References

The power supply to the East Helsinki metro network will be protected with Uponor FastGuard



Uponor involvement

- Uponor FastGuard cable protection

Eastern Helsinki metro network to be strengthened – Uponor's cable protectors speed up electrical work

In the fall of 2024, a groundbreaking electrical renovation was carried out on the metro line between Siilitie and Kulosaari in Helsinki. The aim was to improve the metro line's power supply and ensure its functionality during potential faults as part of a broader ring network solution. The project utilized FastGuard cable protection developed by Uponor, which is lightweight, durable, and quick to install.

Project Facts:

Location	Completion
Helsinki, Finland	2024
Vrsta objekta	Product systems
Municipal	Cable & Telecom

Challenging conditions, tight schedules and innovative solutions: A groundbreaking electrical renovation was carried out on the metro line between Siilitie and Kulosaari in Helsinki.

The project is part of a larger ring network solution, the aim of which is to secure the electricity supply to the metro line from several directions in case of possible faults. If one cable fails, the power supply can be secured from another route.

The approximately 2.5-kilometre electrical renovation between Siilitie and Kulosaari focused on replacing medium-voltage

cables in autumn 2024. However, the limited space of the metro line, weather variations, and high safety and durability requirements made it impossible to use traditional solutions.

"Due to the challenges at the installation site, we needed an opening and fireproof protective pipe for the medium-voltage cable of the metro line. FastGuard met these needs perfectly, says Omid Musawi, Project Manager at Metropolitan Area Transport Ltd, who works in the project services in the rail and rail power project team.

FastGuard is a cable protection solution developed by Uponor Infra that is suitable for applications where cable pipes are under particular stress. In Sweden, the same type of product has been used for years, and now Urban Transport wanted to try it out in Finland as well.

"The main advantages of the product are the easy-to-use connection mechanism, durable construction and installability on uneven surfaces. The fire safety and durability ratings also weighed heavily in the selection," Musawi says.

"New medium-voltage cables and FastGuard protectors will ensure the system's functionality for decades to come.

New working methods are tested

Mikko Maukonen, Supervisor of the Rail Maintenance Unit of Metropolitan Area Transport, says that in the future, the metro service interval will be shortened from the current 2.5 minutes to 100 seconds. New substations and more effective cable protection are essential to achieve this goal.

"The FastGuard protectors have stood out because it is clearly faster to install than a competitor's product. The fact that the pipe is light but durable makes it easier to work in tight and difficult places along the trackside, he says about his experiences.

The project has also provided an opportunity to try out new installation methods. Right from the start, the city transport team decided to try assembling protective pipes on top of a freight wagon into platoons about ten metres long. This turned out to be a much faster way than if one-meter-long protective pipes had been installed one at a time on site.

"This is a pilot project for us, as we have not previously carried out similar electrical construction work as a general contractor. We have also not used this product before, so we considered different variations on how best to do the job. We found that this method was the most sensible," says Maukonen.

In the shadows of the nights, precise work is carried out

Changes have also been required in the placement of medium-voltage cables: previously, they ran parallel in cable chutes, but there was a risk that one cable could have damaged another. Now the cables are protected on the other side of the track with Uponor FastGuard protectors, which are resistant to ground stresses and UV radiation. This ensures the operability of the electricity network even if one of the cables is damaged.

According to Maukonen, the installation of the protective pipe has proceeded according to schedule, although the tight schedule of night hours poses its own challenges; Working is only possible during the night breaks of the metro, and effective working time is usually no more than five hours.

"Overnight, we have typically installed about 600 metres of protective pipe. The stages of work include assembling protective pipes, installing them in place and laying the cable inside the pipes. Most of the time is spent assembling the pipes, he says.

In FastGuard, the cable protectors are connected by an overhead locking mechanism and the pipes are attached to each other with sockets. The locking mechanisms are pressed shut with an arm or foot. If necessary, the pipe can also be bent 15 degrees per meter.

Although the experiences have been positive, there is also room for improvement. "We welcome all feedback and will strive to further enhance our customers' work phases in the future," says Uponor's Area Manager Esa Taskinen.

FastGuard installation in metro line in Helsinki







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