Brandenburger pushes the limits in UV-liner technology

Installing 96 tonnes of liner in ten days in 620 meters of sewer – right next to one of Helsinki’s main traffic arteries. The construction site in the Finnish capital in May 2016 was not only a great challenge for the team of the Putkistosaneeraus Eerola Oy company and of Brandenburger Liner GmbH & Co. KG. It was also the largest single project for sewer rehabilitation in Finland.

During rush hour, several hundreds of thousands of Finns are hastening about on the streets of Helsinki, the capital; about 600,000 persons are trying to get to work in the city or back home on the peninsula. Thus the job by the Eerola company for Brandenburger was rather special. The liners had to be drawn into the sewer before rush hour if possible so that traffic is impaired as little as possible. There were some technical hurdles to be taken as well, because the water drainage had to be designed for 1.3 cubic meters per second and it had to cross the tram line twice. The uninterrupted operation of the tram needed to be ensured, and that is why the water drainage was routed over the power lines.

Great effort of the workers involved

Brandenburger travelled to the site with a large UV unit and two technicians. The liners with a total weight of 96 tonnes were delivered to the installation site. The heaviest liner weighed 24 tonnes, was 19.6 millimetre thick and 145 metres long (DN 1350). Due to the extended transport time to Helsinki, Brandenburger omitted the addition of peroxides and thus the combination curing with UV light and heat reaction as well.

The composition of the large liners, in this case the DN 1350 liner, is almost identical to that of a liner with a small diameter. The crux of the matter with the construction site in Helsinki was the weight which was nearly 30 times greater than for other liners with a lesser diameter. Although the installation steps remain the same as, for example, for a liner with a size DN 200, the employees of the UV crew had to move a weight of 170 kilogram per metre for the DN 1350.
Special installation aids developed for light chains

With all the forces exerted, the installation team also had to be very careful while inserting the packers and the UV light chain in order to not damage the sensitive inner foils. The inner foil must therefore not be too thick, because the UV rays would be deflected as the raw materials are penetrated. This would prevent a complete and quick curing. In order to install the light chain easily and reliably, Brandenburger developed a special installation airlock. The packers were specially made for the construction site with these diameters. With success: By employing the Brandenburger rental UV unit with 12 x 1000 watt, the liners could be cured successfully.

New production facility distinguishes itself

All liners installed in Helsinki were manufactured by the new production facilities on the company premises in Landau. The new system basically retained the winding process which was developed by Brandenburger itself in 1996 and patented until today. Beyond that, more production parameters than before can be recorded and documented with the help of cameras. The facilities have been designed so that liners with lengths of 300 metres can be produced in any diameter. Weight is the only factor where there is a limit of 70 tonnes maximum.

“We are slowly feeling out the total potential of the system,” said managing director Michael Schloder. “The 24 tonne liners for Helsinki were just a first step.” Thus five liners could be installed in seven workdays. Even Father's Day was used to complete the construction site on time.

Not only was Brandenburger as the manufacturer convinced of the results at the end, but also the crew from the Putkistosaneeraus Eerola Oy company as well as the client for the city of Helsinki.

Following this successfully concluded project, worth 2.1 million euro, in Finland, the next projects are already waiting. And with them, Brandenburger plans to push the limits for UV liners even further.
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