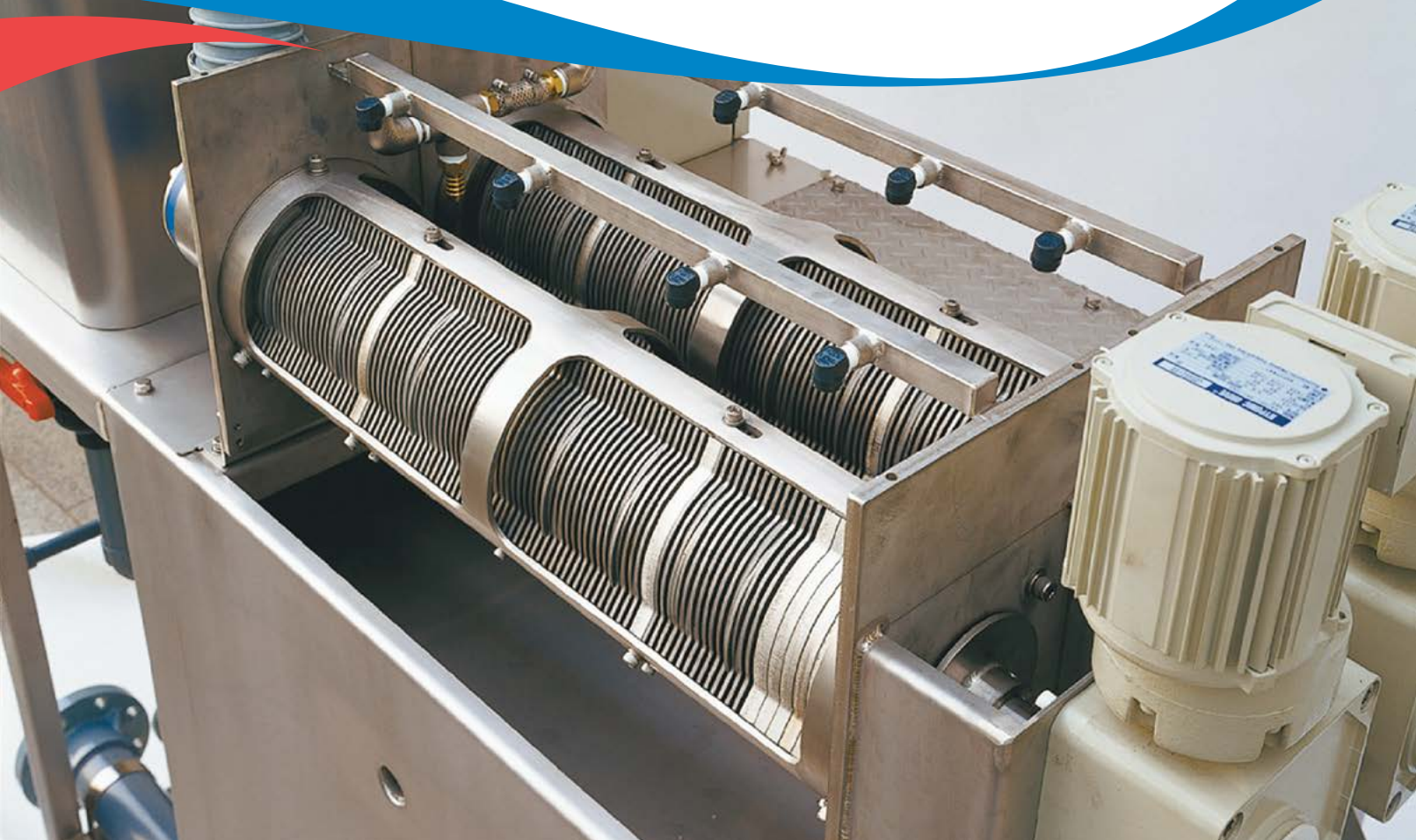




Multi-disc Screw Press Dehydrator

MDQ/MDQ-C series



EKOTON INDUSTRIAL GROUP



EKOTON Industrial Group is a leading manufacturer of equipment for wastewater treatment.

