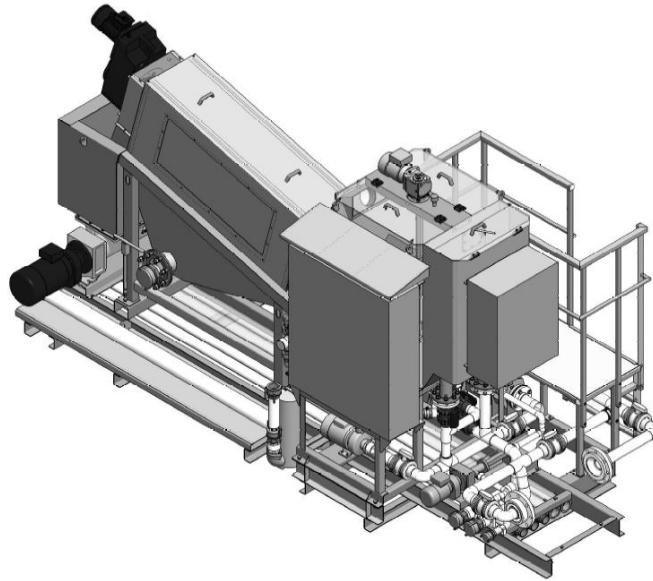


## Thickening complex based on multi-disc screw thickener MDQ-351T



### 1. GENERAL COMPLEX COMPONENTS

#### 1.1. The thickening complex platform

The thickening complex is built on the common frame where all the equipment is mounted to. The main components are listed below:

- Screw-disc thickening drum MDQ-351T;
- Flocculation chamber equipped with the motorised agitator;
- Sludge inlet pump NM063BS 5-25m<sup>3</sup>/h, 3.53 kW;
- Alternative submersible sludge pump, Tsurumi up to 46 m<sup>3</sup>/h, 1.5kW;
- Flocculant inlet pump NM021BY 300-1100l/h, 0.19 kW;
- Thickened sludge pump NM063BY 8-40 m<sup>3</sup>/h, 4.5kW;
- Sludge inlet pipe flowmeter Promag 400;
- Flocculant inlet pipe flowmeter Promag 400;
- Other peripheral equipment such as manual valves, electrovalves etc.

The inlets and outlets to the complex are as follows:

- Sludge inlet – camlock 2.5” male;;
- Polymer inlet – camlock 1.25” (polymer inlet is connected by a reinforced hose with the polymer station outlet), male;
- Water inlet – hose nypel 20mm male;
- Filtrate outlet – camlock 4” male
- Thickened sludge outlet connection – camlock 4” male.

Complex is also equipped with some amount of connection hoses:

- Camlock male to female 4" – 20m in total (5x 4m sections) for thickened sludge outlet;
- Camlock female 4" on one end – up to 15m in one piece for filtrate outlet;
- Camlock male to female 2.5" – 20m in total (5x 4m sections) for sludge inlet;
- Camlock female to female 1.25" – 8m to connect polimer station with the complex;
- 20mm water type hose for water supply to the complex and the station.

### 1.2. Automatic polimer preparation station

The flocculant needed for proper complex operation is made in automatic polimer preparation station Alebro MX7300.1000. The main body of the station is made of PPH nad it is 3 chamber flow type of station.

The station is capable of preparation of the polimer solution in range of 0.05 to 0.6% from the power as well as emulsion. Technical specification can be found in the technical section.

