СТМ
SINARA TRANSPORT MACHINES

Production of JSC «SINARA-TRANSPORT MACHINES»

STM Holding today





over 20 thousand employees

over 26 billion RUR revenue of OJSC "STM" in 2014

over 300 machines manufactured in 2014

over 8200 locomotive sections serviced by the service company

Enterprises of SINARA TRANSPORT MACHINES

ЛЮДИНОВСКИЙ ТЕПЛОВОЗОСТРОИТЕЛЬНЫЙ ЗАВОД

- Manufacturer of shunting, pilot and mainline locomotives
- Output capacity – **150** locomotives
- Staff– **1750** people
- Markets– JSC Russian Railways, commercial market

More than 23.000 employees

Total revenue 28 billions rub

Output 300 locomotives

Service of 8200 units of locomotives

УРАЛЬСКИЙ ДИЗЕЛЬ МОТОРНЫЙ ЗАВОД

- Industrial diesel manufacturer
- Staff– **600** people
- Production capacity – **150** diesels per year
- Markets – diesel locomotive building, shipbuilding, RF Ministry of Defense, small-scale power generation

КАЛУГАПУТЬМАШ

- Enterprise producing track equipment
- Staff - **2260** people
- Markets - OAO "RZD" universally

Уральские локомотивы

- Joint venture ZAO Sinara Group and Siemens AG for the production of electric locomotives and trains
- Establish - **2010**
- Staff - **3270** people.

СТМ СЕРВИС

СИНАРАТРАНСПОРТНЫЕМАШИНЫ

- Enterprise for service maintenance of locomotives and diesel engines
- Established in **2011**
- Staff– **12 230** people
- Number of services centers – **28** centers

STM Products

TGM4B
4-axle shunting locomotive, 588 kW

TGM6D
4-axle shunting locomotive, 882 kW

TEM7A
8-axle shunting & clean-up locomotive, 1470 kW

EU-500
Booster power plant, 500 kW

TEM9, TEM9TA
4-axle shunting locomotive, 880 kW

TEM9H
shunting locomotive with hybrid drive, 880 kW

TEM14
8-axle two-diesel shunting & clean-up locomotive, 1,800 kW

TE8
8-axle locomotive of mainline type, 2,200 kW

TG16M
Two-piece mainline locomotive, 2,940 kW

GT1h
Mainline gas turbine carrying train, 8,500 kW

TE35
Mainline single-section locomotive
3,700-4,200 kW

Multifunctional shunting mechanism,
150-500 кW

2ES6 two-piece cargo DC locomotive

2ES10 two-piece cargo DC locomotive

2ES7 AC locomotive with asynchronous traction motors

“Lastochka" train with asynchronous traction motors

Subway train prototype

Low-floor trams

6DM-21
6-cylinder diesel engine, 500-630 kW

DG-630, ADG-630
6-cylinder diesel generator, 630 kW

8DM-21
8-cylinder diesel engine 880, 882 kW

DG-880, 882
8-cylinder diesel generator, 880, 882 kW

12 DM-21
12-cylinder engine and DG DG-1400, ADG-1600, 1400, 1600 kW

DM-185
family of new generation diesel engines, 1,000-3,000 kW

Track rail welding self-powered machine “PRSM”

Streightening & aligning machine **“VPRS-10”**

Ballast distributor & planner **“RPB”**

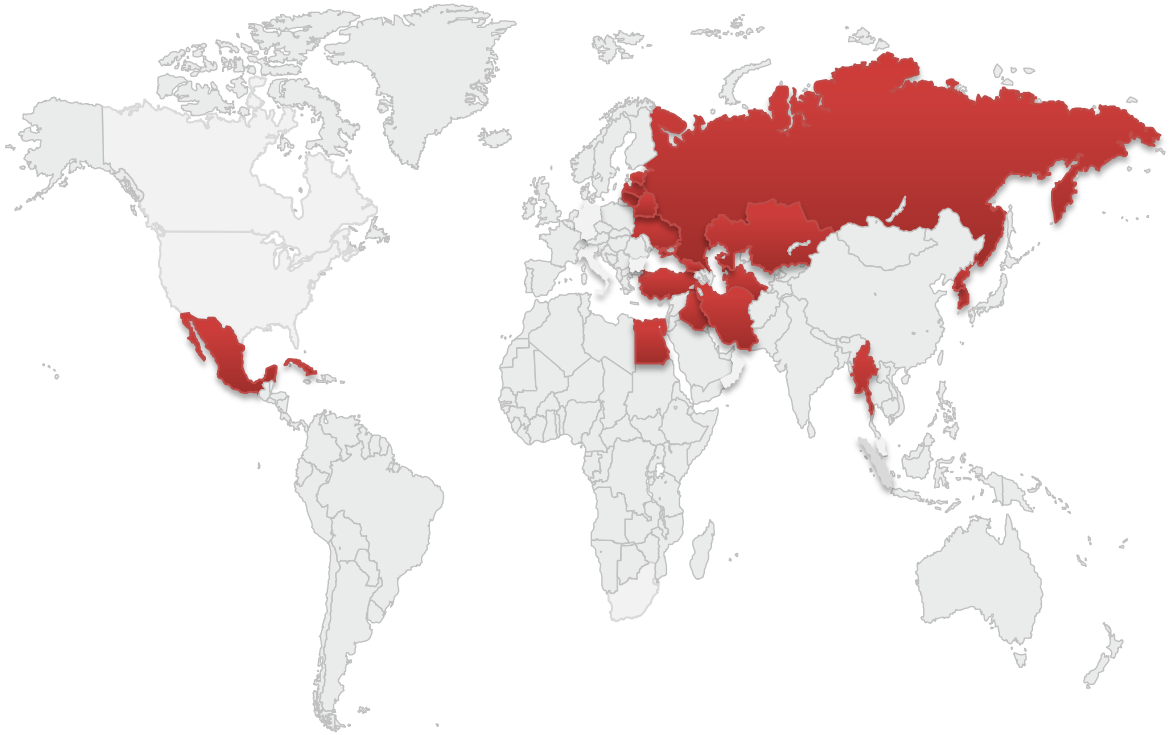
PUMA Multifunctional track machine

UK-25/28SP track crane

Motorized platforms

Sales geography of SINARA TRANSPORT MACHINES products

GROUP SINARA



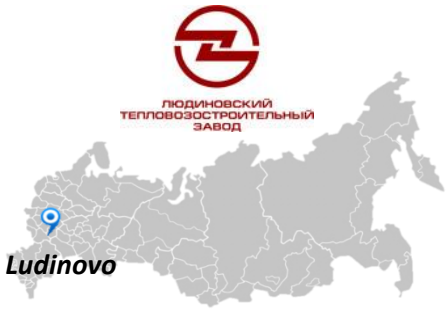
Key client -

Russian Railways

Clients

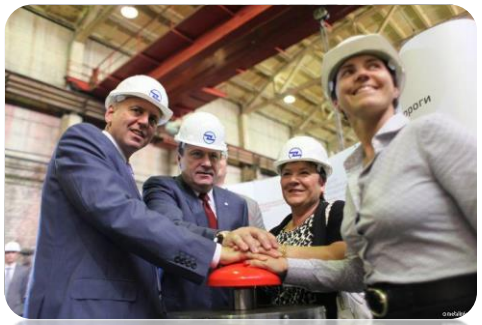
Partenaires

LUDINOVO Diesel Locomotive Plant production site



Ludinovo Diesel Locomotive Plant OJSC is a leading company in the Russian Federation diesel locomotive manufacturing market

