Velaro RUS Maintenance in St. Petersburg

Project Introduction
### “Sapsan” high-speed train
#### Velaro RUS project history

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>2006</td>
<td>Delivery contract concluded for 8 “Sapsan” trains (Project Velaro RUS 1)</td>
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<tr>
<td>2007</td>
<td>30-year contract concluded for maintenance of “Sapsan” trains</td>
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<td>2008</td>
<td>First train arrives to Ust-Luga port, Russia</td>
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<td>2009</td>
<td>December 17 - First Moscow-St. Petersburg run with passengers</td>
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<tr>
<td>2011</td>
<td>Delivery contract concluded for 8 extra “Sapsan” trains (Project Velaro RUS 2)</td>
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<tr>
<td>2013</td>
<td>First train delivered under Project Velaro RUS 2</td>
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<tr>
<td>2014</td>
<td>Start of double train set operation</td>
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<tr>
<td>2018</td>
<td>Connection to Nizhniy Novgorod</td>
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<tr>
<td>2019</td>
<td>Delivery contract concluded for 13 extra “Sapsan” trains (Project Velaro RUS 3)</td>
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- Currently 16 “Sapsan” trains are in operation. Average yearly run – 490,000 km per train.
- 13 “Sapsan” pairs, including three double train sets, perform their daily run between Moscow and St. Petersburg, 670 km in less than 4 hours.
- “Sapsans” currently account for more than half of passenger flow between St. Petersburg and Moscow. Occupancy of seats in express trains is close to 100%.
- As of July 2019, total run exceeds 52 million km.
- Around 12 million km without delay due to Siemens fault (Feb 2018 - August 2019).
“Lastochka” express train
Desiro RUS project history

“Lastochka” is an express train developed by Siemens and intended for suburban and intercity transportation.

2009 First contract for delivery of 38 trains from Krefeld has been signed
2010 Contract for delivery of 16 more trains has been concluded.
2011 Contract for manufacturing of 240 trains (1,200 rail cars) in Russia
2013 Trains are being produced by Ural Locomotives near Yekaterinburg
2015 40-year contract for maintenance of “Lastochka” trains.
2016 “Lastochka” trains are in operation with Moscow Central Ring.
Velaro and Desiro in Russia incl. maintenance locations

Maintenance facility for Velaro RUS in:
- St. Petersburg
- Moscow
- Adler
- Kaliningrad
- Yekaterinburg

Maintenance facility for Desiro RUS in:
- St. Petersburg
- Moscow
- Adler
- Kaliningrad
- Yekaterinburg
Maintenance of “Sapsan” and “Lastochka” trains

- The depot was established in 2000 to provide maintenance to “ER-200” and “Sokol” express trains.

- In 2009, “Sapsan” electric trains maintenance shop was commissioned after refurbishment in order to achieve maximum availability of electric trains (24/7). The depot provides train maintenance (including monitoring and troubleshooting) and repair.

- On 28 April 2015, Metallostroy-2 overhaul shop foundation stone laying ceremony took place.

- On June 16, 2016, the depot officially opened its new shop to performs overhaul of “Sapsan” trains (Velaro RUS) and maintenance of “Lastochka” trains (Desiro RUS). The shop is equipped to lift a complete train for quicker work.
Metallostroy depot

Key facts

- 16 Velaro RUS and 33 Desiro RUS trains
- Light and heavy maintenance
- 4 shifts
- Six tracks for troubleshooting, commissioning and electrical testing
- Component repair area
- Wheel pair and bogie frame
- Washing and sandblasting area
- Wheel pairs shaping center
- Painting booth
“Sapsan” express train
Velaro RUS project quality
Winter Challenges

Inside the washing hall

Snow and Ice removed from bogies with

- warm air and
- warm water (40 - 65°C under pressure 0.2 - 0.35 Mpa).

Average time for one train around 2 hours

Result
Winter Challenges - Nordic Anti-Icing System

- Automatic / easy to handle
- Environment-friendly
- Modern Software for diagnostic and supervision
-Effizient related to time and costs (for power..)
- Standard time per train: 5 minutes
- Not used liquids will be collected, cleaned and reused
Thank you for your attention!