



EKOTON INDUSTRIAL GROUP

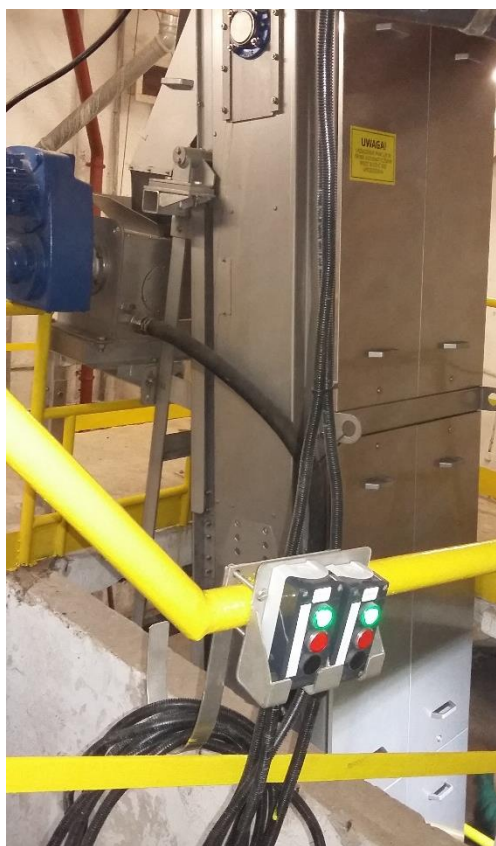
prodeko@prodeko.elk.pl  
www.pl.ekoton.com

**TECHNOLOGIES AND EQUIPMENT  
FOR WASTEWATER TREATMENT**



## **CASE STUDY:** WASTEWATER TREATMENT

<b>PROJECT</b>	Modernization of the mechanical wastewater treatment facility
<b>CLIENT</b>	Wodociągi i Kanalizacje Miejskie Spółka z o. o. w Augustowie
<b>OBJECT</b>	Augustów WWTP
<b>LOCATION</b>	Augustów, Poland
<b>COMMISSIONING</b>	January 2017.



The Municipal Wastewater Treatment Plant is situated in the southern part of Augustów. Its capacity is 10 000 m<sup>3</sup>/d.

In 2016 EKOTON Company was chosen to implement investment project for the modernization of the main sewage pumping station which located at the Augustów WWTP.

Within the project, the following equipment for mechanical wastewater treatment facility was produced, installed and commissioned:

1. Rake bar screen RKE;
2. Screw compacting press SCP;
3. Slide gates of ZSg type;
4. Facility control system.

The aim of the pumping station modernization was to increase the efficiency of mechanical impurities removal and waste thickening with full automation of the process.

## INITIAL STATE:

In accordance with initial project, wastewater was fed via two collectors into the pumping station, where it was mechanically treated on the screens with 25 mm mesh..

Screen cloth cleaning was carried out manually by the personnel as it became clogged. The removed waste was fed into the container for its further lifting by means of lifting device to a zero mark (ground surface) into a receiving tank.

The main problems which were occurring during operation of the old equipment are following:

- The need of constant monitoring of the screen cloth to prevent pump station flooding and emergencies;
- High cost of the screen cloth cleaning and further waste transportation into receiving tank;
- Pumping equipment and further stages emergencies occurring due to insufficient removal of mechanical impurities.

## PROJECT IMPLEMENTATION:

One of the key complication during the project implementation was installation of equipment in existed pumping station among which:

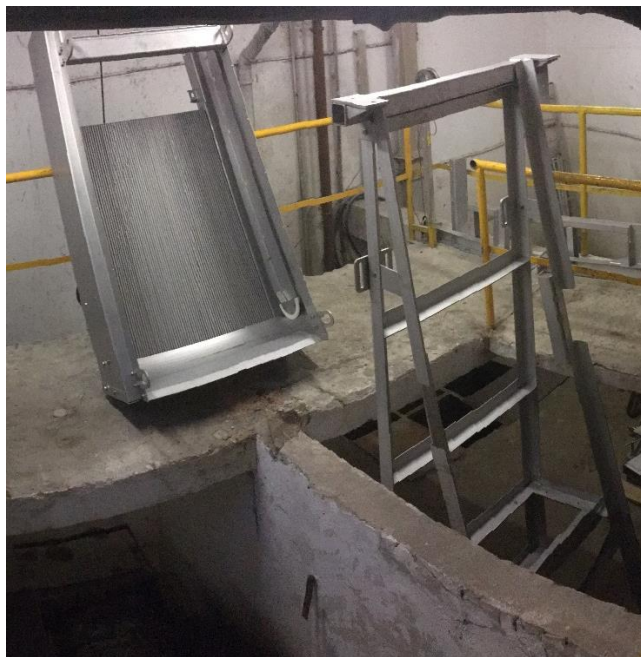
The building was not designed for installation of equipment with length of more than 2,5 m, thus there was a requirement to produce rake screen with 6 m length from separate parts with length of 2 m max. Every part was mounted on supporting structure which were brought together inside the pumping station for further parts assembling inside the building.



