ESMIL

MODULE D

Containerized Dewatering Unit

based on Multi-disk screw press MDQ

CONNECT AND DEWATER!

Mobile Dewatering Unit

ESMIL Module D mobile dewatering unit is a new series of mobile plants for dewatering industrial and municipal wastewater sludge, supplied in standard 20 feet or 40 feet containers. The dewatering technology is implemented using the reliable and highly efficient MDQ ESMIL Multi-disk screw press.

What you need to do to commission the unit, is just to connect the module and select the operating mode. Depending on the performance and intended use, the ESMIL Module D unit can be used as a rental or permanent solution.

The high degree of automation and the ability to remotely control eliminates the need for highly qualified maintenance personnel, while the modular design reduces capital costs.

Applications of ESMIL containerized dewatering units:

- wastewater treatment plants;
- water treatment plants;
- food processing plants;
- biogas plants;
- oil and gas industry;
- ... and other industries.

What tasks does the MODULE D solve?

- Dewatering of industrial sludge;
- Dewatering of sewage sludge;
- Pilot and industrial tests;
- Increasing the performance of existing treatment plants;
- Dewatering of sludge at several sites or outside of wastewater treatment plants;
- As a temporary solution: during the reconstruction of treatment plants, repair of out-of-order equipment, etc.

Technical and technological characteristics of the mobile units based on MDQ presses

MDQ Press Model	20X	40X	50X
Capacity, gpm			
raw sludge	2.20 - 11	88 - 440	176 - 748
excess activated sludge	4.4 - 17.6	13.2 - 66	22 - 132
excess activated sludge (thickened)	1.3 - 8.8	4.4 - 22	8.8 - 44
aerobically stabilized activated sludge	4.4 - 17.6	13 - 66	26.4 - 110
dairy wastewater sludge	4.4 - 17.6	13 - 66	26.4 - 110
meat processing wastewater sludge	8.8 - 26.4	26.4 - 110	44 - 220
cosmetics production wastewater sludge	4.4 - 8.8	6.6 - 30.8	13.2 - 52.8
Dewatering drum, in	8	16	20
Number of drums	1-4	1-4	1-4
Container size, ft	20	20 - 40	20 - 40
Module footprint, ft^2	175	175 to 345	175 to 345
Installed power of equipment*, Hp	4-7	7-20	20 - 67
Water consumption for flushing, gal/h	0.8 - 35	23 - 92	29 - 87
Water consumption for flocculant preparation, gal/h	13-132	53-530	79-208
Screw press material	AISI 304/316	AISI 304/316	AISI 304/316

* only process equipment, the capacity of additional systems depends on configuration.

Advantages of ESMIL Module D mobile dewatering unit

- **Ready-to-use equipment.**
  All equipment that is a part of the dewatering unit is mounted in a container at the ESMIL production facility. The installation arrives at the site completely ready-to-use: what you need to put the plant into operation, is simply to connect it to the existing utility networks and configure the parameters of the equipment operation (plug-and-play technology).

- **High dewatering efficiency.**
  The sludge dewatering technology is based on the MDQ ESMIL multi-disk screw press - one of the most reliable and efficient types of dewatering equipment on the market. The standard-size range of presses includes more than 20 models, the capacity of one piece of equipment is 0.22 gpm (6.6 to 11 111 lbDS/h), which allows meeting the needs of both large enterprises and small treatment facilities.

- **Minimum need for designing.**
  The product range of dewatering systems has already been designed and developed, there are all the certificates for the equipment, the only thing you need to do, is to tie a ready-made solution to the project. A ready-to-use solution allows you to reduce the time for design and approval of documentation, as well as the associated costs.

- **No odors.**
  The Module D dewatering unit can include an air purification system, which will minimize the sanitary protection zone.

- **Simple and easy operation.**
  All equipment is fully automated, there is an option to control the dewatering unit using a smartphone. Flexible settings of the parameters of the technological process allow you to adapt the operation of treatment plants to the individual characteristics of the facility. A cozy office with heating, ventilation, lighting and a fire and security system is provided for the maintenance personnel.

- **Minimum operating costs.**
  Sludge dewatering is carried out using MDQ ESMIL multi-disk screw presses, which are characterized by low consumption of rinsing water and chemicals. The unique design of the dewatering drum ensures its reliable and efficient operation for even 50,000 working hours, and the press requires minimum intervention by the maintenance personnel.

- **Compactness.**
  The Module D dewatering unit as a 20- or 40-feet container occupies only 172 to 344 ft^2 respectively! It can be easily deployed in a confined area of a wastewater treatment plant, a factory or even a marine vessel.