## 2. TECHNICAL SPECIFICATION

### 2.1. MDQ-351T

<b>Multi-disc Screw Thickener MDC-351 T</b>		
Manufacturer	<i>ESMIL Industrial Group</i>	
Nominal drum's diameter, mm x amount of drums, pcs.	<i>350 x 1</i>	
Drums' discs thickness, mm	<i>3</i>	
Screw rotation speed, rpm	<i>1.7 - 11.4</i>	
Possible temperature of liquid, °C	<i>+5...+35</i>	
Dimensions	Length, mm	<i>3825</i>
	Width, mm	<i>1315</i>
	Height, mm	<i>2195</i>
	Thickened sludge discharge height, mm	<i>1050</i>
Weight, kg	Dry	<i>1320</i>
	In operation	<i>2570</i>
Main construction material	<i>AISI 304</i>	
<i>Rinsing water</i>		
Nominal consumption, l/sec	<i>0.55</i>	
Pressure, MPa (bar)	<i>0.2-0.4 (2-4)</i>	
Typical sum consumption, l/h	<i>33</i>	
Number of rinsing water valves, pcs.	<i>1</i>	
<i>Automation system</i>		
Control cabinet	<i>Yes</i>	
Voltage, V	<i>400</i>	
Frequency, Hz	<i>50</i>	
Number of phases	<i>3</i>	
Ingress protection, IP	<i>IP 66</i>	
Total installed power (without additional external equipment), kW	<i>1.5</i>	

<b>Installed drives</b>	
<i>Screw drive</i>	
Manufacturer	NORD
Number, pcs.	1
Nominal power, kW	0.75
Ingress protection, IP	IP 55
Explosion protection, EX	No
<i>Mixer drive</i>	
Manufacturer	NORD
Number, pcs.	1
Nominal power, kW	0.75
Ingress protection, IP	IP 55
Explosion protection, EX	No

## 2.2. Alebro MX7300.1000

<b>Polymer Solution Preparation Unit MX7300.1000</b>		
Manufacturer	ALEBRO Dosier- und Umwelttechnik	
Productivity by prepared polymer solution, not more than, l/h	1000	
Number of working chambers, pcs.	3	
Working chambers disposition	Horizontal	
Total volume of working chambers, l	1200	
Possible types of used concentrated polymers	Powder, emulsion (optional)	
Possible temperature of liquid, °C	+5...+35	
Dimensions, mm	Length	2230
	Width	1244
	Height	1374
Weight, kg	Dry	225
	In operation	1350
<i>Main construction materials</i>		
Working chambers	Polypropylene	
Powder polymer hopper and dosing unit	AISI 304	
Water inlet pipes	PVC, bronze	
Prepared polymer outlet pipes	PVC	
Overflow and drainage pipes	PVC	
Mixer	AISI 316	
<i>Dilution water for solution preparation</i>		
Nominal consumption, l/sec	0.56-0.83	
Pressure, MPa (bar)	0.1-0.3 (1-3)	
<i>External connections</i>		
Dilution water for solution preparation inlet	G3/4" female thread	

Concentrated emulsion polymer inlet (optional)	<i>G3/4" male thread</i>
Prepared polymer solution outlet	<i>DN32 PVC glue connection</i>
Prepared polymer solution emergency overflow and drainage	<i>DN50 PVC glue connection</i>
Polymer concentrate adding method	<i>Automatically</i>
<i>Automation system (based on PLC and HMI)</i>	
Control cabinet	Yes
Voltage, V	400
Frequency, Hz	50
Number of phases	3
Ingress protection, IP	IP 56
Total installed power, kW	1.3
Working chamber level control sensor type	<i>Ultrasonic</i>
Number of working chamber level control sensors, pcs.	1
Dilution water valve type	<i>Solenoid</i>
Number of dilution water valves, pcs.	1
Dilution water valves voltage	24VDC
Powder concentrate polymer hopper level sensor type	<i>Electric capacitive</i>
Number of powder concentrate polymer hopper level sensors, pcs.	1
Powder concentrate polymer hopper level sensor voltage	24VDC
Number of powder concentrate polymer hopper vibrators, pcs.	1
Powder concentrate polymer hopper vibrator voltage, V	230
Powder concentrate polymer dosing screw heating type	<i>Heat trace cable</i>
Number of powder concentrate polymer dosing heating cables	1
Powder concentrate polymer dosing heating cables voltage, V	230
<b>Installed drives</b>	
<i>Mixer drive</i>	
Number, pcs.	2
Nominal power, kW	0.55
Voltage, V	400
Ingress protection, IP	IP55
Explosion protection, EX	No
<i>Powder concentrate polymer dosing unit drive</i>	
Number, pcs.	1
Nominal power, kW	0.18
Voltage, V	400
Ingress protection, IP	IP54
Explosion protection, EX	No