LDLP specialization: shunting diesel locomotives, clean-up switchers. and mainline diesel locomotives for Russian Railways OJSC and industrial market

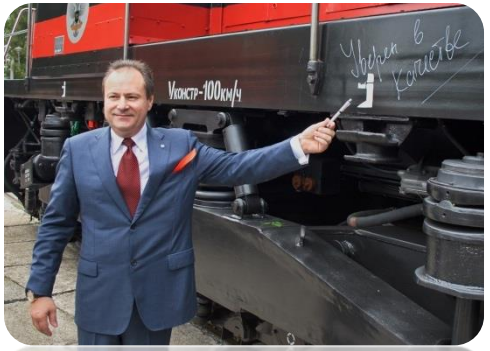


Ludinovo Diesel Locomotive Plant OJSC was included in STM in **2007**

The company possesses: ISO 9001 international system certificate

Staff: **1,800** people

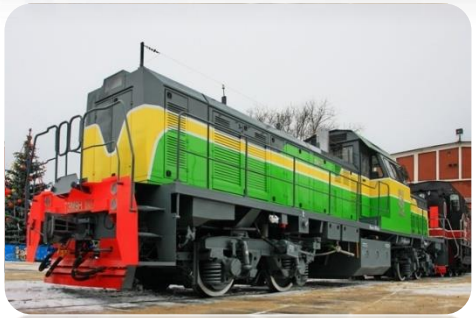
Production capacity: **150 diesel locomotives** per year



Ludinovo Diesel Locomotive Plant OJSC today:

LDLP OJSC is implementing a production modernization program:

- Program purpose: **To create a modern facility producing** diesel locomotives with to increase company production capacity to **200 diesel locomotives per year**.
- Modernization program period: **2014 to 2015**
- Total investments: over **2 billion rubles**

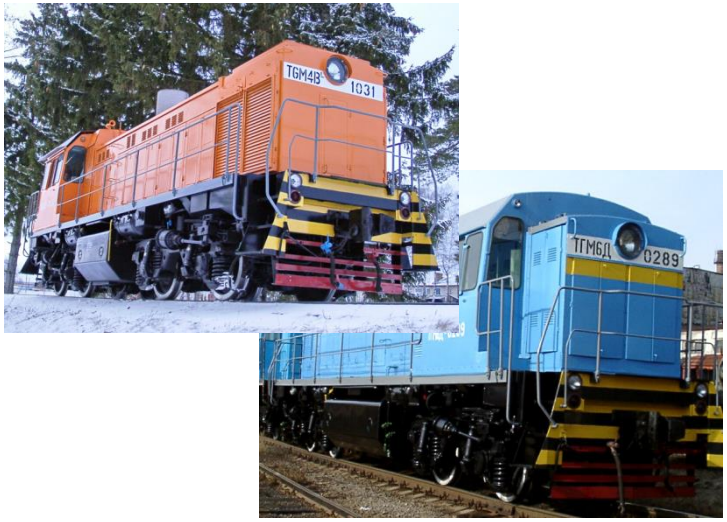


The project envisages to:

- Introduce the modern technology of machining diesel locomotive parts and units
- Equip the assembly and welding shop with high-performance and energy-efficient modern equipment
- Create a modern blank production facility
- Modernize the existing process equipment by type of production (machining, metallurgical, assembly shops)
- Reduce the time of component delivery and inter-shop shipping operations through acquisition of transportation vehicles, including specialized ones
- Introduce IT technologies in production and to provide modern hardware and software products
- Acquire modern devices and measuring equipment
- Refurbish produciton buildings and installations

Diesel locomotives with hydraulic transmission

TGM4B, TGM6D



Diesel locomotives with hydraulic transmission
TGM4B, TGM6D:

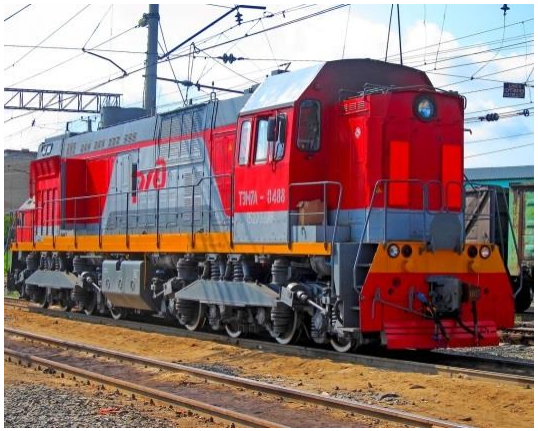
- The TGM4B, TGM6D shunting diesel locomotives with hydraulic transmission possess operational reliability and ease of maintenance.
- TGM4B diesel locomotive with hydraulic transmission in two versions: 80t and 68t
- The diesel locomotives are equipped with modern improved diesel engines 6DM21L and 8DM21L manufactured by Urals Diesel Motor Plant LLC (part of the STV) or motors from other manufacturers on the Customer's request.

Technical characteristics:

#	Parameters/model	TGM4B	TGM6D
1.	Wheel arrangement	$2_0 - 2_0$	$2_0 - 2_0$
2.	Diesel power [kW (hp)]	599 (814)	882 (1,200)
3.	Diesel locomotive weight [t]	80	90
4.	Track gage [mm]	1,520; 1,435	1,520; 1,435
5.	Dimensions per GOST 9238-83	02-BM	02-BM
6.	Static load created by wheel pair on rails [kN (tf)]	196 (20.0)	220.5 (22.5)
7.	Tangential starting traction force in shunting mode [kN] (Ψ=0.4) using sand	313.6 (32.0)	353.0 (36.0)
8.	Continuous-duty tangential traction force [kN] at V = 9 km/h	160.7 (16.4)	232.4 (23.7)
9.	Design speed in shunting mode [m/s (km/h)]	8.9 (32.0)	10.1 (36.3)
10.	Design speed in train mode [m/s (km/h)]	18.1 (65.0)	20.6 (74.2)
11.	Minimum radius of the passed curves [m]	40	40

