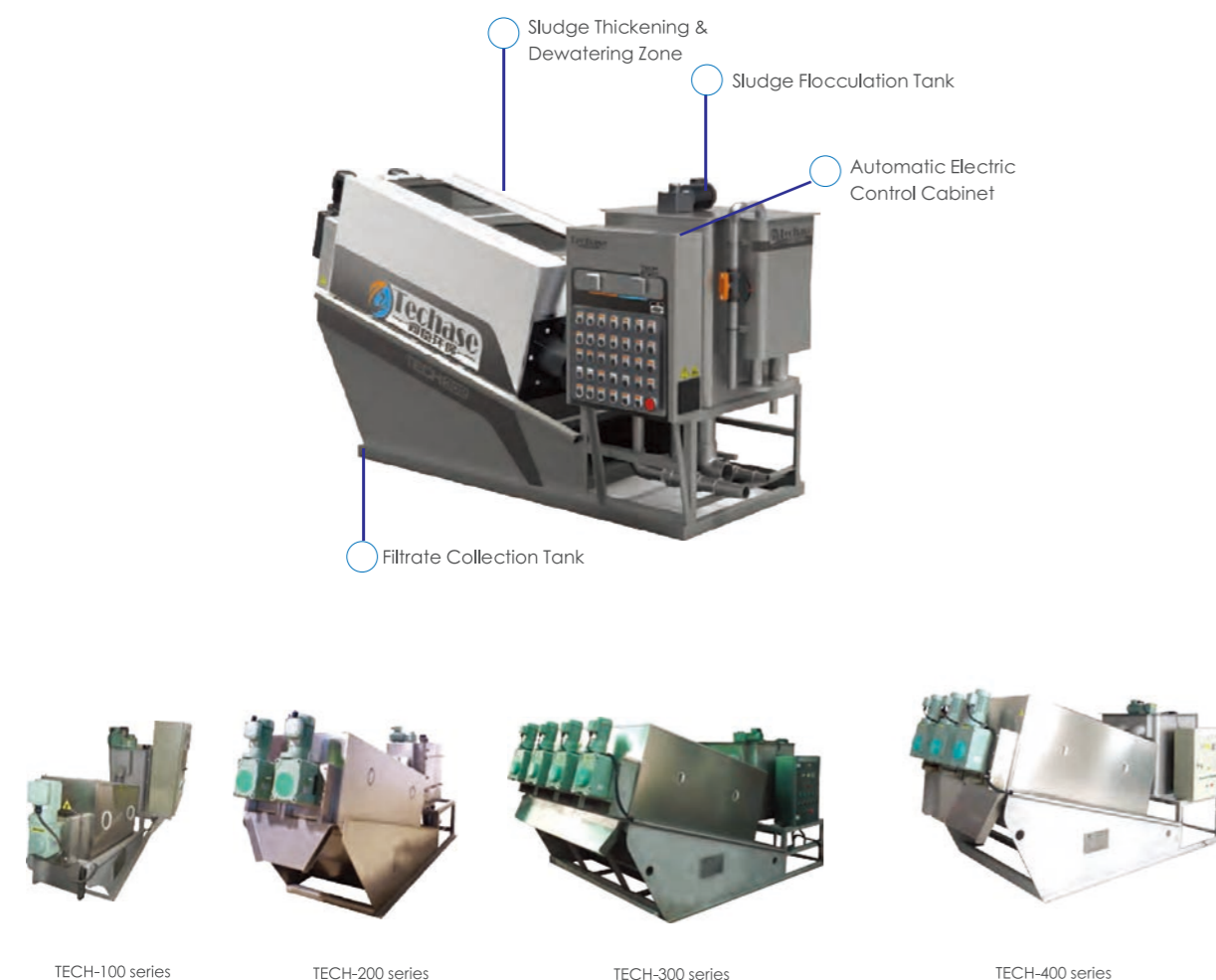
WEB : www.techase.com

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.



