



Roller Press JD series

Efficient and reliable solution
for dewatering challenging sludge



- Handles a broad variety of sludge containing high levels of minerals and fats, as well as coarse, abrasive, and fibrous inclusions.
- For municipal, industrial and agricultural sludge.
- Economical solution with minimal maintenance requirements.

The JD series Roller Press is the optimal solution for mechanical dewatering of wastewater sludge with high mineral content from municipal treatment stations, industrial, agricultural and food enterprises.

- Reliable dewatering of high mineral content sludge without abrasive wear and jamming;
- Highly efficient in dewatering various types of sludge;
- No issue with sludges with high fat and oil content;
- Corrosion resistant due to the use of stainless steel and high-strength plastic;
- Simple maintenance and operation.

High mineral content sludge dewatering:

- 6-10 times sludge volume reduction – thus making problematic sludges possible for disposal;
- No jamming;
- Low wear;
- Maximum reliability.



Dewatering efficiency of JD Roller Press:

- JD Roller Press efficiently dewateres different kinds of sludges with wide range of sludge concentration (0.5 to 30%).
- Cake dryness depends on sludge water release properties and can reach even up to 65%.
- Reliable solution for dewatering of sludge with high mineral content (~ 60%).



Application Area:

The JD Roller Press efficiently dewateres various types of challenging sludge, including those with large, abrasive and fibrous inclusions and high fat content. This solves the problem of disposal of wastewater sludge in a variety of areas:



Dewatering of sludge from small and medium-sized municipal wastewater treatment plants;



Semiconductor and automobile factories;



Food industry (dairy, meat, fish, beer and many others food processing plants);



Biogas plants;



Textile and tannery industry;