- **Mobility.**
  It is possible to use the dewatering unit both in stationary conditions and for sludge treatment at various facilities. The body of the installation is made on the basis of a sea container with high strength and uniform dimensions, which makes it possible to transport equipment to the site by widely available modes of transport.

- **Possibility of quick modernization or productivity increase**
  by installing additional dewatering drums in the installed press or by supplying additional modules.

- **Additional options *.**
  The availability of a large number of additional options, such as control of various parameters of the sludge treatment process, various degrees of automation, individual climatic performance, as well as additional equipment at the request of the client.

** See page 7 for an example of a complete set*

Press MDQ-503C

Heat recovery ventilation system

Sludge macerator
It is designed to crush possible large inclusions in the composition of the sludge to protect the pumps

Dewatering drum
The heart of the press, designed for sludge dewatering

Diesel generator
It provides the ability to work without an external power source in the field, at treatment plants during construction/repair, in case of insufficient external power

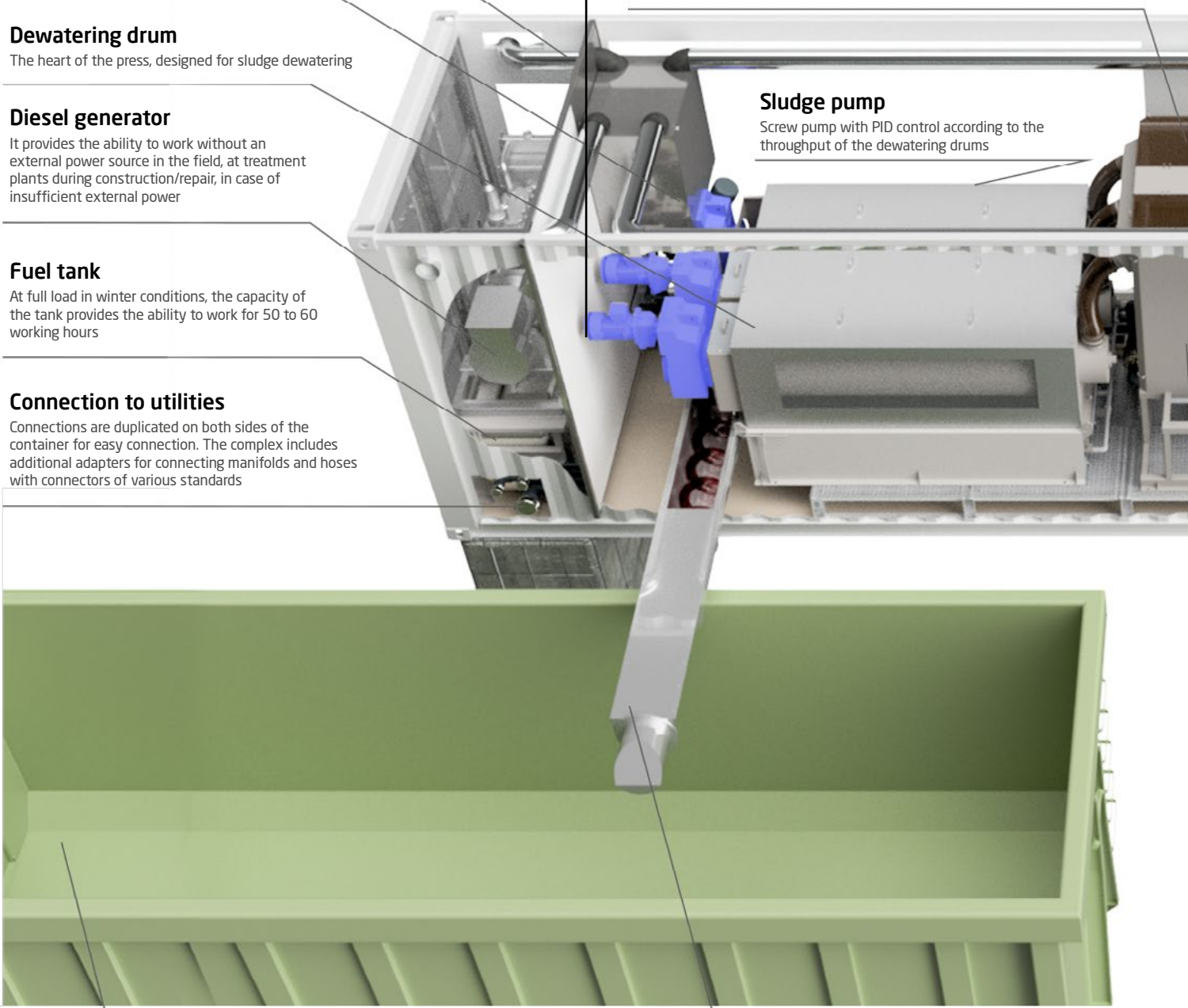
Fuel tank
At full load in winter conditions, the capacity of the tank provides the ability to work for 50 to 60 working hours