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:



④ 400 Series Screw Shaft (Industry First)

● The special shafts for different industry

④ Wear-free type of Multi-plate Screw Press (Industry First)

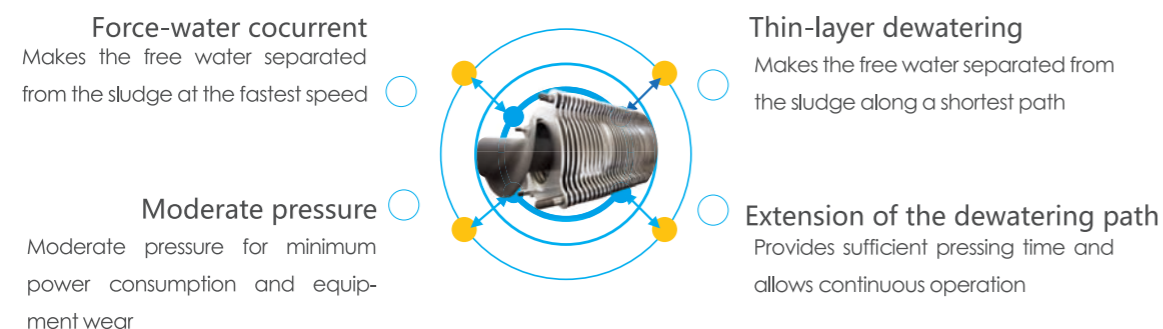
④ Special screw shaft for Sludge Thickener (Industry Only)

④ Special screw shaft and machine for inorganic material (Industry Only)

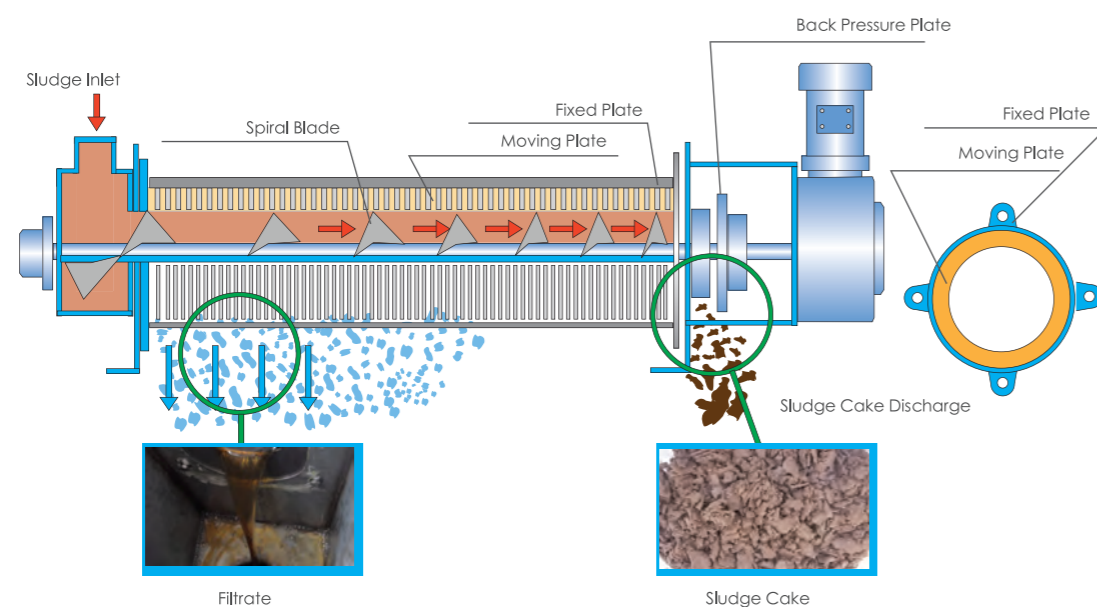
④ Special screw shaft and machine for petrochemical, pectin, paper industry (Industry Only)

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Working Principle



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.

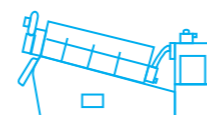


Technical Advantages

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.