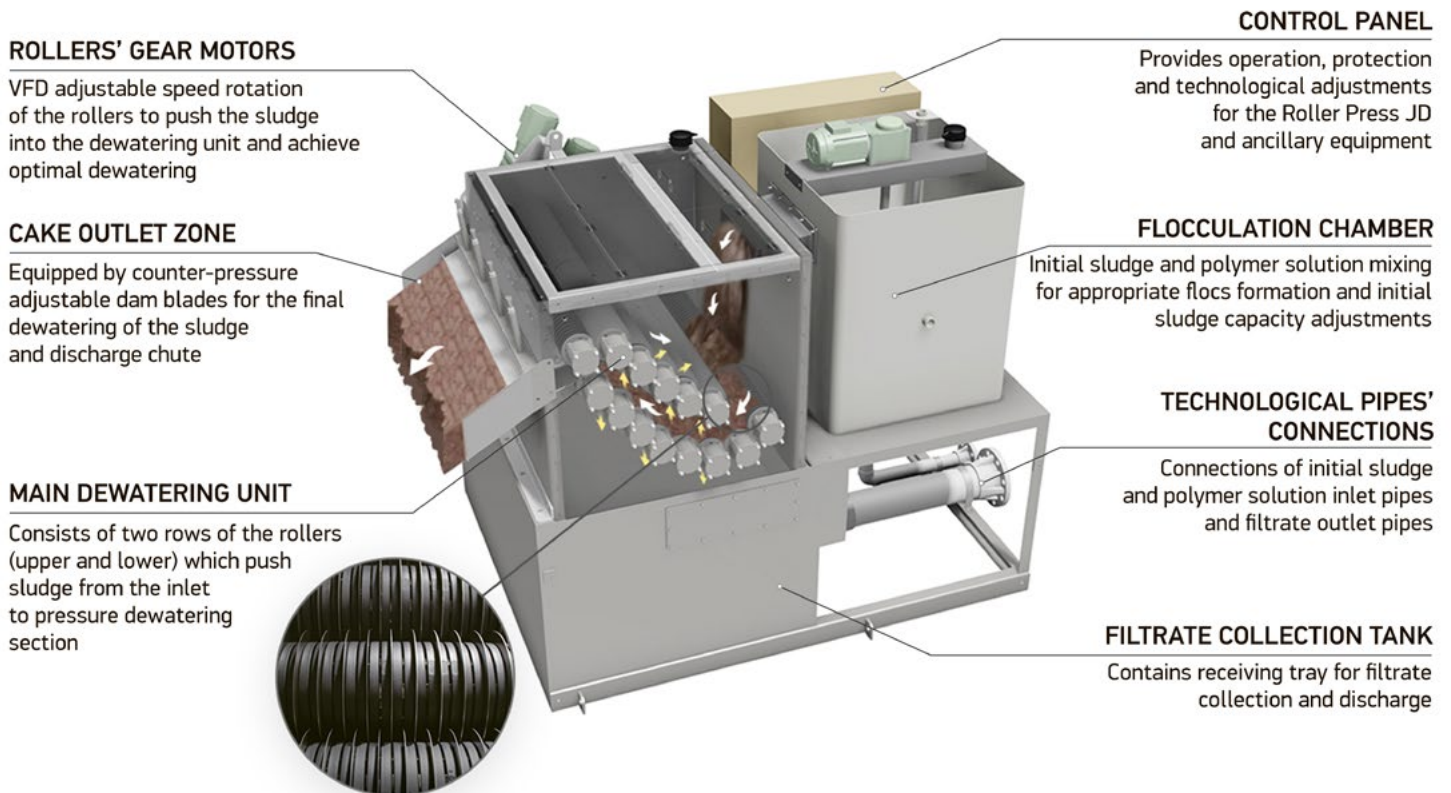


Cosmetics, pharmaceutical industries;



Pulp-and-paper and woodworking industries.

JD Roller Press Design



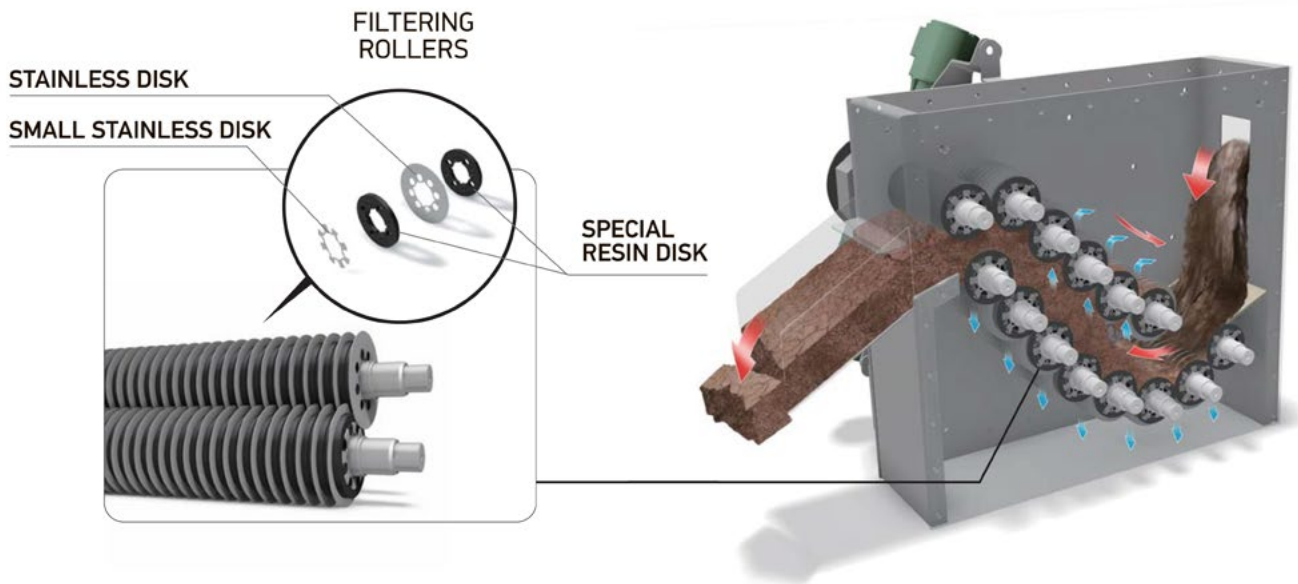
JD Roller Press utilize both gravity filtration and pressure dewatering systems. The “filtering rollers” consist of alternating thin metal disks and resin disks, and are arranged in two (upper and lower) tiers. The flocculated sludge is fed between the rollers and dewatered by compression while being conveyed toward the sludge outlet by the rotating action of the rollers. Not only is the system highly energy efficient, the disks are self cleaning and do not clog.

Flocculation chamber creates superior flocules:

- Multiple reagents technology can be applied (flocculation with coagulation if required).
- Mixing speed is variable.