Diesel locomotives with electric transmission

TEM7A



TEM7A shunting diesel locomotive with electric transmission:

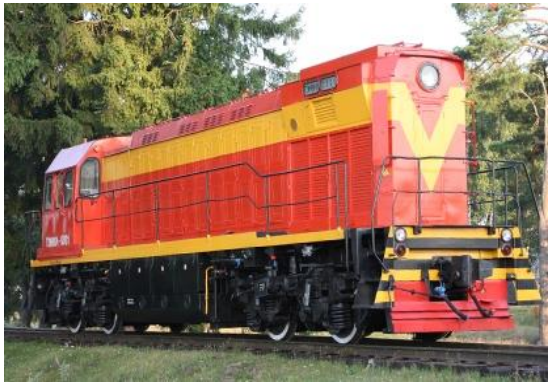
- Powerful shunting clean-up and hump diesel locomotive capable of multi-unit operation.
- A microprocessor-based monitoring, control and diagnostics system is installed on the TEM7A diesel locomotive.
- The diesel locomotive cab is brought in conformity to modern ergonomics requirements, locomotive crew working conditions are improved.
- A transport verison of air-conditioner is installed.
- The diesel locomotive meets with the safety standards of Register of Certification on Federal Railway Transport (RCFRT).

Technical characteristics:

#	Parameters	Parameter values
1.	Wheel arrangement	$2_0 + 2_0 – 2_0 + 2_0$
2.	Diesel power [kW (hp)]	1,470 (2,000)
3.	Diesel locomotive weight [t]	180
4.	Track gage [mm]	1,520
5.	Dimensions per GOST 9238-83	1-BM
6.	Load created by wheel pair on rails [kN (tf)]	220 (22.5)
7.	Traction force [tf]: - On starting	582 (59.4)
8.	Traction force [kN (tf)]: - Design mode	300 (30.6)
9.	Speed [m/s (km/h)] - Design speed	27.7 (100)
10.	Speed [m/s (km/h)] - Design mode	4.0 (14.4)
11.	Minimum radius of the passed curves [m]	80
12.	Wheel tread diameter [mm]	1,050

Diesel locomotives with electric transmission

TEM9, TEM9TA



TEM9 shunting diesel locomotive with electric transmission:

TEM9, TEM9TA shunting diesel locomotive (with a traction unit) with electric transmission is designed for shunting operations at the industrial enterprises of the real sector

Key customers:

Enterprises from metallurgy, mineral feedstock industry, fuel and power industry, chemical industry, and other industries of the real economy sector

Technical characteristics:

##	Parameters	Parameter value
1.	Wheel arrangement	$2_0 - 2_0$
2.	Diesel power [kW (hp)]	930 (1,265)
3.	Diesel locomotive weight [t]	90
4.	Track gage [mm]	1,520; 1,435
5.	Tangential traction force [kN (tf)]:	245 (25.0)
6.	Design speed [m/s (km/h)]	27.8 (100)
7.	Radius of the passed curves [m]	50

Locomotive advantages:

- Increased dynamic properties of the locomotive
- Maneuverability in passing curves of small radii
- Modern principle of modular assembly
- Modern electronic systems and options (microprocessor-based engine control systems (MECS))
- DG-880L, DG-882L modern diesel generator
- The mechanical part is similar to that of TEM2, TEM18, which ensures fleet maintainability
- The cab meets modern ergonomics requirements
- Convenient service
- 2-unit locomotive operation
- Compliance with Register of Certification on Federal Railway Transport safety standards

Innovative locomotives

TEM9h with a hybrid power plant

TEM9N shunting diesel locomotive with electric transmission:

New modern shunting diesel locomotive with an intelligent hybrid power plant

Key customers:

Russian Railways OJSC and Enterprises from metallurgy, mineral feedstock industry, fuel and power industry, chemical industry, and other industries of the real economy sector

Technical characteristics:

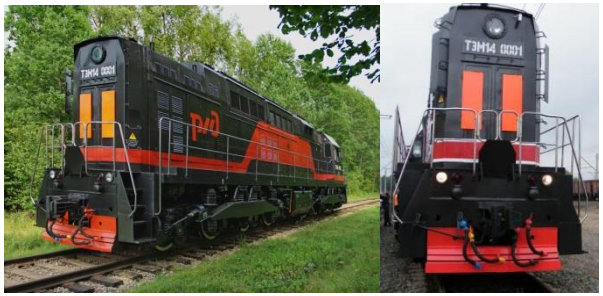
#	Parameters	Parameter value
1.	Wheel arrangement	2o–2o
2.	Diesel locomotive power by diesel generator [kW (hp)]	630 (857)*
3.	Diesel locomotive power by electric energy storage device [kW (hp)]	252 (343)*
4.	Design speed [m/s (km/h)]	27.8 (100)
5.	Static load created by wheel pair on rails [kN (tf)]	221 (22,5) ±3%
6.	Starting traction force, no less than [kN (tf)]	291 (29.7)
7.	Static load created by wheel pair on rails [kN (tf)]	221 (22,5) ±3%

Locomotive advantages:

- Intelligent microprocessor system
- Li-ion batteries and supercapacitors
- GLONASS system
- CCTV and mating control system
- Locomotive pre-starting start-up system
- Fuel tank capacity: 4.6 t (instead of 6.4 t)
- Diesel fuel consumption reduced by 30%
- Emissions to the environment reduced by up to 55%

Innovative locomotives

TEM 14 with a double-diesel power plant



TEM14 shunting diesel locom0otive with electric transmission:

The TEM14 diesel locomotive is designed for shunting, clean-up and hump operations at stations and on 1,520 mm gage railways

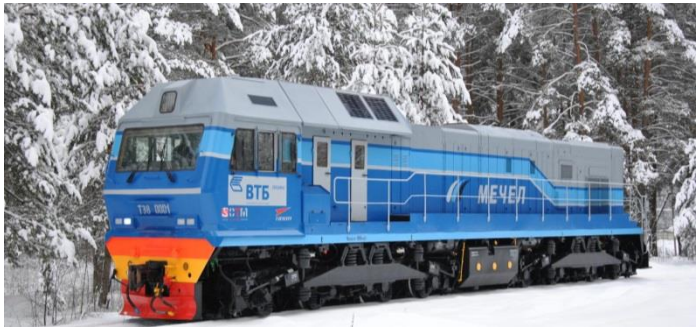
- Modular diesel locomotive design
- Comfortable working conditions for locomotive crews
- Modern pre-starting heaters enable an easy locomotive start in winter conditions
- Automatic diesel engine starting system depending on traction load
- Fuel economy: 20%

Technical characteristics:

#	Parameters	Parameter value
1.	Wheel arrangement	2o-2o+2o-2o
2.	Diesel power [kW (hp)]	1,764 (2,400)
3.	Dimensions per GOST 9238-83	1-T
4.	Track gage [mm]	1520
5.	Design speed [m/s (km/h)]	27.7 (100)
6.	Service weight [t]	180±3%
7.	Load created by wheel pair on rails [kN (tf)]	220.5 (22.5)
8.	Diesel fuel stock [kg], no less than	6,000
9.	Sand stock [kg]	1,500
10.	Minimum radius of the passed curves [m]	80
11.	Diesel locomotive overhaul [years]	20
12.	Specific fuel consumption at rated power t/kWh (g/hp*h)	209.2+10.5 (154.0+7.39)

Innovative locomotives

TE 8



TE8 mainline clean-up diesel locomotive:

Mainline freight single-section diesel locomotive with a General Electric power plant

The diesel locomotive is designed for the needs of the mining, oil&gas and chemical industries during the development of large deposits of raw materials.