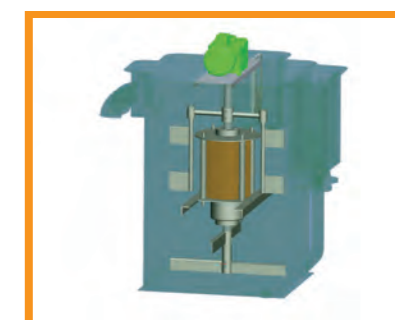
Sludge Concentration: 3000mg/L-50000mg/L

Multi-plate Screw Press



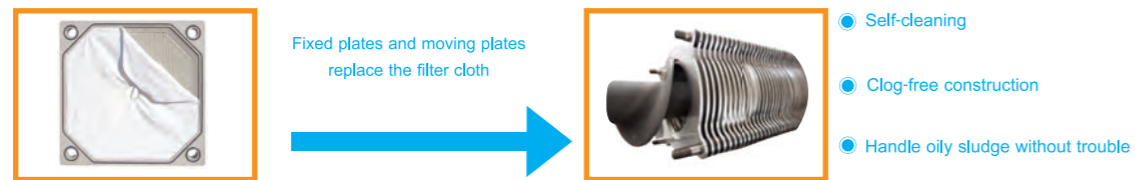
The exclusive pre-thickening device enables excellent performance while dewatering sludge with high water content

- ③ The problems of gravitational thickening disappear and highly efficient thickening is achieved.
- ③ Flocculating and thickening in same time reduce the subsequent dewatering pressure.
- ③ Adjusting the expansion valve to make the sludge to be the best state for dewatering.



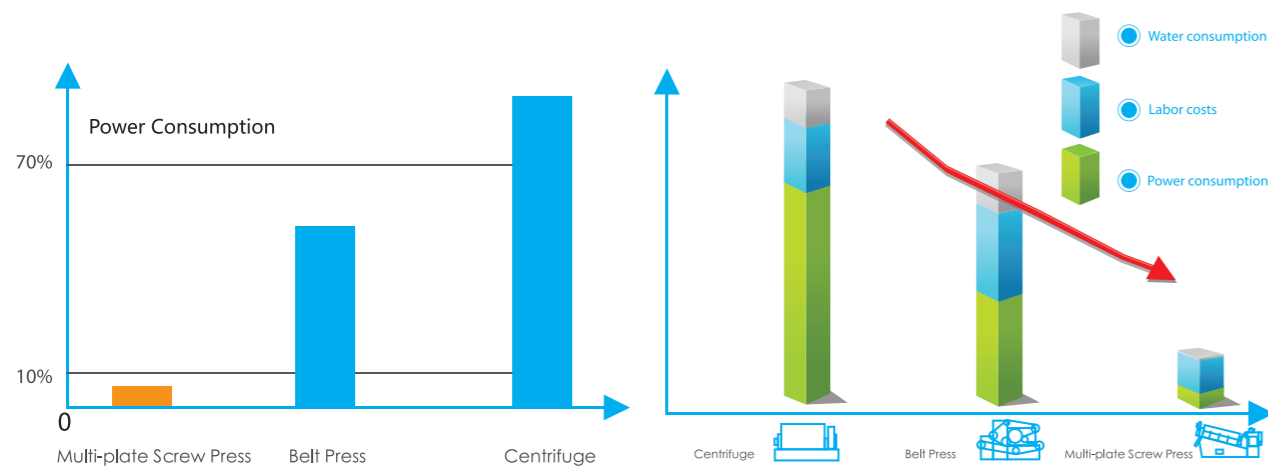
Fixed and moving plates replace filter cloth, self-cleaning, clog-free, easy to handle oily sludge