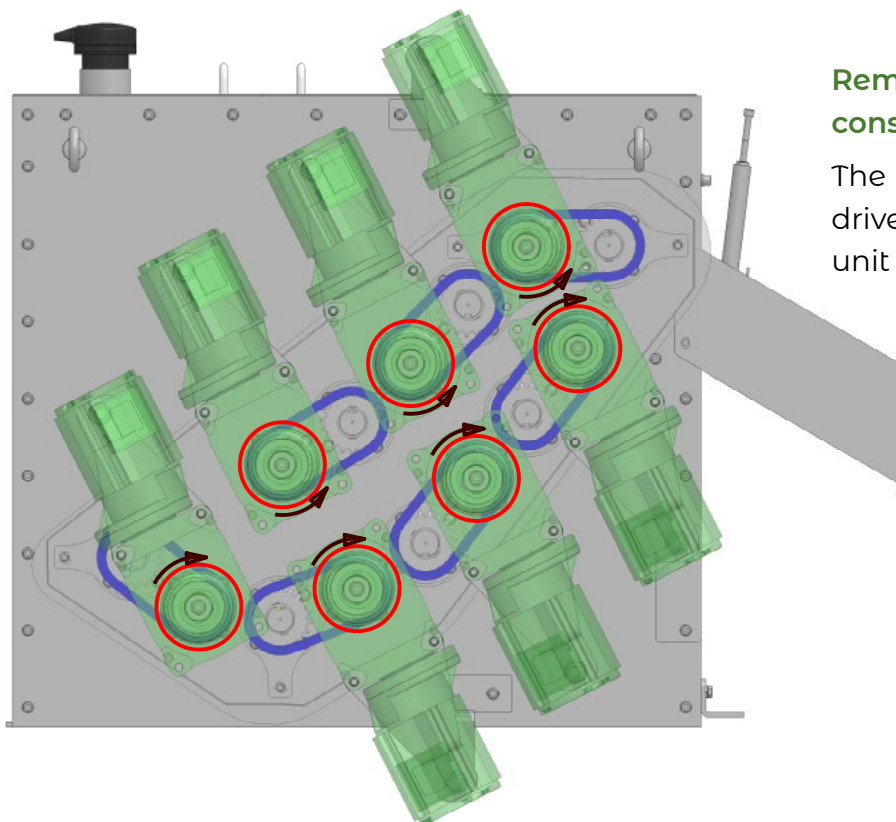
Well-grown sludge flocules are fed to the dewatering unit through overflow by gravity reducing the chances of damaging flocules from pumping. An operator can visually control the flocculation process and adjust it to achieve the best possible results.

Mechanical Principle and Structure of Filtering Rollers



Motors Diagram

JD Roller Press has from 7 to 10 gear motors – for filtration and dewatering sections. Each motor drives two shafts. It is possible to change rotation speed ratio of these two sections.



Remarkably low energy consumption

The total nominal power of the drives of the main dewatering unit is up to 3 Hp.

Advantages and Effective Technical Solutions

- Possibility of dewatering sludge with low organic content, high content of abrasive particles, fibers, fats, oils and petroleum products.
- Reliable operation without abrasive wear and jamming.
- The distance between the rows of the upper and lower rollers is at least 1 1/4", which allows working with sludge with large and fibrous inclusions without clogging the main dewatering unit with cake.
- Self-cleaning rollers design eliminates clogging problems and the need to shut down equipment to clean the filter surface.
- The self-cleaning effect of the filter pores eliminates the need for rinsing water.
- The equipment consumes significantly less energy than other dewatering systems.
- The total nominal power of the drives of the main dewatering unit is up to 3 Hp.
- The press has a compact and enclosed design which requires a small installation footprint.
- Low cost of operation.
- Reduced capital construction costs.
- Can be installed in a container, on flatbed trailer or in wastewater treatment plants.