EKOTON Industrial Group focuses in development, production and implementation of modern high quality technological equipment dedicated to municipal wastewater treatment as well as industrial applications in food process, cement, chemicals, coal and metal process enterprises.

Our company produces more than 35 different types of equipment for mechanical treatment, biological treatment and sludge dewatering. A wide range of EKOTON brand products allows us to offer our customers complex solutions using the equipment we produce.

In 2011 our company signed an official contract with Japanese company Tsurumi Pumps for the licensed manufacturing of Multi-disc Screw Press Dehydrators MDQ/ MDQ-C. Since that time we have manufactured more than 40 units of the Dehydrators.

Our company's production plants are located in Poland, Ukraine and Russia. More than 300 highly qualified specialists of EKOTON Industrial Group work to provide high quality services and equipment.

EKOTON equipment successfully operates in 32 countries: Bangladesh, Belarus, Bulgaria, Canada, China, Chile, Colombia, Germany, Hungary, India, Italy, Iran, Israel, Kazakhstan, Latvia, Lithuania, Moldova, Philippines, Poland, Romania, Russia, Saudi Arabia, Singapore, Spain, Netherlands, Turkmenistan, Ukraine, United Arab Emirates, United Kingdom, USA, Uzbekistan and Vietnam.

MDQ/MDQ-C Dehydrators

MDQ/MDQ-C Dehydrators are intended for mechanical dewatering of industrial and municipal wastewater sludge

Applications

- Excess sludge from biological processes.
- Coagulated sludge.
- DAF sludge from various industries.
- Different types of mixed sludge.



Multi-disc Screw Press Dehydrator MDQ EKOTON TSURUMI was awarded the Grand Prix at the International Exhibition Fair of Machines and Devices for Water Lines and Sewage Systems WOD-KAN 2013 (Bydgoszcz, Poland).

Advantages

- **Energy saving + compact design**

MDQ/MDQ-C series energy saving is achieved by construction features. Machine is designed to dehydrate sludge by gravity filtration and screw volume reduction with pressure. The equipment construction is compact and includes all necessary accessories controlled by a control panel mounted on the same base. Therefore, it can be installed in a very limited space.

- **Self-cleaning mechanism**

The filtration surface (drum) consists of two types of discs, which assembled together makes a self-cleaning mechanism. Therefore, it clogs seldom and equipment can run continuously.

- **Capable to treat Oil-contained sludge**

Equipment can dehydrate sludge with high oil&grease concentration. It is an optimal solution for treating oily DAF sludge at food processing factories, where filter systems and centrifugal separation is hardly possible. Thus, the equipment boasts a higher solid capture rate.

- **Minimal secondary pollution and maintenance**

The Dehydrator main unit - dewatering drum, is of a semi-enclosed construction and runs at an extremely low speed. Therefore, sludge does not splatter from the equipment. The Dehydrator is of an eco-friendly design that generates low noise and vibrations, and emits no odours.

- **Capable to treat low concentration sludge**

The Dehydrator includes both gravity thickening and dehydration compression zones. Therefore, it can cope with a sludge concentration range from 0.3-0.5 to 10% of DS content.

- **Continuous automatic operation**

Due to the way the equipment is constructed to avoid clogging, washing is not needed in order to restore original filtration performance. Only showering with a minor amount of water is necessary in order to wash away sludge that leaks from the dehydration zone. Thus, the amount of wash water is minimal.

- **Unattended continuous automatic operation**

Operators can turn on the automatic operation mode of the Dehydrator and related equipment by simply pushing the button on the control panel included. In this case dehydrator is putted in automatic operation according to programmed operation algorithms.