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

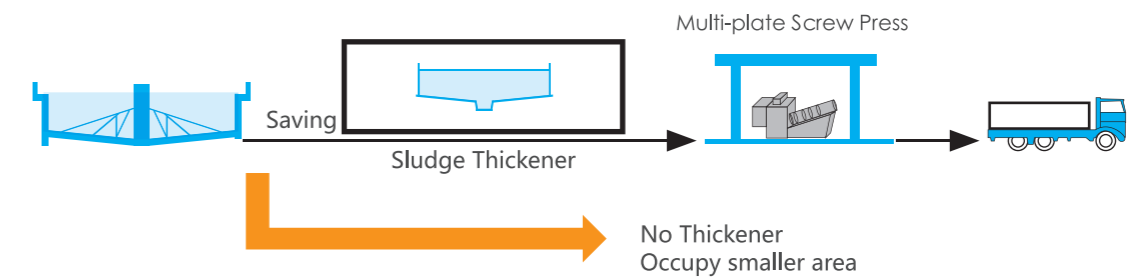
The dewatering of the multi-plate screw press relies on the inner pressure of the filter chamber and the rotating speed is as slow as 2~4 r/min. Therefore, its power consumption is as low as 0.01~0.1 kw/h/kg-DS, only 1/8 of that of belt presses and 1/20 of that of centrifugal machines. In addition, of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



Less capital construction cost, more excellent working performance

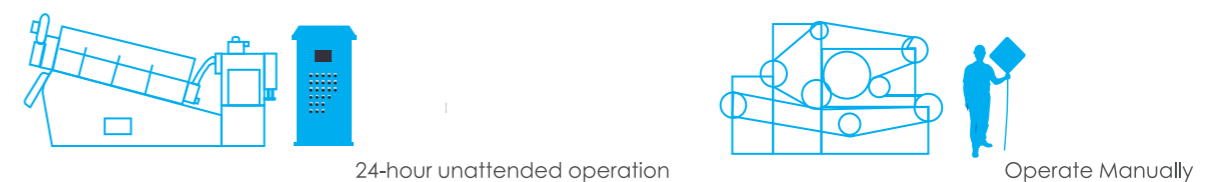
The multi-plate screw press can directly treating the sludge from the aeration tank and the secondary sedimentation tank so that the sludge thickening tank is not needed any longer. Therefore, the capital construction cost can be greatly saved and the phosphorus releasing problem is well avoided.

- 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.