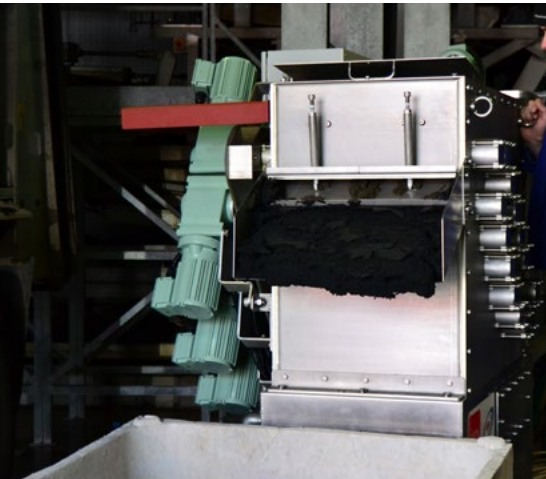


Simplicity, Reliability and Ease of Operation

- Low speed of rotation of the rollers (up to 1.5 rpm), and as a result, absence of noise and vibration during the operation.
- As a result of low operational speed, very little wear to main components and minimal routine maintenance.
- Simple maintenance can be performed by local personnel without special training.
- Quick access to the main parts of the assembly.
- Protection against incorrect process settings and overflows.
- Built-in sludge conditioning (flocculation) system that does not require additional equipment and tanks.
- Simple and better flocculation adjustment due to easy access to the process tank.
- Convenient ergonomics (quick release covers).
- Simplified access to drive maintenance.
- Motors overload and surge protection.
- Advanced automation: various modes and algorithms of work, synchronization of the dewatering complex with other equipment of treatment facilities.



More than 800 JD Roller Presses are installed and operate worldwide.



References

1) Food industry (Potato chips) wastewater treatment plant

Two units are installed at a food production plant (Potato chips) and are designed for dewatering of mixture of excess sludge and settling tank sludge. Inlet sludge DS concentration is 10.3% (VSS 43%) and outlet cake DS concentration is 30%.

2) Semiconductor Industrial Area

Two units are installed at a semiconductor production factory and are intended for the dewatering of excess sludge with lots of inorganic (raw material). Inlet sludge DS concentration is 4.7% (VSS 36,9%) and outlet cake DS concentration is 17%.

3) Automobile Assembly Factory wastewater treatment plant

One unit is installed at an automobile factory wastewater treatment plant and is dedicated for the dewatering of mixture of excess sludge and DAF sludge with lots of inorganic (paint and aluminum powder). Inlet sludge DS concentration is 2.2% (VSS 60%) and outlet cake DS concentration is 33%.

4) Biomass Power Plant

Three units are installed at a biomass power plant and are designed for the dewatering of anaerobically digested sludge. Inlet sludge DS concentration is 2.24% (VSS 60.5%) and outlet cake DS concentration is 20.5%.

5) Waste landfill

One unit is installed at a waste landfill site for the excess sludge dewatering. Inlet sludge DS concentration is 4.5% (VSS 25%) and outlet cake DS concentration is 19%.

6) Automobile Assembly Factory WWTP (Painting booth, Aluminum casting) sludge

One unit is installed at an automobile assembly factory wastewater treatment plant and is dedicated for the dewatering of mixture of excess sludge and DAF sludge (painting booth, aluminum casting). Inlet sludge DS concentration is 5.8% (VSS 40%) and outlet cake DS concentration is 27.3%.

Productivity of JD Roller Press

Model	Sludge concentration, %							
	Treatment capacity (lbsDS/h) / hydraulic capacity (gpm), up to*							
	0.5%		1%		3%		5%	
	lbsDS/h	gpm	lbsDS/h	gpm	lbsDS/h	gpm	lbsDS/h	gpm
JD-250	13	5	22	5	33	2	44	2
JD-500	29	11	44	9	66	5	88	4
JD-750	40	16	66	13	99	7	132	5
JD-1000	53	21	88	18	132	9	176	7
JD-1500	79	32	132	26	198	13	265	11
JD-2000	106	42	176	35	265	18	353	14
XJD-1000	141	56	236	47	353	23	470	19
XJD-1500	212	85	353	70	529	35	705	29
XJD-2000	282	113	470	94	705	47	941	37

* The press throughput depends on the sludge TS concentration and sludge properties.

JD Roller Press data sheet

Model	Nominal Power, Hp	Dimensions, in				Weight, lbs	
		Width of Filtering Rollers	Length	Width	Height	Dry	Operating
JD-250	1	9.8	80	30	57	1,698	25,35
JD-500	2	19.7	87	41	72	2,425	3,527
JD-750	2	29.5	93	51	72	2,866	4,343
JD-1000	3	39.4	92	60	72	3,307	5,225
JD-1500	2	59.1	106	83	78	4,189	5,952
JD-2000	2	78.7	113	103	82	4,960	8,157
XJD-1000	4	39.4	152	66	89	7,716	11,023
XJD-1500	4	59.1	163	86	89	9,039	14,771
XJD-2000	4	78.7	171	106	89	12,125	17,637

Long Service Life Due To:

- JD Roller Press made of AISI 304 or AISI 316 stainless steel.
- Anti-corrosive treatment: volume pickling and passivation.
- Use of heavy-duty rollers drive chains.
- Disks material is epoxy-based wear-resistant plastic and stainless steel.
- The rollers drive shafts are made of special extra strong stainless steel.

