

# INSTALLATION OF A CATHENARY SCREEN BAR AND A SCREENINGS' WASH PRESS AT THE SEWAGE PUMPING STATION

Olecko, Poland

<b>PROJECT</b>	Modernization of the sewage pumping station in Olecko
<b>INVESTOR</b>	Przedsiębiorstwo Wodociągów i Kanalizacji Sp. z o. o. in Olecko
<b>OBJECT</b>	Sewage pumping station at Batory street
<b>STARTING</b>	December 2018 - June 2019



## PLANS AND MODERNIZATION GOALS

According to the modernization plan of the pumping station building located at Batory street in Olecko delivery of equipment was divided into two stages:

- 1. December 2018** - delivery and installation of the mechanical catenary screen bar type RKC 0827 with 6 mm clearance.
- 2. June 2019** - delivery and installation of SCP 2020 type screenings wash press with  $Q = 2 \text{ m}^3/\text{h}$  capacity along with the necessary supporting structure.

The purpose of the modernization of the main pumping station was to increase the efficiency of removing solid parts from inflowing sewage, as well as to reduce the amount of generated screenings and their hydration.

## STATE FROM BEFORE THE MODERNIZATION

City's sewage is directed to the pumping station's main collecting chamber, and then goes to the grate, which is mounted in a channel with dimensions  $B_k = 950 \text{ mm}$ ,  $H_k = 2000 \text{ mm}$ . Before the project, problems related to the presence of the wet wipes occurred, which caused difficulties in normal gate operation and its blocking. Screenings collected on the grating were transported to the screw conveyor, through which they were transported to the collecting container. The shift operator then had to transport the container outside of the building and load it onto the removal vehicle. The main problems associated with the operation of the old devices were:

- large costs related to the handling and cleaning of the grate from wet wipes and the removal of screenings with a high water content;
- problems related with stopping the grate too often;
- pump failure and operational problems at further stages of purification that were caused by insufficient efficiency of solid impurities removal.

## RESULTS

After analyzing the situation at the pumping station, specialists from EKOTON Prodeko-Etk Sp.zo.o. have decided to install a grid prototype to check the efficiency increment comparing to the old device. The RKC 0827 catenary screen bar has been installed at the pumping station, the very first to be produced at our plant. After three months of operation, the management of the plant has decided to buy back the installed device and order SCP 2020 screenings wash press.

As a result of installation of the new equipment, the following results were obtained:

- Thanks to the use of an innovative chain mechanism that allows efficient collection and extract of a various types of wastes and wet tissues from sewage, the number of failures associated with grid jams has been reduced;
- **The number of removed screenings has doubled** due to the use of a grid with a clearance of  $s = 6$  mm within the strainer;
- The weight of removed screenings has been **reduced over three times**, thanks to the pressing and rinsing them on the SCP wash press;
- **The time** necessary to operate the equipment has **decreased by over 95%** due to the use of a full automatic mechanical treatment line.

In addition, the following upsides related to **equipment replacement should be noted:**

- A significant decrease in the number of failures and repairs at further stages of wastewater and sludge treatment;
- Total elimination of the need to work in a manual mode when removing screenings from grates.

## CONCLUSIONS

The modernization of the mechanical sewage treatment system at the pumping station allowed the organization of an effective treatment system for large and medium solid wastes, using a special construction of the grid chain. Screenings, removed from the sewage, are washed to reduce their organic content and pressed on a wash press to reduce their volume and weight. The installed mechanical cleaning line works fully automatically and does not require constant presence of a personnel. The work of the mechanical wastewater treatment complex has fully met the requirements and ensured stable and trouble-free operation at subsequent stages of treatment.