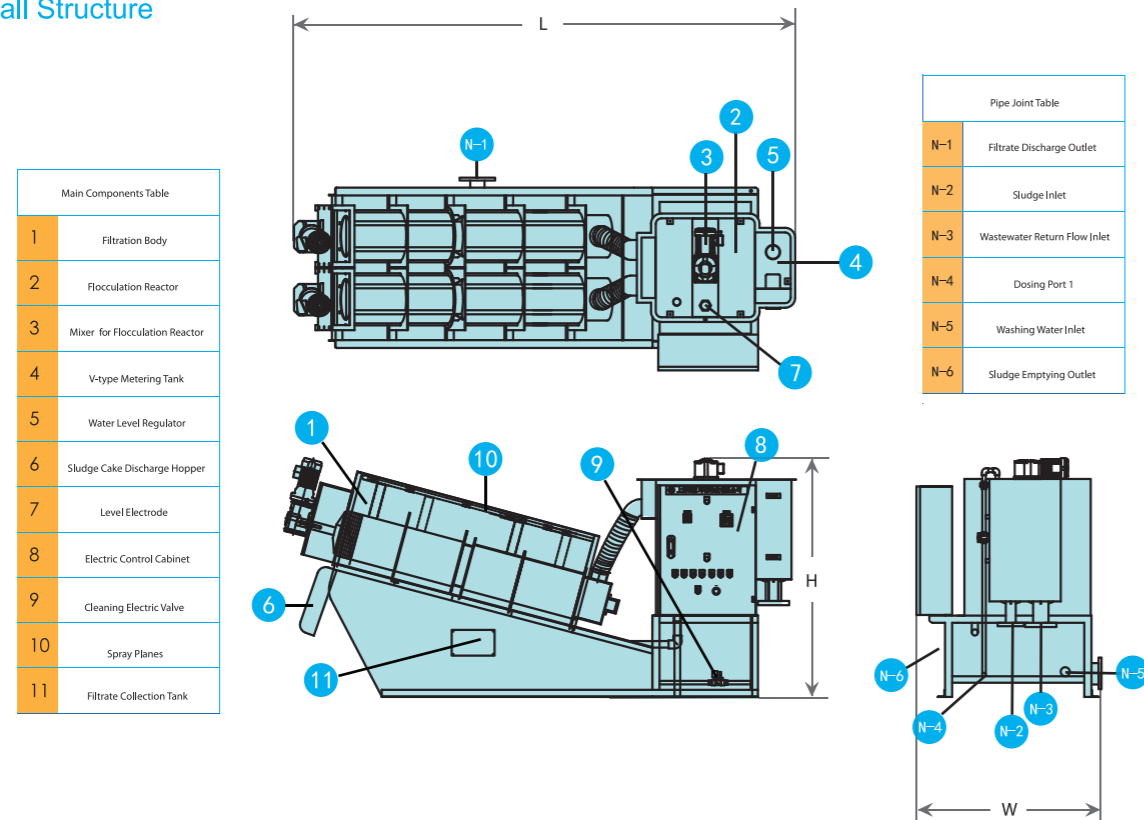


Fully automatic control, Easy operation and simple maintenance

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.



Overall Structure



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	▲	▲▲▲	▲▲▲	▲▲▲

Model List of TECH Multi-plate Screw Press

Model	Dry Solids Capacity	Dimension			Weight		Motor Power
	(kg-DS/hr)	(mm)			(kg)		(KW)
		(L)	(W)	(H)	Net	Operating	Total
TECH-101	3~5	2026	951	1170	200	300	0.44
TECH-102	6~10	2026	1052	1170	300	450	0.62
TECH-103	9~15	2029	923	1160	360	520	0.80
TECH-104	12~20	1969	1317	1160	450	700	1.17
TECH-201	9~15	2950	788	1507	400	750	0.70
TECH-202	18~30	2950	1110	1507	600	900	0.95
TECH-203	27~45	2992	1230	1507	850	1300	1.20
TECH-204	36~60	3057	1508	1507	1100	1600	1.63
TECH-301	30~50	3455	1050	1930	1000	1600	1.38
TECH-302	60~100	3580	1398	1930	1500	2300	2.13
TECH-303	90~150	3766	1636	1930	2000	3000	2.88
TECH-304	120~200	4230	2114	2030	2500	3800	3.83
TECH-401	90~150	4830	1245	2264	2000	3500	1.93
TECH-402	180~300	5040	1606	2345	3000	4500	3.03
TECH-403	270~450	5532	2038	2345	4000	7000	4.13
TECH-404	360~600	5432	2636	2345	5000	7500	5.23

Form

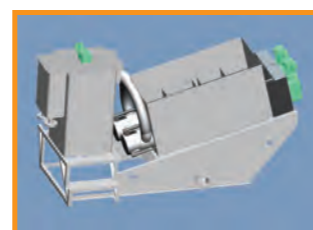
Pipe Type	MSP Model															
	101	102	103	104	201	202	203	204	301	302	303	304	401	402	403	404
Sludge Feed Pipe	DN25	DN25	DN40	DN40	DN40	DN40	DN50	DN50	DN50	DN65	DN65	DN65	DN80	DN80	DN150	DN150
Sludge Backflow Pipe	DN50	DN50	DN80	DN80	DN80	DN80	DN80	DN80	DN80	DN100	DN100	DN125	DN150	DN150	DN200	DN200
Chemical Dosing Pipe	DN20	DN20	DN20	DN20	DN20	DN20	DN20	DN20	DN20	DN20	DN25	DN25	DN25	DN25	DN32	DN32
Shower Pipe	DN20	DN20	DN20	DN20	DN20	DN20	DN25	DN25	DN20	DN25	DN25	DN25	DN25	DN25	DN25	DN25
Filtrate Discharge Pipe	DN80	DN80	DN80	DN80	DN80	DN100	DN100	DN125	DN100	DN125	DN125	DN125	DN125	DN150	DN200	DN200
Emptying Pipe	DN25	DN25	DN25	DN25	DN25	DN25	DN40	DN40	DN40	DN40	DN40	DN50	DN50	DN50	DN50	DN50

