References

A project of large numbers



Uponor involvement

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Project Facts:

Location	Completion
Äänekoski, Finland	2017
Building Type	Product systems
Industrial	Tailor made constructions
Project Type	
New building	

Metsä Fibre, part of the internationally operating Finnish forest industry group Metsä Group, is currently building the world's first next-generation bioproduct plant next to its current pulp plant operating in Äänekoski. In addition to high-quality pulp, the plant also produces a diverse range of other bioproducts, for example pine oil, turpentine, biocomposite and biogas. The investment is the largest in the history of the Finnish forest industry, totalling EUR 1.2 billion.

Uponor Infra has delivered municipal engineering to the construction site, such as water, sewer and stormwater pipes, chambers, and related fittings. The first day of April also saw the beginning of the installation of the plant's massive cooling water discharge pipe. The installation of the Weholite pipe with an inner diameter of 2,000 millimetres and more than one kilometre in length will take around six months in total.

''We are not going to do this for practice''

''A discharge pipe manufactured from Weholite is a cost-effective solution that fulfils the customer's requirements,'' states Project Manager Teemu Lantto of Graniittirakennus Kallio Oy.
The company is responsible for the underground pipework of the bioproduct plant, and is also involved in many other contracts on the site. Of the construction companies working on the site, it has the most contract orders.
The selection criteria also emphasised that the company wanted a system with a long track record.
''In this kind of large, demanding and fastpaced project, we do not want to start practising with the products,'' Lantto says.

Heat resistance from polypropylene

Tom Karnela from Uponor Infra says that the design of the discharge pipe took account, among other things, of special requirements related to the heat resistance of the pipe. The design temperature is +65°C.
''The pipe will be manufactured from polypropylene instead of polyethylene, because polypropylene has better heat resistance. In industrial applications, the temperature of cooling water is rather high.''
According to Karnela, there are otherwise no significant differences between polypropylene and polyethylene.
''The materials are flexible and easy to work and weld.'' The discharge pipe is implemented as a gravity line, but its requirements include a pressure resistance of one bar. Karnela emphasises that the discharge pipe manufactured from Weholite is extremely durable and tight.
''The pipe joints and bends are fully-welded, and there are no mechanical joints at all.'' Uponor's own technicians will be responsible for welding the Weholite pipes.
''The pipes and fittings will be delivered pre-customised according to requirements to the site, where they will be welded together. This means that the customer will receive the product almost as a turnkey delivery,'' Karnela sums up.

From the plant to the trench

There is plenty of bustle at the bioproduct plant's construction site. Several areas are under construction at the same time, in addition to which the current pulp plant is constantly in full operation. Fitting pipe installations in the middle of all of this traffic is not exactly simple.
''Things must be carefully thought out in advance, and we need more supervision resources and coordination than at a more conventional site. The installations will also take more time than usual. We must continually pay very careful attention to occupational safety, given the high number of traffic and cranes lifting large loads in the area,'' Lantto describes.

Quick reacting

Uponor delivers materials to the bioproduct plant construction site flexibly, in accordance with the progress made in the work. Since there is no possibility of storage, lorries transport the pipes from the factory directly to the side of the trench. This also means fewer work stages. ''Less lifting and handling of the pipes,'' Lantto says.
''In narrow places, we need bends and shorter pipe sections. At their longest, the pipe sections are 22 metres in length. When you join a couple of long sections, the work can progress fairly well in just one day,'' Tom Karnela describes.
Lantto reserves special praise for Uponor's sales. ''It is important that we can contact the sales department and that they are ready to react quickly to our wishes. For example, we needed the first pipe sections quickly so that we could fill in the trench and get the traffic moving. Uponor met this challenge with flying colours.''

Pipes to the waste water treatment plant as well

Uponor also delivers pipes to the enlarged waste water treatment plant, which will also be built at the bioproduct plant. The project will be implemented by the project consortium, Keski-Suomen Betonirakenne Oy/Porrokki Oy.
Various pressure pipes and other pipes, fittings and chambers will be delivered for the plant. Uponor technicians will join the

smaller PE63–250mm pipes by butt welding or using electric sockets. The larger PE630– 1,200mm pipes will be butt welded. ‘‘With a diameter of 1,200 millimetres, pressure pipes are of a pretty heavy-duty design. But in this, too, we are able to offer the customer an excellent total package, including welding,’’ Karnela states.

ÄÄNEKOSKI BIOPRODUCT PLANT

- The largest investment in the history of the Finnish forest industry, EUR 1.2 billion.
- The overall employment impact during the construction time exceeds 6,000 person working years. Once the plant has started operating, 1,500 new jobs will be created in Finland throughout the whole value chain.
- The pulp production capacity of the bioproduct plant is 1.3 million tonnes per year. In addition to pulp, the plant produces a diverse range of other bioproducts, for example pine oil, turpentine, biocomposite and biogas.
- Test runs will began in the spring of 2017 and the plant will begin operating in Q3/2017.

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