- **Wide product range**

Screw Press Dehydrators are available in a wide range, with treating capacity ranges from 3 to 5 000 kg of DS/hour, with a maximum of 6 dewatering drums. Customers can select from 24 models of equipment according to the size of the targeted wastewater treatment plant.

- **Multi-shaft construction**

When two or more dewatering drums are present in one machine, any individual drum can be serviced while others are in operation without interruption.

References

1) Industrial wastewater treatment plant SBR (Savannah, United States)

One unit is installed at an Industrial WWTP and is designed for dewatering of mixture of SBR excess sludge and DAF sludge. Inlet sludge DS concentration is 2% and outlet cake DS concentration is 19-20%.

2) Municipal wastewater treatment plant SBR (Szecseny, Hungary)

One unit is installed at a municipal WWTP and is designed for the dewatering of SBR excess sludge and primary sludge mixture. Inlet sludge DS concentration is 1.5% and outlet cake DS concentration is 19-22%. Productivity by initial sludge is 10-15 m³/h.

3) Olive oil and canned vegetable factories wastewater treatment plant (Ashdod, Israel)

One unit is installed at an industrial WWTP and is intended for the dewatering of DAF sludge from WWTP which receives sewage from food manufacturing plants. Inlet sludge DS concentration is 5-6% and outlet cake DS concentration is 23.5%.

4) Municipal wastewater treatment plant (Webster, TX, USA)

One unit is installed at a municipal WWTP and is dedicated for the dewatering of excess sludge.

5) Municipal wastewater treatment plant (Ozd, Hungary)

Two units are installed at a municipal WWTP and are dedicated for the dewatering of thickened sludge. Inlet sludge DS concentration is 2% and outlet cake concentration is 20%. Productivity by initial sludge is 6-8 m³/h.

6) Poultry factory wastewater treatment plant (Kanev, Ukraine)

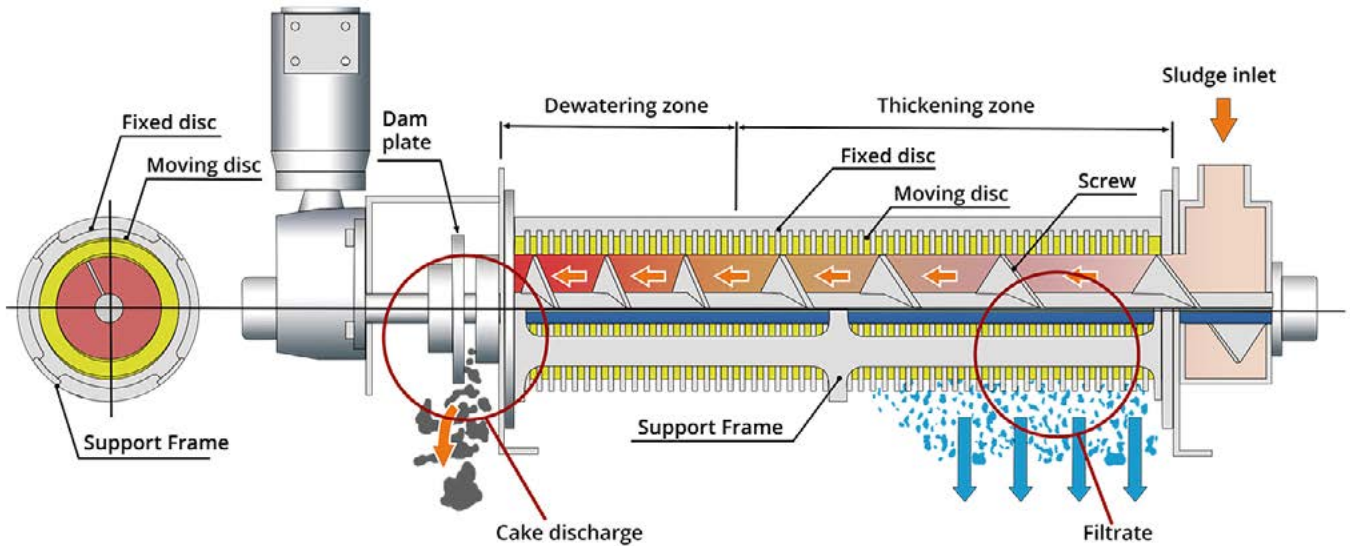
One unit is installed at a poultry factory for the dewatering of DAF sludge. Inlet sludge DS concentration is 10- 15% and outlet cake DS concentration is 44%.