Wear Free Multi-plate Screw Press

The TECW type Multi-plate Screw Press uses the contactless, wear free structure between the plates and screw shafts, thus the life time of the screw shafts and the plates will be greatly extended. The treatment capacity of equipment and performance can be improved by combining with other optimization design.

Technical Features

- Wear free structure: contactless, wear free design between the plates and screw shafts
- Service life: shafts over 20 years and plates over 6 years
- Running speed: 4-6 r/min



Selection Table of TECW Type

Type	Dried sludge treating capacity	Dimension			Weight		Motor Power
	(kg-DS/hr)	(mm)			(kg)		(KW)
		(L)	(W)	(H)	Net	Operating	Total
TECW-101	5 ~ 10	2000	800	1200	250	480	0.35
TECW-102	10 ~ 20	2000	900	1200	400	760	0.65
TECW-103	15 ~ 30	2000	1100	1200	500	900	0.85
TECW-201	15 ~ 30	3000	900	1350	550	1000	0.65
TECW-202	30 ~ 60	3000	1200	1350	800	1400	1.05
TECW-203	45 ~ 90	3100	1500	1350	1000	1700	1.65
TECW-301	60 ~ 100	4000	1200	1670	1400	2300	1.65
TECW-302	120 ~ 200	4100	1600	1670	2000	3500	3.00
TECW-303	180 ~ 300	4200	2200	1670	2500	4000	3.80
TECW-401	135 ~ 200	4600	1400	2000	2800	4700	2.30
TECW-402	270 ~ 400	4800	2000	2000	4000	6200	4.20
TECW-403	405 ~ 600	5000	2500	2000	5800	9000	5.70

★ The actual sludge capacity = capacity for dried sludge/SS in the actual sludge (DS means dried sludge)

★ The tables are only suitable for municipal sludge calculation and the capacity of other type of sludge depends on the conditions

Special Multi-plate Screw Press

To meet the special requirements of customers from various related industries, using our technological superiority based on the industry characteristics, we continuously offer customerized and personalized solution to sludge dewatering for different industries, such as petrochemistry industry, paper industry, amyloid, chemical industry, blue-green algae, pectin wastewater, inorganic material, so on and so force.



Special Multi-plate Screw Press for Petrochemical Industry

- The filter body uses special shafts which suit the plug-flow characteristic of the petrochemical industry
- The strengthened driving system meets the requirements of the oily sludge treatment
- The moving plates and fixed plates made from more anti-corrosive materials which are adaptable to the high chloride concentration in the petrochemical industry
- The explosion protection level of the equipment reaches EXDII BT4, which meets the strict explosion prevention requirements of petrochemical industry
- Using special flocculation dosing slots for oily sludge overcomes the problem that the petrochemical sludge is difficult to flocculate and easy to sedimentate
- (Use occasions)



Offshore drilling platform; Petroleum refining units; Asphalt, rubber and other derivative petrochemical industries; and Waste oil recycling industry

Special Multi-plate Screw Press for Paper Industry

- ◎ The special shafts which fit for the paper sludge dewatering
- ◎ The driving system meets the requirements of the fiber dregs dewatering and the operating status is more adaptable to the fiber sludge
- ◎ The scraper is designed to make sure that sludge outlet is not blocked

▶ (Applicable projects)



Sludge treatment of Paper mill; Dewatering of the waste seriflux; Sludge treatment of wood-based panel factory

Special Multi-plate Screw Press for Amyloid Industry

- ◎ The Special shafts which fit for the amyloid dregs dewatering and the driving system meets the requirements of the amyloid dregs dewatering
- ◎ The structure and material of the equipment are adaptable to a higher feed material temperature of 50-70 °C
- ◎ The scraper is designed to make sure that sludge outlet is not blocked

