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OUTOKUMPU – ORIGINAL STAINLESS STEEL FRAMES CONTINUE TO SERVE EVEN AFTER X2000 UPGRADE PROJECT

In 1990s, Outokumpu supplied stainless steel for the high-speed X2000 trains manufactured by ABB to the Swedish state railway company SJ. The trains have served well for the past two decades, and now SJ is upgrading the trains to extend their service life by another 20 years. The original train frames made of Outokumpu stainless steel, however, continue in use, bringing in major savings and environmental benefits.

Initially, stainless steel was chosen as the main material for the train frames based on a thorough lifecycle analysis. It was calculated that in the long term stainless steel was a lighter, safer and cheaper option than aluminum or carbon steel. Lighter build means that less energy is needed to propel the train, which translates into considerable energy savings over time: it was estimated that over a 30-year period the energy savings would add up to more than 800,000 kilowatt hours per car. Moreover, maintenance was not needed, saving costs over a period of 30 years, and the weight reduction per care was about 20% compared to carbon steel.

Says Carl Jallinder-Björkman, Technical Project Manager at SJ: “The frame is designed with a high level of bending stiffness which reduces vibration and increases travel comfort. In addition, the stainless steel grade has excellent impact resistance in a collision situation, improving passenger safety.”

The current upgrade project seeks to extend the lifespan of the trains by decades by replacing some of the technical components including the propulsion and auxiliary systems, upgrading the doors and fully renewing the interior. The original stainless steel frames, however, will stay in service into the 2020s and 2030s, saving both money and natural resources. Over time, investing in quality stainless steel has proven to be the right, cost-efficient choice.

Jallinder-Björkman continues: “The lifetime assessment and inspections determined that the frames were largely intact. For one, upgrading is about four times cheaper than buying new trains. In addition, this decision supports SJ’s long-term corporate social responsibility strategy; the environment is of major importance for us, and upgrading the X2 fleet instead of having to invest in new vehicles has a significant positive impact on our environmental footprint.”

Says Claes Tigerstrand, Manager, Technical Market Development at Outokumpu: “This application highlights how crucial it is to apply lifecycle thinking when choosing materials, something Outokumpu has always encouraged customers to do. Looking at both costs and environmental impacts, choosing the right, sustainable stainless steel really pays off.”

For more information:

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Outokumpu Group

Outokumpu is a global leader in stainless steel. We create advanced materials that are efficient, long lasting and recyclable – thus building a world that lasts forever. Stainless steel, invented a century ago, is an ideal material to create lasting solutions in demanding applications from cutlery to bridges, energy and medical equipment: it is 100% recyclable, corrosion-resistant, maintenance-free, durable and hygienic. Outokumpu employs 11,000 professionals in more than 30 countries, with headquarters in Helsinki, Finland and shares listed in Nasdaq Helsinki.

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