Key customers:

Enterprises from mining industry and mineral feedstock industry

Technical characteristics:

#	Parameter	Value
1.	Diesel locomotive power by diesel [kW (hp)]	2,200 (3,000)
2.	Design speed [m/s (km/h)]	27.8 (100)
3.	Continuous-duty tangential traction force [kN (tf)]	360 (36.7)
4.	Continuous-duty speed, no less than [km/h]	24.5
5.	Starting traction force [tf]	582 (59.4)
6.	Radius of the passed curves [m]	80

Diesel locomotive advantages:

- Innovative hardware and software solutions are used in the diesel locomotive for panel equipment and diesel locomotive control system.
- Modern comfortable working conditions for locomotive crews from the viewpoint of heat and sound insulation.
- The locomotive is adapted for operation in complicated territorial and climatic conditions.
- The diesel locomotive can be operated in the multi-unit mode.

Sinara Transport Machines SERVICE system

STM key SERVICE areas

ELECTRIC LOCOMOTIVE SERVICE

Key partners:

Российские железные дороги

Russian Railways electric locomotive fleet serviced by STV: **8m204** sections

DIESEL LOCOMOTIVE SERVICE

Key partners:

РЖД, Газпром, Мечел, Магнитогорский металлургический комбинат

Diesel locomotive fleet used by the general industrial market services by STV: **340** units

POWER PLANT SERVICE

Key partners:

Министерство Обороны РФ

Organization of service centers for the Russian Navy: **new line of service** STV-Service

STV-Service offers its customers a full list of services in 4 key areas:

- Support package (technical consulting)
- Logistical support (supply of spare parts)
- Service of individual units
- Full range of services

- ❑ The individual needs of the Customer are a necessary package of services from STV
- ❑ The benefits of STV branded service are uninterruptible operation and predictable costs
- ❑ The system of branded service is a key factor in improving the STV competitiveness in the modern market

СТМ
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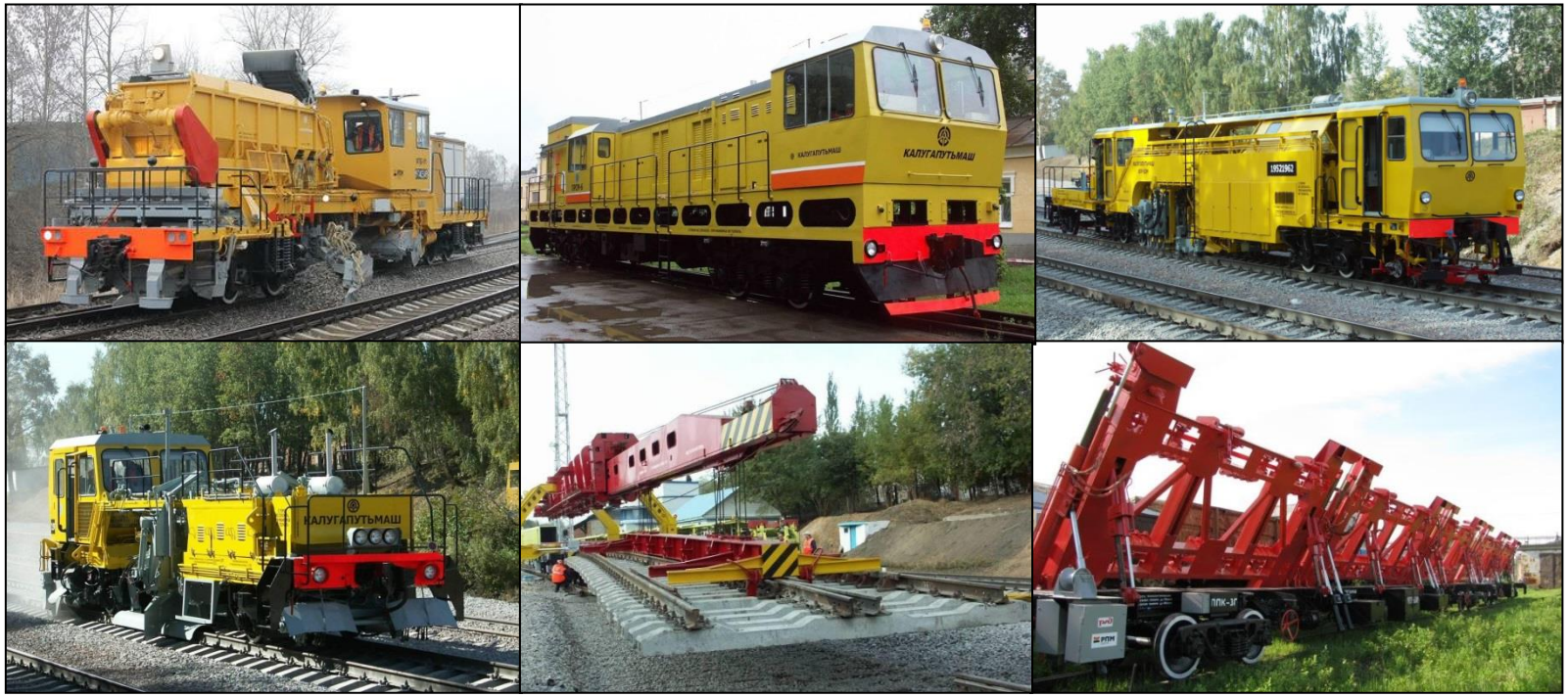


Track Maintenance vehicles
OJSC “Sinara-Transport Vehicles”

КАЛУГАПУТЬМАШ

СТМ
SINARA TRANSPORT MACHINES

OJSC "Kalugaputmash" is a leading Russian producer of railway maintenance machinery for the purposes of repair, construction and operation of railways, as well as hydraulic clutches for basic equipment drives and hydraulic transmissions for industrial locomotives, diesel-locomotive shunters and track machines. OJSC "Kalugaputmash" is incorporated into OJSC "Sinara-Transport Vehicles".