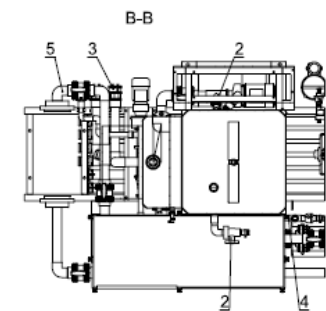
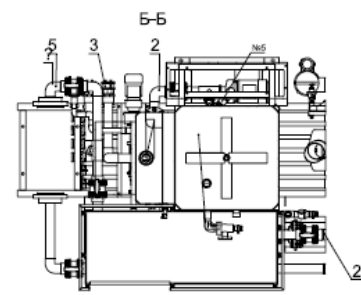
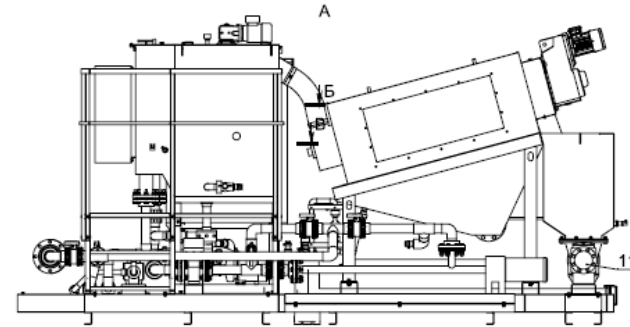
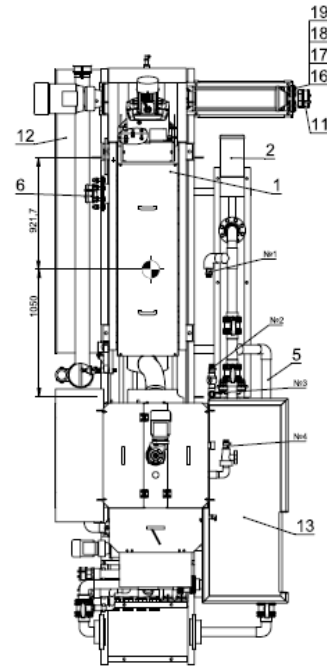
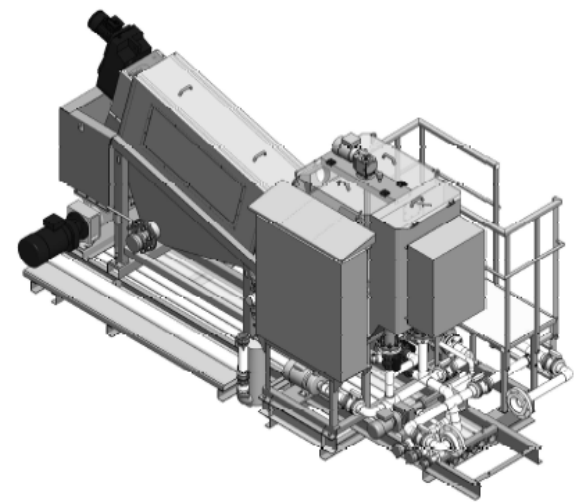
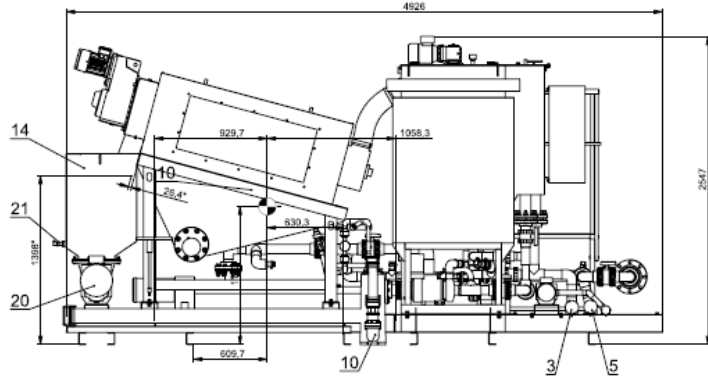
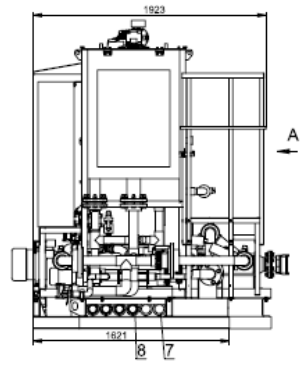
### 3. DRAWINGS