Connection to utilities
Connections are duplicated on both sides of the container for easy connection. The complex includes additional adapters for connecting manifolds and hoses with connectors of various standards

Dynamic mixer
Special device for mixing the sludge with the flocculant solution

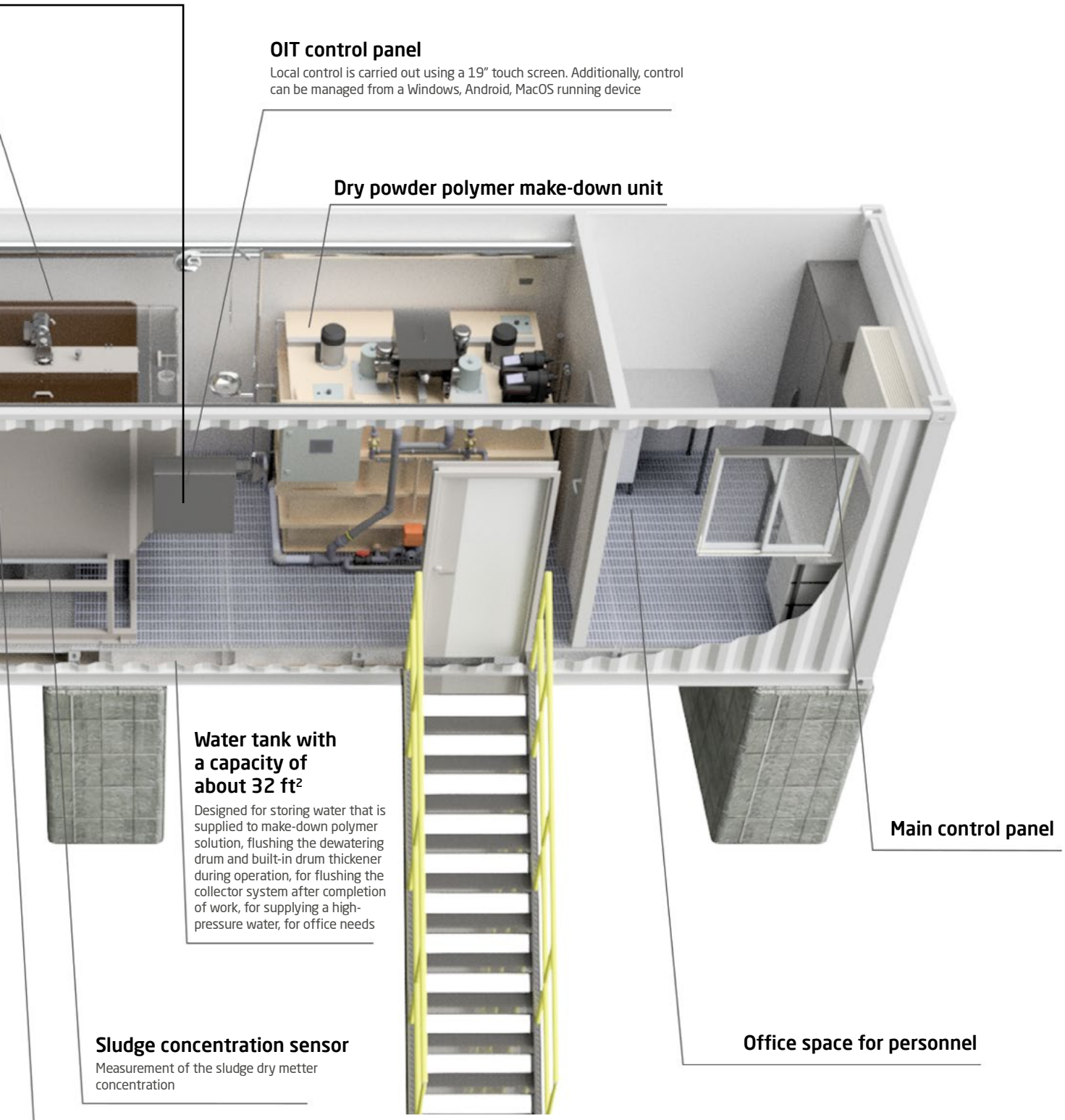
Drum sludge thickener
It is designed to release free water already in the flocculation chamber to ensure the supply of thickened sludge to the dewatering drum, thereby increasing its efficiency

Sludge pump
Screw pump with PID control according to the throughput of the dewatering drums



Dewatered sludge conveyor
It consists of a horizontal stationary part and an inclined pivot arm. In the transport position, the boom is retracted inside the container, in the working position it rotates for 90 degrees around the vertical axis. Unloading height is +2200 mm.