About the company:

- Production of railway maintenance machinery for the purposes of repair, construction and operation of railways, as well as hydraulic clutches for basic equipment drives and hydraulic transmissions for industrial locomotives, diesel-locomotive shunters and track machines.
- Modern enterprise comprising various types of production: grey iron foundry, steelmaking, nonferrous casing, press-shop operation, thermal processes, metal-working manufacturing, assembling and testing, repair and maintenance.
- Diploma of the Russian Railways certifying the 3rd place in the competition held by the Open Joint Stock Company "Russian Railways" in 2013 for the best quality of rolling stock and complex technical systems.
- Personnel capacity is 2,260 persons.

OJSC "Kalugaputmash" carries out research and development activities on creation of new samples of maintenance vehicles and hydraulic transmissions, as well as on improvement and upgrading serial products. Development of the new items, determination of their technical data and testing of experimental models are performed jointly with research institutions and organizations, such as "Central Design Bureau for Heavy Maintenance Vehicles", "Technology and Design Bureau for Railway and Maintenance Vehicles", "All-Russian Scientific Research Institute of Railway Transport" etc.

Maintenance vehicles
OJSC “Sinara-Transport Vehicles”

Ballast distributing and leveling machine RPB-01

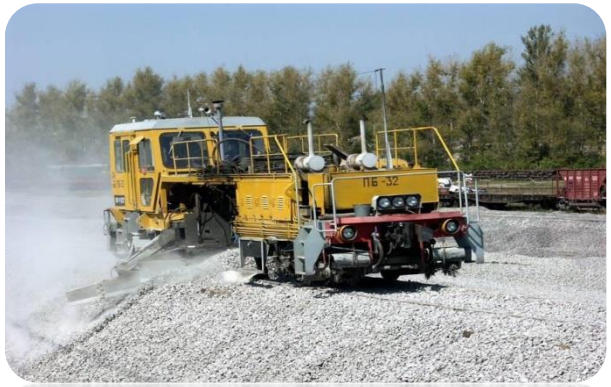
Ballast distributing and leveling machine RPB-01 is designed for leveling and redistributing of ballast in the process of construction and all kinds of repair and maintenance of railway on tangents and curved sections applying all kinds of ballast, sleepers, rails and rail fastenings

Specifications:

Position	Parameters	Parameter value
1.	Powerplant output, kW (HP)	345 (470)
2.	Travel speed, km/h:	
	• single machine on the platform, in self-propelled mode, with empty batch bin	100
	• single machine on the platform, in self-propelled mode, with loaded batch bin	80
	• when transporting as a part of train	100
3.	Maximum speed in operation mode, km/h:	
	• when operating with central plough	20
	• when operating with side ploughs	6
	• when operating with collector and elevator	3
4.	Maximum ballast grasp width, m:	
	• with central plough	3.6
	• with side ploughs	6.7
	• with collector	2.6
5.	Batch bin capacity, m^3	10
6.	Trailer load weight, tons	60
7.	Clearance (as per GOST 9238 -83)	1-T
8.	Radius of the curves ran through, m	150
9.	Dimensions, mm	21,300 x 3,230 x 5,100

Maintenance vehicles
OJSC “Sinara-Transport Vehicles”

Ballast leveling machine PB-01



Ballast leveling machine is designed for leveling and redistributing of freshly dumped ballast in the process of all kinds of railway repair. It can also be used in the course of railway construction and maintenance applying all kinds of rails up to R75 inclusively, wooden and ferroconcrete sleepers, as well as all kinds of fastening and ballast.

Specifications:

Position	Parameters	Parameter value
1.	Service weight, tons	28
2.	Maximum travel speed, km/h (in transport mode)	80
3.	Speed range in operation mode, km/h	100
	• when operating with collector and brushes for cleaning of fastenings	0...2
	• when operating with side ploughs	0...6
	• when operating with central plough - 0...20	0...20
4.	Maximum ballast grasp width, m:	
	• when operating with central plough	3.6
	• when operating with side ploughs	6.4
	• when operating with collector	2.6
5	Minimal radius of the curves ran through, m:	
	• in transport mode	150
	• in operation mode	200
6.	Powerplant output, kW (HP)	176 (240)

Maintenance vehicles
OJSC “Sinara-Transport Vehicles”

Flattener machine VPR-02M

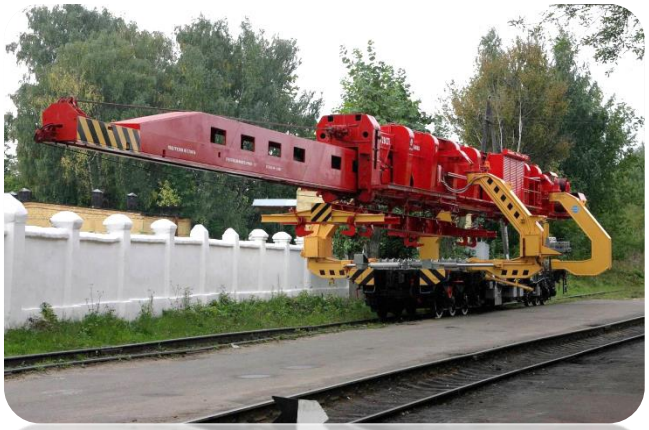
Designed for surfacing and tamping operations in the process of all kinds of repair, construction and maintenance of railways applying rails up to R65 inclusively and all kinds of ballast, on the slopes less than 200/00. The machine is equipped with microprocessor bases surfacing control system.

Specifications:

Position	Parameters	Parameter value
1.	Powerplant output, kW (HP)	220
2.	Transmission type	Hydromechanical
3.	Performance, sleepers per hour	1,400
4.	Railway surfacing accuracy:	
	• Maximum deviation in profile elevation on the base of 2.5 m, ‰	1
	• Maximum difference in the level of rails’ positions on the length of 1 m, mm	1
5.	Accuracy of railway position in plan view:	
	• Maximum difference between neighboring bending deflections measured in the middle of 20m chord with the interval of 5 m, mm	2
6.	Maximum values of railway surfacing, mm:	
	• Raise	100
	• Shift	100
7.	Maximum travel speed, km/h:	
	• in self-propelled mode	80
	• with attached locomotive	100
8.	Service weight, tons	56

Maintenance vehicles
OJSC “Sinara-Transport Vehicles”

Track crane UK-25/28SP



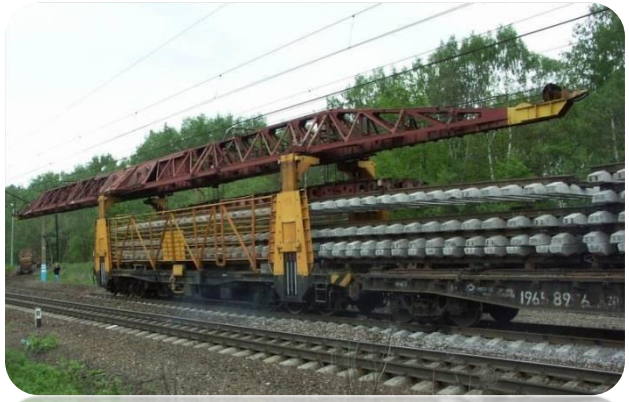
Track crane UK-28/28SP is designed for replacement of large blocks of any track switches (of 1/9, 1/11 grades) with P50, P65, P75 types of rails on ferroconcrete and wooden timbers, as well as for track stripping and laying applying 25m sections.