More than 800 Multi-disc Screw Press Dehydrators MDQ/MDQ-C are installed and operates all over the world



Technical Features of MDQ/MDQ-C Multi-disc Screw Press Dehydrators

Dewatering drum construction



Productivity of MDQ and MDQ-C

Models	Maximum capacities, up to		Treatment capacity (kg DS/h) and related hydraulic capacity (m ³ /h), up to							
			Activated Biological Sludge / Chemically Precipitated Sludge				Mixed municipal sludge		Raw sludge and industrial DAF* sludge	
			0.2%		1%		3%		5%	
	kgDS/h	m ³ /h	kgDS/h	m ³ /h	kgDS/h	m ³ /h	kgDS/h	m ³ /h	kgDS/h	m ³ /h
MDQ-101 / MDQ-101 C	24	2.0	3.0	1.5	5.0	0.5	12	0.4	18	0.36
MDQ-102 / MDQ-102 C	48	4.0	6.0	3.0	10	1.0	24	0.8	36	0.7
MDQ-103 / MDQ-103 C	72	6.0	9.0	4.5	15	1.5	18	0.6	54	1.1
MDQ-201 / MDQ-201 C	72	5.0	9.0	4.5	15	1.5	36	1.2	54	1.1
MDQ-202 / MDQ-202 C	144	10	18	9.0	30	3.0	72	2.4	108	2.2
MDQ-203 / MDQ-203 C	216	15	27	13.5	45	4.5	108	3.6	162	3.2
MDQ-351 CL	420	18	30	15	100	10	210	7.0	315	6.3
MDQ-352 CL	840	36	60	30	200	20	420	14	630	12.6
MDQ-353 CL	1 260	54	90	45	300	30	630	21	945	19
MDQ-354 CL	1 680	72	120	60	400	40	840	28	1 260	25
MDQ-355 CL	2 100	90	150	75	500	50	1 050	36	1 575	32
MDQ-356 CL	2 520	108	180	90	600	60	1 260	42	1 890	38
MDQ-451 C	840	36	60	30	200	20	420	14	630	12.6
MDQ-452 C	1 680	72	120	60	400	40	840	28	1 260	25
MDQ-453 C	2 520	108	180	90	600	60	1 260	42	1 890	38
MDQ-454 C	3 360	144	240	120	800	80	1 680	56	2 520	50
MDQ-455 C	4 200	180	300	150	1 000	100	2 100	70	3 150	63
MDQ-456 C	5 040	216	360	180	1 200	120	2 520	84	3 780	76

*- information is based on experience of dewatering of DAF-sludge with relatively high O&G concentration (40-60%) from meat processing plants (slaughter, poultry) and milk processing plants, etc.

MDQ/MDQ-C Dehydrators

There are two main constructions of Multi-disc Screw Press Dehydrators that can be purchased according to sludge characteristics - model MDQ (dewatering drums are installed above the technological chamber with initial sludge feed and mixing pumps) and MDQ-C (more simple model without technological chamber and internal pumps).