# ESMIL

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KOCMDQ351T,01,000 M4



1. \* Dimensions for reference  
 2. M14, H14, +H17/4G2  
 3. During assembly connect points No 162, 364, 556 with corresponding hoses
1. \* Wymiary orientacyjne.  
 2. M14, H14, +H17/4G2.  
 3. Podczas montażu połącz miejsca nr 1 z nr 2, nr 3 z nr 4 i nr 5 z nr 6 za pomocą odpowiednich węży.

#	Designation	Name	Qty	Remark
<b>Assemblies</b>				
A1	MDQ 351T,01,000-AGL	Screw press	1	
A2	KOCMDQ351T,01,100	Feeding line	1	
A3	KOCMDQ351T,01,200	Drainage line	1	
A4	KOCMDQ351T,01,300	Recurrent feeding line	1	
A5	KOCMDG451C,01,400	Macerator line	1	
A6	KOCMDQ351T,01,500	Filterate line out	1	
A7	KOCMDG451C,01,600	Quick coupling hose	2	
A8	KOCMDG451C,01,700	Quick coupling hose	4	
A9	KOCMDG451C,01,700	Quick coupling hose	6	
A10	KOCMDG451C,01,800	Submersible pump	1	
A11	KOCMDQ351T,01,900	Sludge line out	1	
A12	KOCMDQ351T,02,000	Base frame	1	
A13	KOCMDG451C,03,000	Service platform	1	
A14	KOCMDQ351T,07,000	Hopper	1	
<b>Standard items</b>				
16	Bot M16x85 A2 DIN 933		8	
17	Nut M16 A2 DIN 934		8	
18	Washer 16 A2 DIN 125		8	
19	Washer 16 A2 DIN 127		8	
<b>Purchased items</b>				
20	Pump No. T.2502H FAW30S01,385	5.5 kW	1	
21	Level sensor Wilka S-11 040, 16 bar		2	