Specifications:

Position	Parameters	Parameter value
1.	Carrying capacity, tons	30
2.	Maximum length of stripped or laid blocks or sections, m	25
3.	Maximum width of stripped or laid blocks or sections, m	5.5
4.	Maximum travel speed, km/h	
	• in self-propelled mode and operation mode	18
	• as a part of freight train	80
5.	Minimal starting tractive power, tnf	10
6.	Minimal tractive effort of winding gear for packages movement, tnf	2
7.	Load on rails from set of wheels, tnf	21.6
8.	Clearance (as per GOST 9238-83)	Tpr
9.	Dimensions, mm:	
	• overall length	44,320±100
	• width in transport position	3,430±10
	• height in transport and operation position	5,150±10
10.	Service weight, tons	130±3.9
11.	Operating personnel, persons	2

Maintenance vehicles
OJSC “Sinara-Transport Vehicles”

Track crane UK-25/9-18



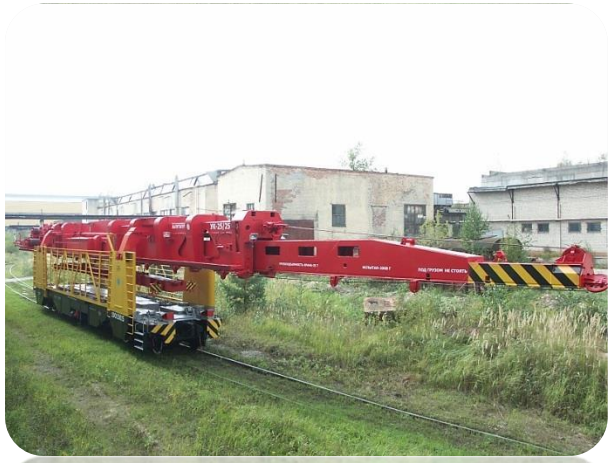
Track crane UK-25/9-18 is designed for railway stripping and laying applying up to 18 tons and up to 25m sections on wooden and ferroconcrete sleepers in the course of railway repair and construction.

Specifications:

Position	Parameters	Parameter value
1.	Carrying capacity, tons	18
2.	Maximum length of stripped or laid sections, m	25
3.	Maximum travel speed, km/h	
	• in self-propelled mode	20
	• as a part of train	80
4.	Starting tractive power, tnf	10
5.	Tractive effort of winding gear for packages movement, tnf	3
6.	Load on rails from set of wheels, tnf	17
7.	Dimensions, mm:	43,330x3,250x5,280 (43,330x3,130x4,600)
8.	Services weight, tons:	102
9.	Operating personnel, persons	2

Maintenance vehicles
OJSC “Sinara-Transport Vehicles”

Track crane UK-25/25



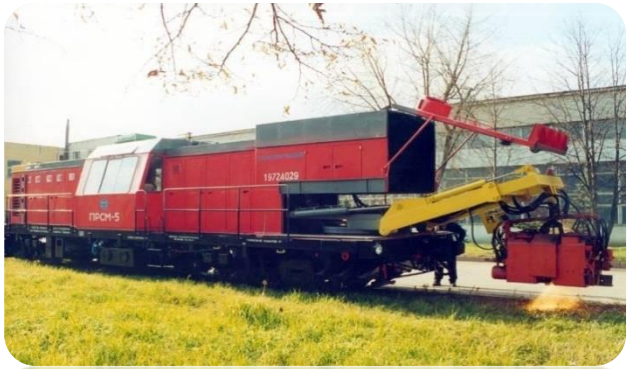
Self-propelled, in the operation process track crane UK-25/25 is a lead vehicle of track laying and track stripping systems, it performs railway laying and stripping applying 25m and up to 25 tons sections.

Specifications:

Position	Parameters	Parameter value
1.	Maximum carrying capacity, tons	25
2.	Maximum travel speed as a part of train, km/h	80
3.	Maximum travel speed in self-propelled mode, km/h	15
4.	Minimal radius of the curves ran through, m	180
5.	Clearance in transport position (as per GOST 9238-83)	Tpr
6.	Maximum length of stripped or laid section, m	25
7.	Maximum quantity of sections in a package, pieces	6
8.	Maximal starting tractive power on platform, tnf	13
9.	Maximum angle of boom in each direction, against track centerline, deg.	3
10.	Dimensions, mm:	
	• overall length	44,320±100
	• maximum width in transport position	3,430±10
	• maximum height in transport position	5,160±10
	• maximum height in operation position	6,830±20
15.	Weight of crane with full water, oil and fuel reserves, tons	135.0±4,1
16.	Operating personnel, persons	2

Maintenance vehicles
OJSC “Sinara-Transport Vehicles”

Rail-welding self-propelled machine PRSM–5



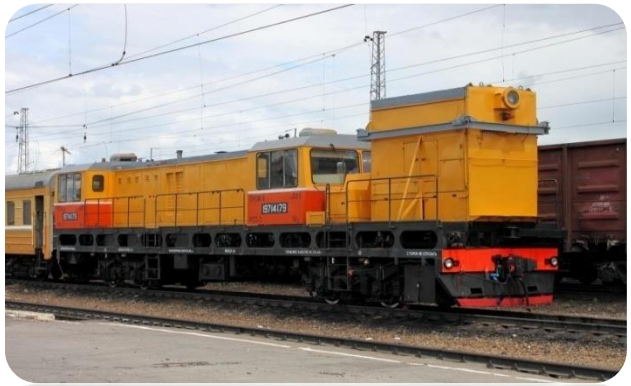
PRSM-5 is designed for electric resistance welding of rail joints. Rail welding can be applied both to the rails within the railway, which the machine is moving along, and to the rails laid along this railway inside or outside the track on the distance of 3,300 mm from the centre line. The machine is equipped with rail tightening device and support equipment enabling to tighten track panel and to weld the rails without detaching them from the sleepers.