Cake dumpster



OIT control panel
Local control is carried out using a 19" touch screen. Additionally, control can be managed from a Windows, Android, MacOS running device

Dry powder polymer make-down unit

Water tank with a capacity of about 32 ft²
Designed for storing water that is supplied to make-down polymer solution, flushing the dewatering drum and built-in drum thickener during operation, for flushing the collector system after completion of work, for supplying a high-pressure water, for office needs

Main control panel

Sludge concentration sensor
Measurement of the sludge dry metter concentration

Office space for personnel

Flocculation chamber
Tank with mixer for additional stabilization of the flocculation process

Multi-disk screw press MDQ

It provides the most efficient dewatering of municipal wastewater treatment plants and a wide range of industrial sewage sludge, containing fats, oils and fibrous inclusions.

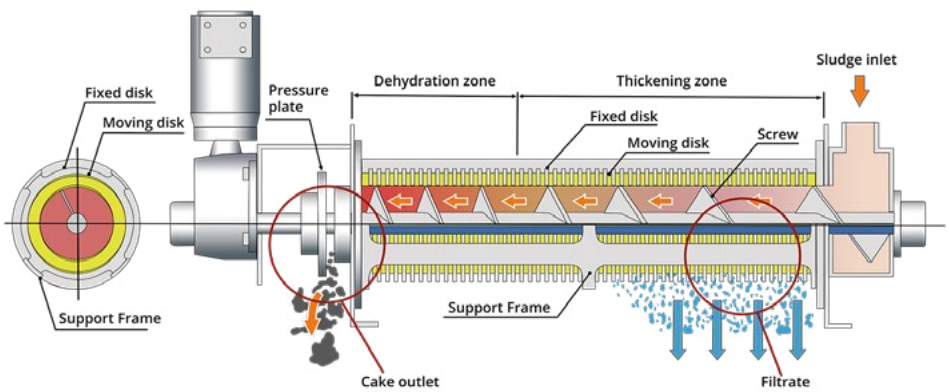
The MDQ presses can process the most difficult sludge:

- dewatering of various flotation sludge types;
- dewatering of fatty and oil-containing sludge;
- 24 models of various capacities;
- reduction of sludge volume by 10-15 times on average.

Advantages of MDQ multi-disk screw presses:

- Low consumption of electricity, wash water and chemicals;
- Dewatering of sludge with a high content of fats and oils, as well as with fibrous inclusions;
- Self-cleaning mechanism for stable and continuous operation;
- Increased durability of the dewatering drum;
- Multi-drums design;
- High quality materials and components;
- Low capital and operating costs.

Unique design of the dewatering drum guarantees reliability and durability of MDQ multi-disk screw presses



- **The thickness of drum discs is 1/8",** which is more than that provide other manufacturers, ensuring a greater structural strength and a long wear life.
- **The discs are only made of stainless steel:** we do not use plastic, thus, providing the most reliable design.
- **The discs are assembled inside of a carrier frame** to get a more rigid structure than when using insert pins by other manufacturers.
- **The discs have the maximum width and inner diameter** to get a more rigid structure with the largest internal volume, affecting the maximum possible performance.
- **The screw edge is protected with a hard metal layer,** the service life is over 10 years.

Module D Dewatering Unit Specifications

Module D	
Press model	200, 400, 500 series
Equipment (standard)	• MDQ multi-disk screw press; • polymer make down unit; • main control panel; • sludge pump; • polymer pump; • flow meter; • cake conveyor*; • fire protection system; • HVAC.
Equipment (optional)	• sludge macerator; • water tank; • diesel generator; • dynamic mixer; • sludge concentration sensor; • water heating system for flocculant solution; • screw sludge thickener; • drum sludge thickener (integrated); • flow meter for polymer solution; • odor-proof design; • air purification system; • separate collection of filtrate; • automatic fire-protection system.
Connections	Required connections: • sludge feed line; • drain line. • potable water; • power supply.

* ESMIL Module D based on 501 C model can be equipped with a pivot cake conveyor.

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

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