Solving Sludge Challenges with Expert Dewatering Solutions



Multi-disk Screw Press MDQ/MDQ-C series

- For municipal and industrial waste water treatment plants;
- Minimal service requirements;
- The productivity of single unit is up to 352 gpm (6,172 lbDS/h).

The dewatering process of the MDQ Multi-disk Screw Press utilizes minimal amounts of energy, flocculant and rinsing water as well as the consumption of wear parts. The process requires a minimal amount of operator attention and staff supervision compared to other dewatering equipment.

The dewatered sludge after treatment in the multi-disk screw press can reach a dry solids content of 18-35% with an average flocculant dose of 3.3 - 7.7 lb/t.



Sludge Thickener MDQ-T

MDQ technology adapted for thickening is a new way to concentrate sludge from municipal and industrial wastewater treatment plants. ESMIL MDQ-T multi-disk screw press thickeners are reliable, productive and space-saving equipment while consuming a minimum amount of energy, water and reagents, as well as requiring minimal operator's and maintenance personnel's attention.



MODULE D

Containerized Dewatering Plant based on multi-disk screw press MDQ ESMIL.

- Fully autonomous factory-ready installation (plug-and-play technology);
- Minimum requirement for design and permits;
- Compact design in 20' and 40' sea containers;
- Low operating costs (low consumption of reagents, wash water and electricity);
- Simplicity and ease of use – the complex is fully automated, remote control from a smartphone is possible;
- Mobility – the ability to easy transport of the unit from one site to another.



Screw Conveyor

- Wide range of performance and applications.
- Available configurations: suitable for transporting various types of waste or sediments over long distances.
- Possibility of installation at different angle up to 90 degrees.
- The modular design of the screw conveyors allows a wide range of configurations.
- The conveyor may be hermetically sealed together with other units of wastewater treatment equipment.
- Special liners of high-hardness steel alloys used in the casing, allow transportation of abrasive materials.
- The minimal gap between the trough and the screw guarantees high productivity.
- Production of conveyors in two versions: pushing or pulling.
- Flexible control of the conveyor operation, reduction of energy consumption and protection against power surges, which is ensured by the use of frequency control.



ESMIL Group



ESMIL Corp, a proud member of the Esmil Group, stands as a distinguished leader in the field of wastewater treatment equipment production. We specialize in the design and delivery of top-quality equipment, serving both municipal wastewater treatment and various industries such as food processing, cement, chemicals, coal, and metals.

The Esmil Group offers a wide-ranging product portfolio, comprising over 45 types of mechanical treatment, biological treatment, and sludge dewatering equipment. Our primary focus is on providing reliable and efficient solutions that consistently meet the highest industry standards.

In 2016, Esmil expanded its presence in North America with the establishment of a state-of-the-art manufacturing facility in Akron, Ohio. This strategic localization enables us to meet our clients' needs with high-quality equipment. Today, we proudly manufacture in the USA, adhering to rigorous industry standards, and comply with the BABA program policy, American Steel policy, and American Welding Society standards.

Our core expertise in the USA lies in sludge dewatering solutions for various industries. We offer a comprehensive range, including Multi-disk Screw Presses (MDQ/MDC series), JD Roller Press, Sludge Thickeners, and containerized sludge dewatering systems.

At present, ESMIL Group stands as an established company that seamlessly combines production capabilities with high-quality standards and engineering prowess in the development of equipment tailored to meet customer-specific needs. Our company thrives by manufacturing equipment for complex projects dedicated to safeguarding water resources, promoting urban ecological balance and advancing zero-waste production practices. Esmil has firmly established itself as a trusted partner among the world's leading engineers and EPC companies.



ESMIL Corp

3939 Mogadore Industrial Parkway,
Mogadore, Akron OH 44260

+1 (646) 286 5512
info@esmil.us