Specifications:

Position	Parameters	Parameter value
1.	Performance when welding R65 rail joints, joints/h	10
2.	Machine travel speed, km/h:	
	• in self-propelled mode	95
	• in transport position as a part of train	100
3.	Sectional area of welded rails, mm^2	6,400 – 10,000
4.	Service weight, tons	46
5.	Dimensions, mm	14,480 x 3,030 x 4,280
6.	Operating personnel, persons	2

Maintenance vehicles
OJSC “Sinara-Transport Vehicles”

Rail-welding self-propelled machine PRSM–6



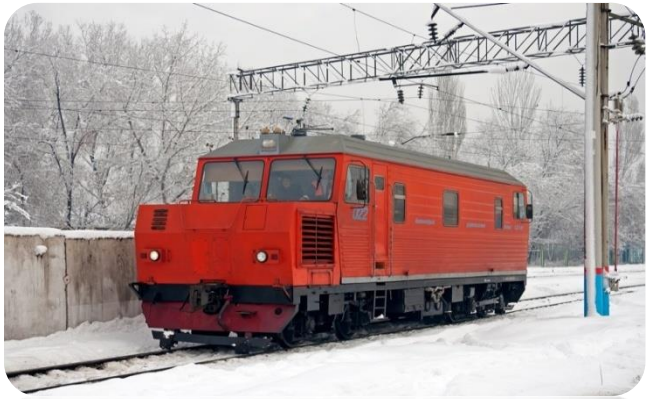
PRSM-6 is created to provide and reconstruct railway bars by means of high quality welding of all kinds of trackside-applied rails. It can perform operations both along the way as an independent unit and on the railway platforms as a part of bar laying complex and induction heat treatment of welding joint with metal quality control.

Specifications:

Position	Parameters	Parameter value
1.	Diesel-generator set output, kW	280
2.	Sectional area of welded rails, mm^2	6,400-10,000
3.	Performance when welding R65 rail joints, joints/h	10
4.	Availability of support equipment (welding joints heat treatment complex, welding joints control press)	available
5.	Maximum travel speed, km/h	
	• single machine on the platform, in self-propelled mode	80
	• on the platform, in self-propelled mode, with trailer load of 90 tons	80
	• when transporting as a part of train	80
6.	Unladen weight, tons	80
7.	Operating personnel, persons	2

Maintenance vehicles
OJSC “Sinara-Transport Vehicles”

Failure detection electrical rail motorcar ADE-1



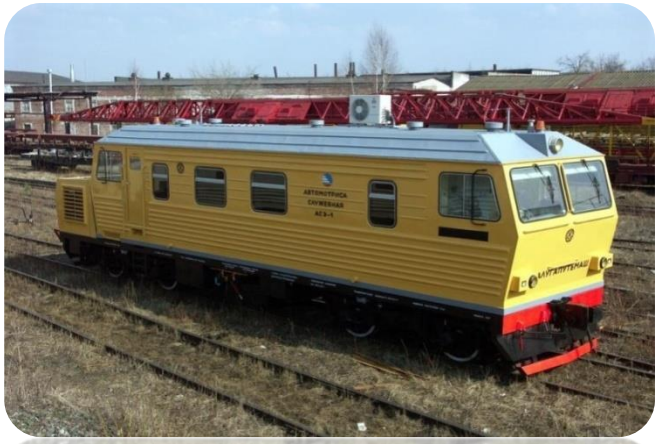
Failure detection electrical rail motorcar ADE-1 is designed for quality control of P50, P65, P75 rails laid into railway, employing the methods of ultrasonic and magnetic failure detection. Motorcar can be used in any weather conditions and at any time of day and night, air temperature range from -40°C to +40°C (in case of ultrasonic control the range is from -30°C to +40°C). Motorcar is equipped with safety system “KLUB-UP” and besides service rooms has also compartments for service personnel long term stay and rest.

Specifications:

Position	Parameters	Parameter value
1.	Tread diameter of the wheel, mm	950
2.	Wheelbase, mm	8,400
3.	Clearance (as per GOST 9238-83)	1-VM
4.	Length over pulling faces of couplers, mm	14,480
5.	Width, mm	3,300
6.	Height, mm	4,750
7.	Service weight, tons	45
8.	Powerplant output, kW	200
9.	Speed, km/h:	
	• maximum	80
	• in control mode	5...60
10.	Maximum preparation time, min.	5
11.	Minimal continuous work time, hours	12
12.	Operating personnel, persons	5-6

Maintenance vehicles
OJSC “Sinara-Transport Vehicles”

Service rail motorcar ASE-1



ASE-1 is designed for operational transportation of workers and administrative and technical staff on the railways. Motorcar provides comfort for the crew and transported personnel thanks to the design of roomy body, conditioner (used in summer) and electric heater with fan (used in winter). Motorcar is highly reliable due to application of serial components and assemblies that work well in practice.

Specifications:

Position	Parameters	Parameter value
1.	Number of seating, including the seatings for driver and assistant	24
2.	Operating personnel, persons	2
3.	Berths	10
4.	Maximum load on rails from set of wheels, tnf	15
5.	Dimensions, mm	14,800 x 3,300 x 498
6.	Maximum design travel speed, km/h	100
7.	Service weight, tons	45

Maintenance vehicles
OJSC “Sinara-Transport Vehicles”

Mechanized platform PPK-3V

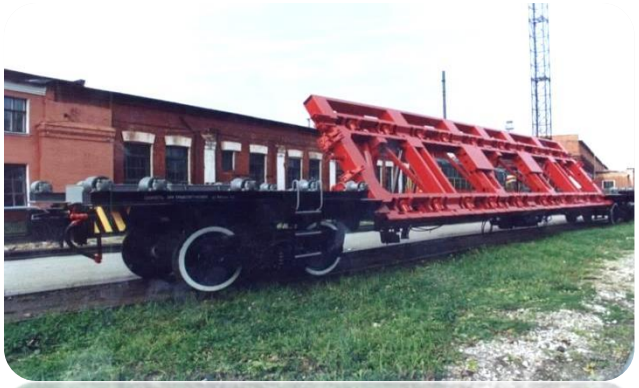
Designed for transporting cross blocks of track switches for high speed operation on ferroconcrete and wooden timbers with P65 and P50 rails of 1/9 and 1/11 grades (right and left) within “T” clearance as per Clause 3.8 of GOST 9238; for transporting cross blocks and turnout curve blocks of track switch of 1,740 and 2,750 projects within “T” clearance; for passing though itself of other blocks of track switch.

