



Rolling Stock Manufacturing & Maintenance

SŽ-VIT

Growing Together with Rolling Stock

From the moment the first train chugged down the track on present-day Slovene network, maintenance was needed to keep it in service. Fast forward almost 170 years, and what used to be simple steam locomotive sheds grew into five large workshops and five light maintenance depots. Together, they supply complete maintenance services for all types of rail vehicles operating on the two key European rail corridors which run through Slovenia.

The country's favorable geographical location and the steady growth of the fleet owned by the incumbent train operating company, Slovenian Railways (SŽ) allowed SŽ-VIT to gain the know-how required to offer rail maintenance services to rolling stock owners across Europe.

In Europe most rail maintenance workshops owned by national rail operators have one chief role – deliver reliable and quality rolling stock maintenance services to the controlling company, and SŽ-VIT was no exception to that rule. The liberalisation of the European rail



market at the turn of the 20th century, especially in rail freight, however, opened the rail network to rolling stock leasing companies and to other train operating companies, which was a game changer for us. Almost twenty years ago, our first post-liberalisation partnerships were with freight fleet owners, and over the past decade we have built successful long-term cooperation with owners of electric locomotives, also.

Each new vehicle added to SŽ's fleet is a new opportunity for our growth – from upgrading our workshop with new tools or machines and training our staff to acquiring new certifications. The quality of our maintenance work, individual approach to every customer and flexibility helped us earn the trust of many rolling stock owners, some who do not even operate on Slovene rail network but bring in their locomotives specifically for scheduled overhauls.

Maintenance of electric locomotives for international customers started years ago with Siemens ES64 F4 electric locomotives, continued with the ES 64 U4 later on, and today we are fully qualified to maintain the Vectron locomotives built by Siemens, which are some of the most common locomotives operating in Europe. Each of those vehicles was a valuable source of know-how, as well as a source of new challenges.

At the end of last year, we completed, in collaboration with one of our customers, the training of a specialist

technician for the maintenance of ETCS, SCMT and TBL+ on-board train control systems in Siemens Vectron (X4). Another important milestone in Vectron maintenance was reached earlier this year in June, when we launched an overhaul of the first locomotive of this type for a long-standing international customer. Before we could take on this challenge, we had to satisfy certain conditions, such as upgrading our shop with a measuring arm and getting certified to Knorr braking system maintenance.

The brakes certificate is held by the team of technicians who carry out electric locomotive maintenance for international customers. The training was done by Knorr at our facilities in Ljubljana and involved passing a competency assessment to obtain the certificate. Having become certified for Knorr brakes maintenance on Vectron (X4) on top of Siemens ES 64 U4 and ES 64 F4's brake systems, we now have the 'full package'. At the highest level, this kind of maintenance involves overhauls (also known as 'revisions' in continental Europe), in which all brake components are unmounted and sent to Knorr for servicing.

At the start of this year, we purchased a new measuring tool for bogie overhauls on the F4 and Vectron units – the A5 portable measuring arm is a significant technological upgrade





for our workshops. While currently used by a few workshops in Europe, it is still far from common. The tool is mainly intended for high-precision dimensional inspection of bogies, but can also be applied to other large components. High-resolution rotary encoders integrated into each joint continuously record the angular position of every axis. Based on the known geometry of the arm and the measured angles, the software calculates the exact three-dimensional coordinates of the probe tip in real time. This enables technicians to create highly accurate digital models of components, which can be used to build replacement parts.

The investment in this technology allowed us to secure a major two-year contract covering bodywork and bogie overhauls on the F4 and Vectron. It also boosted both our maintenance capabilities and the expertise of our technicians, making sure our locomotive maintenance services stay competitive in the greater area alongside the RFC 5 and RFC 10 European rail freight corridors. We are also looking forward to the Traxx locomotives entering service on the Slovene rail network, which will serve as another opportunity to grow.

Electric traction aside, we also offer modernisations of diesel and shunting locomotives. Recently, we completed two major modernisation projects on diesel locomotives which mostly run service in the Balkans, which remains one of our key markets for diesel traction maintenance. These projects typically involve completely refurbishing the locomotive and replacing the engine but can also extend to the refurbishment and replacement of other components.

Another important milestone was reached with the maintenance of the new generation of Stadler EMUs and DMUs, operated by Slovenian Railways' passenger train

operator, SŽ-Potniski promet. After the first inspections back in 2020 along with some workshop adjustments to be able to undertake double-deck unit overhauls, we are now fully qualified to offer comprehensive maintenance capability on both FLIRT and KISS trains. Maintenance of various levels is delivered from points across Slovene rail network to maximise fleet availability. Although Stadler multiple units have a maintenance sequence that is different from the one usually applied to the vehicles in our care, we have successfully adapted and are now able to offer almost all maintenance levels. At present, we carry out maintenance on more than half of the multiple units no longer covered by the manufacturer's warranty, and within the next few years we plan to cover the maintenance needs for the entire fleet of 72 Stadler units. Amongst other, our specialist services include a dedicated wheelset replacement workshop in Ptuj and engine replacement on diesel multiple units.

As new rolling stock enters service – be it on Slovene rail network or elsewhere in Europe – we continue building our name as a trusted maintenance partner for all types of rail vehicles with a focus on long-term partnerships that allow us to grow as our customers' fleets evolve and new technologies emerge. Each new project is an opportunity to deliver technical excellence and, in particular, to create relationships that last, allowing us to offer support for the long haul.

At SŽ - VIT, we keep your vehicles FIT.

For more information, [visit our website](https://www.sz-vit.si), leave a message or give us a call.

sales@sz-vit.si | Tel: +386 30 609 170