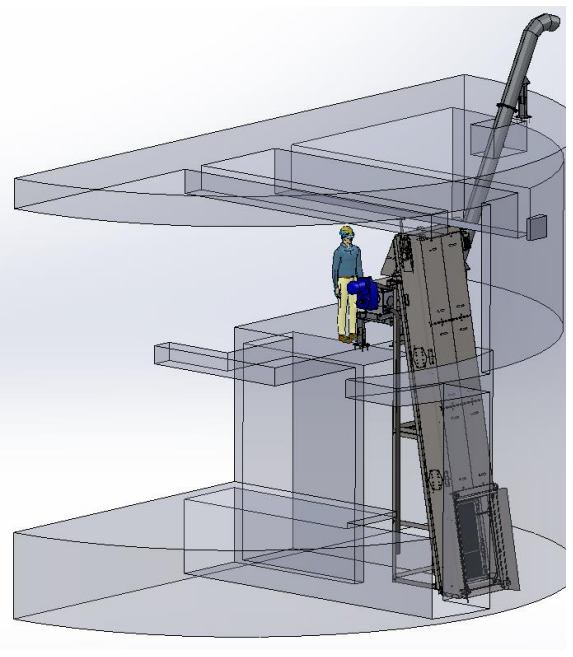
Pic. 1. Manual cleaning grille



Pic. 2. The waste removal mechanisms



Pic. 3. Mounting of equipment at the pumping station



Pic. 4. The screen installed at the pumping station

## RESULTS:

The modernization project allowed to achieve the following results:

1. After the new rake screens installation with 5 mm mesh, the amount of removed waste was increased by 2 times.
2. Due to the partial waste dewatering with screw compacting press SCP, its overall mass has decreased more than 3 times.
3. The necessary time for equipment maintenance reduced more than by 95 % due to its replacement on the new one which operates in fully automatic mode.

It should be also noted the additional advantages achieved by mechanical wastewater treatment equipment replacement:

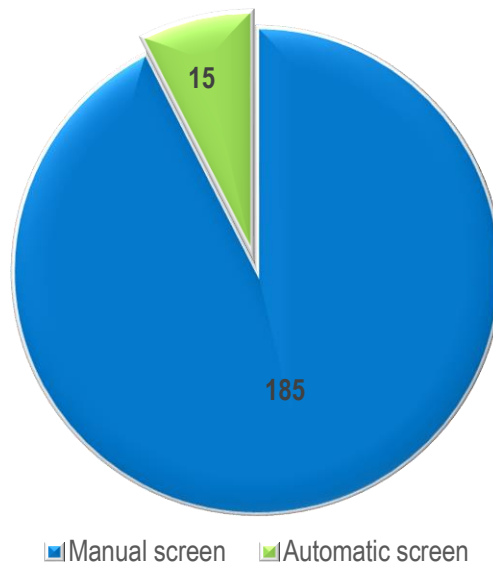
- considerable decreasing of emergencies and scheduled repairs on the next stages of wastewater treatment technological process.
- Full elimination of the need for manual labor which were necessary for waste removal earlier. It has significantly improved not only the sanitary condition at the pumping station, but also the labor conditions of the personnel.

The quantity and mass data of the waste removal from the screens in period from 2015 to 2017 is given below in figures. The pumping station modernization was carried out in the fourth quarter of the 2016 and in January 2017, the new mechanical treatment facility was launched; the data from that year indicates significant treatment parameters improvement.

Reliable screen and screw press design provide the treatment facility with a possibility of round-the-clock and trouble-free operation of equipment in automatic mode. Daily maintenance and inspection requires no more than 15 min.



Pic. 5. The amount and mass of wastes removed from the screen in the period from 2015 to 2017



Pic. 6. Time for equipment maintenance in minutes per day

## CONCLUSIONS:

The mechanical treatment facility modernization at the sewage pumping station allowed to organize efficient wastewater treatment from large and average impurities. Removed wastes are rinsed for organic part reduction and are thickened on the screw press for its volume and weigh reduction. Installed mechanical treatment facilities operate in fully automatic mode and do not require constant personnel presence. The mechanical treatment process improvement allowed to solve all of the set challenges and assured stable and uninterrupted wastewater treatment process operation.

[www.ekoton.com](http://www.ekoton.com)

[eu@ekoton.com](mailto:eu@ekoton.com)

+48 87 620 06 02