KOCMDQ351T,01,000 M4

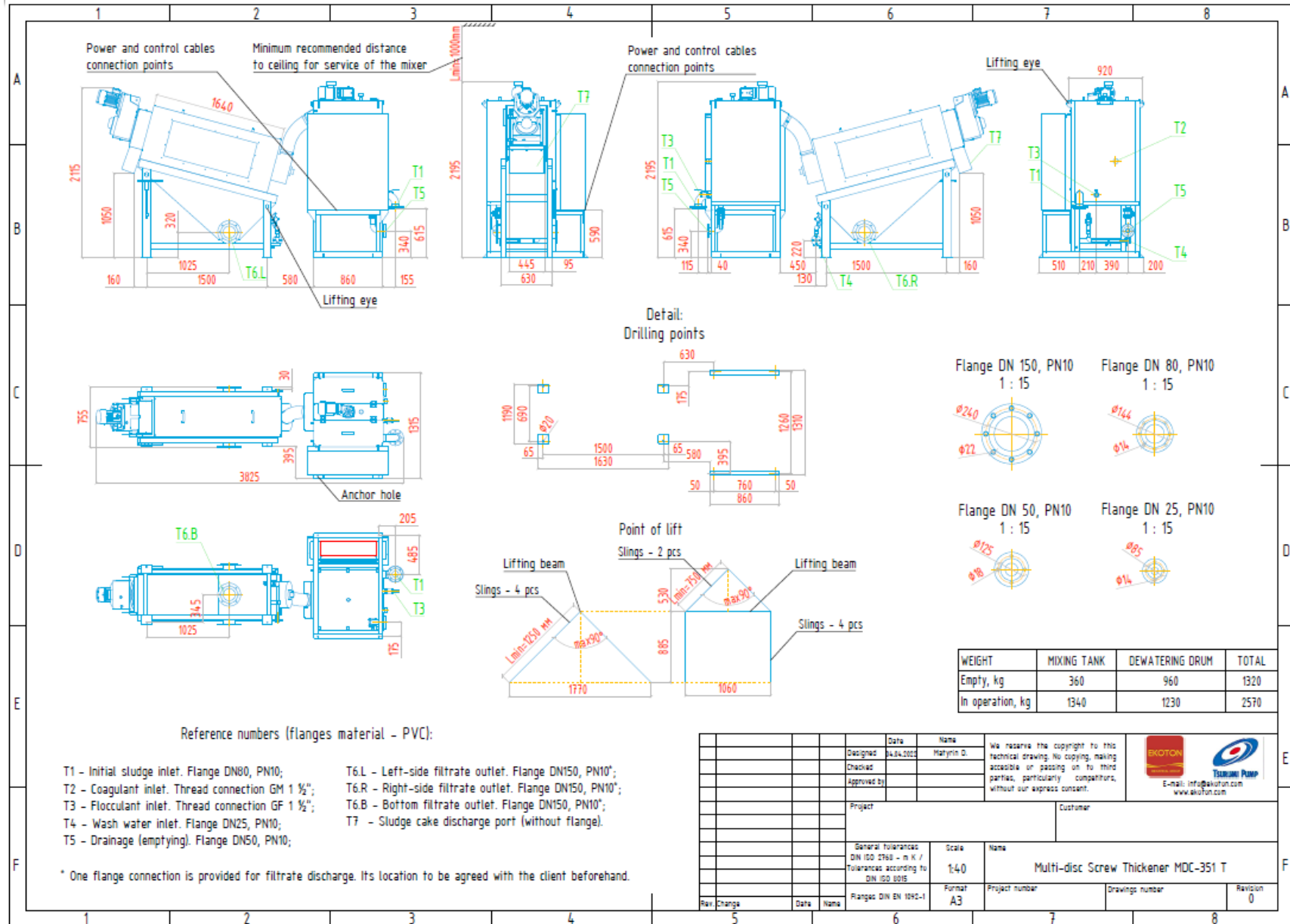
Pilot complex  
 Installation drawing

Sheet 1 of 1



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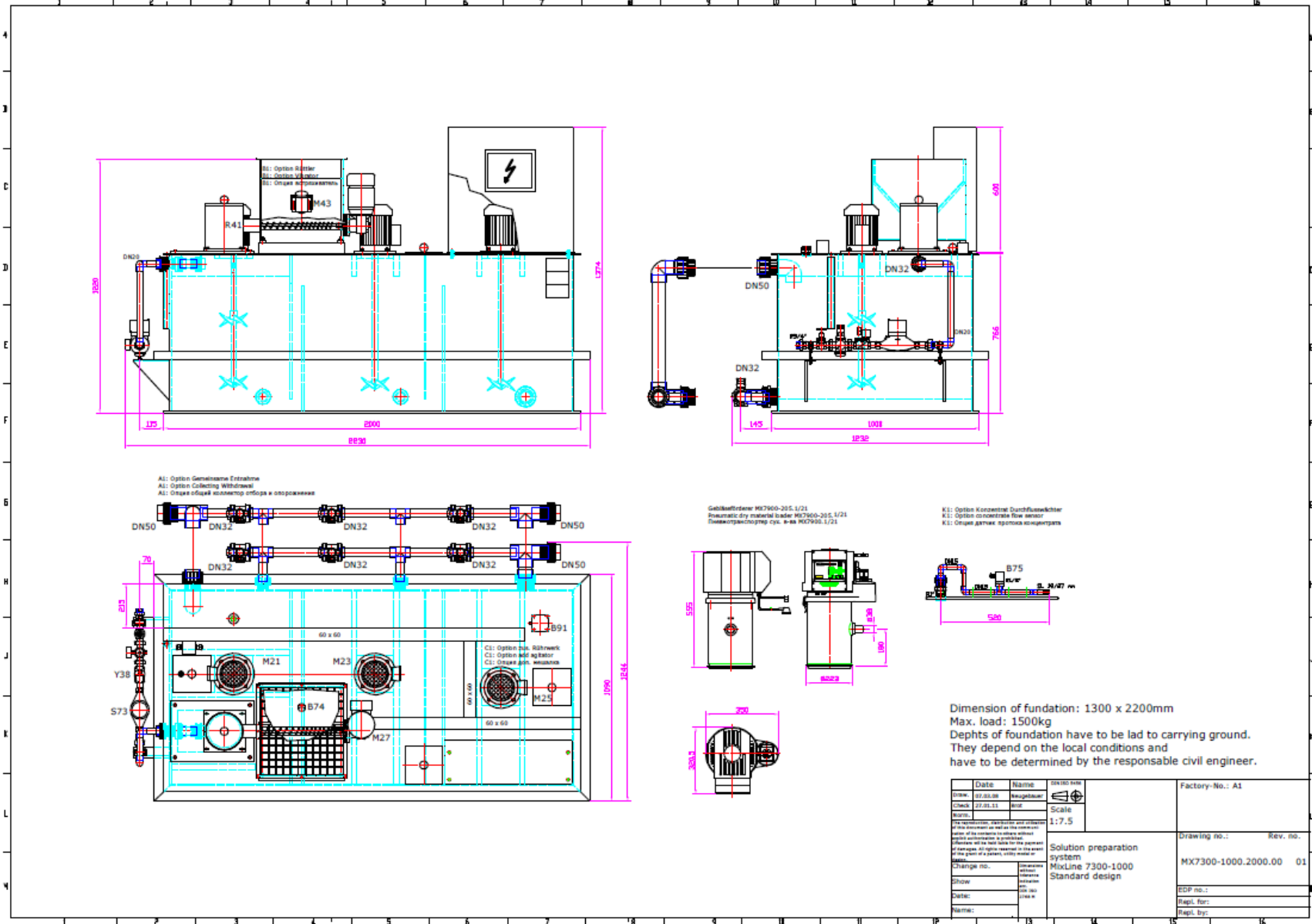


Designed	Date	Name	We reserve the copyright to this technical drawing. No copying, making accessible or passing on to third parties, particularly competitors, without our express consent.	  E-mail: info@koton.com www.koton.com
Checked	04.04.2022	Martyn D.		
Approved by				
Project		Customer		
General tolerances DN ISO 2768 - m K / Tolerances according to DN ISO 1015		Scale	Name	
Ranges DIN EN 1092-1		Format	Multi-disc Screw Thickener MDC-351 T	
Rev. Change	Date	Name	Project number	Drawings number
				Revision 0



# ESMIL

GROUP





## COMPANY PROFILE

<b>YEAR OF FOUNDATION:</b>	1995
<b>THE MAIN ACTIVITIES:</b>	Production of equipment for wastewater treatment and sludge dewatering
<b>HEAD OFFICE AND PRODUCTION:</b>	Elk, Poland
<b>PRODUCTION FACILITY:</b>	6000 sq.m.
<b>STAFF:</b>	≈ 230 employees
<b>CLIENTS:</b>	More than 1 500 enterprises.
<b>ESMIL REFERENCES:</b>	More than 35 countries.

### MANUFACTURED EQUIPMENT:

- Mechanized screens:
  - Rake bar screens
  - Catenary bar screen
  - Step screens
  - Drum screens
  - Screw screens
  - Grinding screens «Grizzly»
  - Waste grinders
- Screw conveyors
- Screw compacting presses
- Grit chambers:
  - Tangential grit chambers
  - Rectangular scrapers ESMIL-PROBIG
- Combined unit for mechanical wastewater treatment M-Comby (fine screen with aerated grit chamber)
- Slide gates (penstocks)
- Equipment for clarifiers
- Aeration systems (tubular diffusers)
- DAF-units
- Equipment for sludge dewatering:
  - Belt filter presses
  - Chamber filter presses
  - Sludge thickeners
  - Screw dehydrators ESMIL-TSURUMI