Specifications:

Position	Parameters	Parameter value
1.	Maximum load capacity, tons	40
2.	Maximum dimensions of transported blocks, m:	
	• length	25
	• width	5.5
3.	Actuation mechanisms drive	Hydraulic
4.	Transportation speed as a part of freight train (loaded, empty), km/h	80
5.	Dimensions on transportation mode, mm:	
	• length over pulling faces of couplers, mm	26,580
	• width	2,800
	• maximum height	3,970
6.	Service weight, tons	45.2
7.	Operating personnel, persons	1

Maintenance vehicles
OJSC “Sinara-Transport Vehicles”

Mechanized platform PPK-28



Mechanized platform PPK-28 is a part of KZSP complex, designed for transportation of turnout curve blocks of the length of 12.5m and of the weight of 19 tones. Air temperature range is from -10° C to +35° C, altitude up to 1,000m. The platform is equipped with independent power supply for actuation mechanisms.

Specifications:

Position	Parameters	Parameter value
1.	Load capacity, tons	20
2.	Maximum dimensions of transported block, m:	
	• length	25
	• width	5.5
3.	Maximum travel speed as a part of freight train, km/h	80
4.	Dimensions, mm	22,410 x 3,250 x 3,650
5.	Service weight, tons	42
6.	Operating personnel, persons	1

Maintenance vehicles
OJSC “Sinara-Transport Vehicles”

Roller platform PR

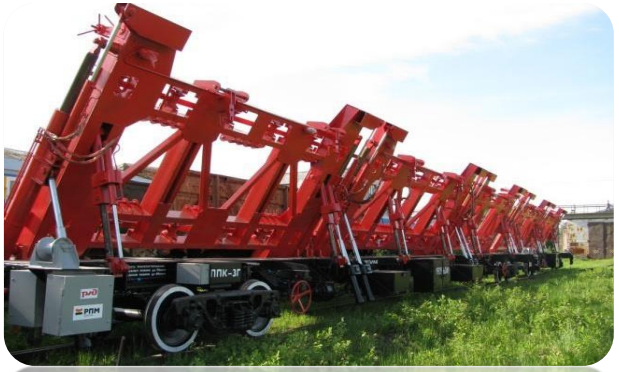
Roller platform PR is designed for transporting frame and adapter blocks of single track switches of the length of up to 12.5m and of the weight of 15 tones, for transporting frame blocks of single track switches for high speed operation of the length of up to 16.2m and of the weight of up to 20 tons, as well as for passing through itself of other blocks of track switches.

Specifications:

Position	Parameters	Parameter value
1.	Load capacity, tons	72
2.	Maximum dimensions of transported blocks, m:	
	• length	16.2
	• width	3.5
3.	Transportation speed as a part of freight train (loaded, empty), km/h	80
4.	Dimensions on transportation mode, mm:	
	• length over pulling faces of couplers, mm	14,620
	• width	3,200
	• maximum height	1,800
5.	Service weight, tons	26
6.	Operating personnel, persons	1

Maintenance vehicles
OJSC “Sinara-Transport Vehicles”

Mechanized platform PPK-3G



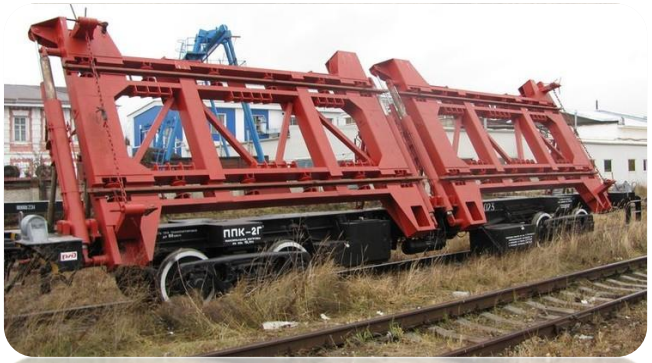
Mechanized platform PPK-3G is designed for transporting cross blocks and turnout curve blocks with R65 rails of any track switches from the assembly base to the place of laying (when stripping – from the operation place to the base). At the same time, being a part of track switch replacement complex, the platform passes blocks of track switch through its roller transporter.

Specifications:

Position	Parameters	Parameter value
1.	Maximum load capacity, tons	30
2.	Maximum dimensions of transported blocks, m:	
	• length	22.5
	• width	5.5
3.	Transportation speed as a part of freight train (loaded, empty), km/h	80
4.	Dimensions on transportation mode, mm:	
	• length over pulling faces of couplers, mm	26,220
	• width	2,800
	• maximum height	4,688
5.	Service weight, tons	45
6.	Operating personnel, persons	1

Maintenance vehicles
OJSC “Sinara-Transport Vehicles”

Mechanized platform PPK-2G



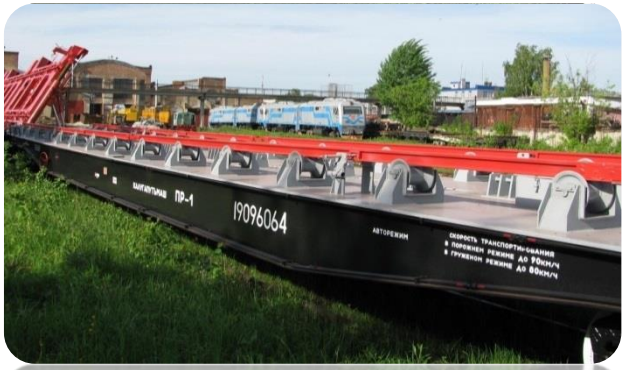
Mechanized platform PPK-2G with track gage of 1,520mm is designed for transporting cross blocks and turnout curve blocks with R65 rails of any track switches from the assembly base to the place of laying (when stripping – from the operation place to the base). At the same time, being a part of track switch replacement complex, the platform passes blocks of track switch through its roller transporter.

Specifications:

Position	Parameters	Parameter value
1.	Maximum load capacity, tons	20
2.	Maximum dimensions of transported blocks, m:	
	• length	12.5
	• width	5.5
3.	Transportation speed as a part of freight train, km/h	80
4.	Dimensions, mm:	16,940 x 2,800 x 4,688
5.	Service weight, tons	40
6.	Operating personnel, persons	1

Maintenance vehicles
OJSC “Sinara-Transport Vehicles”

Roller platform PR-1



Roller platform PR-1 (modification for PR platform) is designed for transporting frame and adapter blocks of single track switches.

Specifications:

Position	Parameters	Parameter value
1.	Maximum load capacity, tons	30
2.	Maximum dimensions of transported blocks, m:	
	• length	30
	• width	3.5
3.	Transportation speed as a part of freight train, km/h	80
4.	Dimensions, mm:	25,420x2,900x1,690
5.	Service weight, tons	48
6.	Operating personnel, persons	1

VEB BANK FOR DEVELOPMENT

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SINARA-TRANSPORT MACHINES and VNESHECONOMBANK (VEB) have very good business relations.
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Welcome to collaboration

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