▶ (Applicable projects)



Wheat/Corn/Cassava Starch; Soybean/Peanut/Starch protein; Xylose/Medicine/Vinegar/Juice Drinks dregs

Special Multi-plate Screw Press for Blue Algae Dewatering

- ◎ The special shafts which fit for the blue algae dewatering
- ◎ Special flocculant is used for the blue algae.
- ◎ Shipborne structure suits the operating mode that the algae are refloated while being treated

▶ (Applicable projects)

The water area where blue algal blooms occur



MSP Sludge Dewatering System

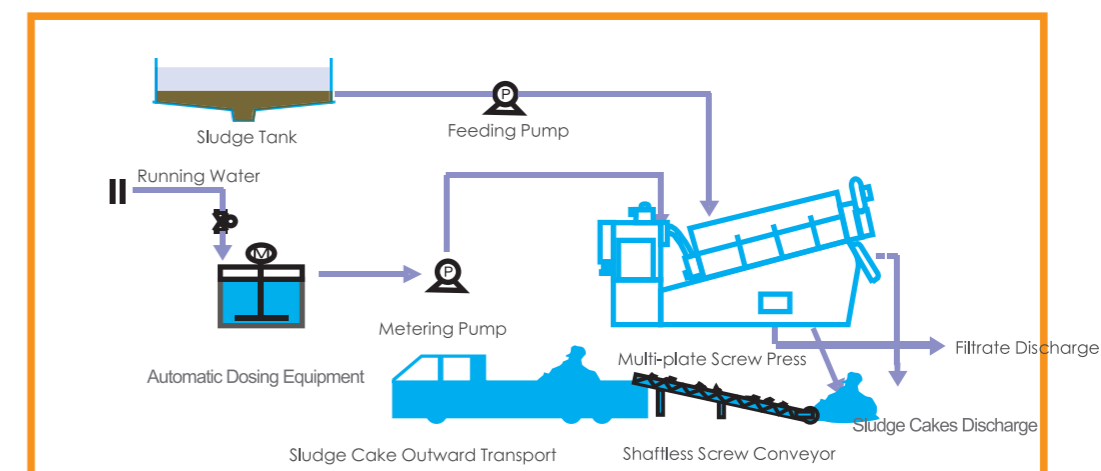
Besides the core equipment Techase® Multi-plate Screw Press, we also provide advanced environmental sludge treatment & disposal solutions for the customers as well as devices needed by the system.

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

Techase® multi-plate screw press, which has become a more and more popular sludge dewatering equipment, has been widely used in varieties of industries, including municipal wastewater treatment plant, water treatment plant, petrochemical sludge, paper making industry, fruit & vegetable processing wastewater, pharmaceutical sludge, construction slurry, livestock farming industry, etc. As a cost effective environmental technology, it has created considerable economic benefits as well as social benefits for its users.



(Project): Antarctic Zhongshan Station WWTP

(Industry): Domestic Wastewater

(Project): Shanghai Laogang Landfill

(Industry): Municipal Wastewater



(Project): Russia UST-LUGA WWTP

(Industry): Municipal Wastewater

(Project): Thailand WWTP

(Industry): Oily DAF Sludge



(Project): Karamay oilfield of Xinjiang

(Industry): Petrochemical Wastewater

(Project): The Rubber Factory of SINOPEC Qilu Branch

(Industry): Petrochemical Wastewater



(Project): Brazil CORTTEX TEXTIL LTDA

(Industry): Textile Wastewater

(Project): Hemas Sri Lanka

(Industry): Chemical Wastewater



(Project): Canada Food Ltd

(Industry): Food Processing 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): Indonesia Textile PT

(Industry): Textile Wastewater



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

(Industry): Papermaking Wastewater

(Project): Argentina Colza Oil Plant

(Industry): Oily Sludge