Dimensions and features of MDQ

Model	Screw diameter, mm x number of screws, pcs.	Nominal rinsing water consumption, l/min	Total rinsing water consumption*, l/h	Nominal pressure of wash water, MPa	Installed power, kW	Dimensions (L x W x H), mm	Weight dry/ in operation, kg
MDQ-101	100 x 1	16	16	0.15-0.3	0.64	1 845 x 900 x 2 015	450 / 1 050
MDQ-102	100 x 2	32	32		0.76		550 / 1 200
MDQ-103	100 x 3	48	48		1.04	1 865 x 1 100 x 2 015	650 / 1 550
MDQ-201	200 x 1	33	33	0.2-0.35	1.08	2 670 x 1 200 x 2 025	700 / 1 600
MDQ-202	200 x 2	66	66		1.33		800 / 1 800
MDQ-203	200 x 3	99	99		1.92	2 670 x 1 500 x 2 025	1 000 / 2 350

*- information is based on a typical cyclical rinsing once per 10 minutes for 10 seconds for each rinsing valve (from 1 to 2 valves).

Dimensions and features of MDQ-C

Model	Screw diameter, mm x amount of screws, pcs.	Nominal rinsing water consumption, l/min	Total rinsing water consumption*, l/h	Nominal pressure of wash water, MPa	Installed power, kW	Dimensions (L x W x H), mm	Weight dry/ in operation, kg
MDQ-101 C	100 x 1	16	16	0.15-0.3	0.24	2 630 x 1 020 x 1 650	310 / 510
MDQ-102 C	100 x 2	32	32		0.36		400 / 610
MDQ-103 C	100 x 3	48	48		0.54	2 640 x 1 320 x 1 650	500 / 750
MDQ-201 C	200 x 1	33	33	0.2-0.35	0.43	3 785 x 1 345x 2 015	500 / 1 000
MDQ-202 C	200 x 2	66	66		0.68		600 / 1 100
MDQ-203 C	200 x 3	99	99		1.12	4 185 x 1 830x 2 120	750 / 1 300
MDQ-351 CL	350 x 1	44	44		1.12	5 325 x 3 430 x 2 240	1 380 / 2 320
MDQ-352 CL	350 x 2		88		2.05	4 335 x 1 505 x 2 080	2 550 / 4 400
MDQ-353 CL	350 x 3		132		3.35	4 575 x 1 830 x 2 120	3 800 / 6 500
MDQ-354 CL	350 x 4	88	175	4.5	4 870 x 2 290 x 2 240	5 000 / 9 200	
MDQ-355 CL	350 x 5		219	5.25	5 125 x 2 930 x 2 240	5 900 / 10 500	
MDQ-356 CL	350 x 6		263	6.0	5 325 x 3 430 x 2 240	7 100 / 12 700	
MDQ-451 C	450 x 1	110	110	0.2-0.4	2.75	4 645 x 1 505 x 2 320	2 000 / 3 900
MDQ-452 C	450 x 2		220		5.5	4 905 x 1 775 x 2 345	3 700 / 7 000
MDQ-453 C	450 x 3		330		8.1	5 205 x 2 075 x 2 370	5 400 / 10 600
MDQ-454 C	450 x 4		440		10.3	5 405 x 2 530 x 2 370	7 100 / 13 800
MDQ-455 C	450 x 5		550		13.2	5 755 x 3 300 x 2 370	8 800 / 16 700
MDQ-456 C	450 x 6		660		15.4	5 905 x 3 885 x 2 370	10 500 / 19 700

*- information is based on a typical cyclical rinsing once per 10 minutes for 10 seconds for each rinsing valve (from 1 to 6 valves).



EKOTON Industrial Group offers many other products:

- Sewage mechanized screens (rake-type, step-type, screw-type, drum-type, grinding screens, waste grinders);
- Screw conveyors and compacting presses;
- Tangential, horizontal and combined grit chambers;
- Scrapper and suction type sludge collection mechanisms, weirs, influent wells, reflectors, semi-submersible boards for primary and secondary clarifiers;
- Penstocks of different types;
- Aeration and drainage systems;
- Complexes for mechanical dewatering based on belt and chamber filter presses, belt and drum thickeners, multi-disc screw press and JD dehydrators;
- Dissolved air flotation plants.

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