



# 1916

ESTABLISHED

## DNIPROPETROVSK RAILWAY SWITCH PLANT

PUBLIC JOINT STOCK COMPANY



<http://dnsz.ua>







# SERVING OUR CUSTOMERS



## Dear Valued Customer,

During its more than 100-years history, Dnipropetrovsk Railway Switch Plant has come a long way, developing from a switches and crossings workshop to become a modern, state of the art enterprise with a leading position in Ukraine and with clients in almost two dozen countries.

In the years to come, we will continue working hard to honour the trust and confidence that you placed in our company. On top of continuous improvement of safety, quality, performance and reliability of our products, we will always go an extra mile to provide you with solutions and services tailored to fully satisfy your individual needs.

Yours faithfully,  
Sergiy Taranenko







# RAILWAY PRODUCTS

Dnipropetrovsk Railway Switch Plant (DnSZ) designs and manufactures both standard and bespoke railway products according to GOST, EN and other standards for various gauges and applications.

Most of turnout components, including fixed and movable point crossings, forged tongue rails, base plates and smaller cast parts are manufactured in-house.

## Permanent way layouts

- Ordinary, curved and symmetric turnouts
- Mixed gauge turnouts
- Diamond crossings
- Crossovers
- Junctions
- Expansion joints
- Other permanent way components

## Applications

- Turnouts for Mainline
- Turnouts for High Speed
- Industrial Turnouts
- Tram Turnouts
- Light Rail / Metro Turnouts
- Narrow Gauge Light Rail Turnouts (mining, tunneling)

## Track Gauges

- 750 mm
- 1000 mm
- 1520 mm
- 900 mm
- 1435 mm
- 1524 mm

## Manufacturing Process

- Casting
- Flash-butt welding
- Forging
- Heat treatment
- Machining
- Assembly

## Turnout Components

- Cast Manganese Crossings
- Forged Switch (Tongue) Rails
- Cast carbon steel parts, including:
  - Base plates
  - Heel blocks
  - Distance blocks
  - Brackets
  - Clamps
  - and other components







# CAST MANGANESE STEEL PRODUCTS

## Cast crossings (frogs)

Cast crossings represent more than 75% of all cast manganese steel products manufactured by the company.

The product portfolio includes Austenitic Manganese Steel cast crossings for Mainline and Industrial applications, for Light Rail, Metro and Tram Systems, and for Port Facilities.

Different configurations of crossings are available, including the following:

- Cast Monoblock Crossings (with welded-on legs)
- Cast Monoblock Crossings (fishplated)
- Rail-Bound crossings with high-manganese steel inserts
- Tram Point Bodies and Point Tongues

## Products for mining industry

Spare parts made of high-manganese steel:

- Crusher plates (for stone joe crushers)
- Excavator bucket teeth

## Manufacturing

Castings for railway crossings are manufactured at a specialized, state of the art facility.

In-house design and patternmaking enable manufacturing of bespoke castings with short lead-times.

The automatic IMF moulding line (employing "no-bake" process) is capable of producing up to 9m long castings.

The foundry operates two arc furnaces with nominal capacity of 6 tonnes each, equipped with an automatic system for electrode positioning.

Machining, flash-butt welding, and assembly of crossings are done in-house. With rare exception all crossings are supplied to customers in fully finished condition.

## Quality Assurance

- Microstructure examination
- Chemical composition testing
- Mechanical properties testings
- Dye penetrant inspection
- On-site radiography
- Ultrasound inspection
- Magnetic particle inspection







# SWITCH (TONGUE) RAILS

Dnipropetrovsk Railway Switch Plant has been manufacturing forged tongues for more than 40 years and is capable of forging up to 24 000 tongues annually.

## Switch (Tongue) Rails

- The heel area of switch (tongue) rails is forged into the shape of vignole rails to allow flash-butt welding connection
- Depending on the application, switch rails are manufactured with long, medium, or short forged heels
- Welded switch (tongue) rails consist of two parts - a forged tongue section and a vignole section flash-butt welded together
- Switch rails can be supplied either "just forged" for further machining by the client or fully machined according to customer specification
- The following vignole sections can be forged:
  - R50, R65
  - 49E1, 54E1, 60E1

## Manufacturing Process

- Heating (inductive or gas furnace)
- Hydraulic forging (100,000 kN capacity)
- Straightening
- Machining of the forged heel area
- Heat treatment
- Flash-butt welding\*
- Final machining\*\*

\* - for welded switch (tongue) rails

\*\* - subject to customer request

## Non-destructive testing

All forged switch (tongue) rails undergo the following tests:

- Dye penetrant Inspection
- Ultrasound Inspection
- Magnetic particle Inspection







DNIPROPETROVSK RAILWAY SWITCH PLANT PJSC

# CAST CARBON STEEL PRODUCTS

## Facility

The specialized foundry, equipped with an automatic molding line, is capable of manufacturing up to 7,000 tonnes of carbon steel castings per year.

The portfolio of the foundry includes over 1,000 products, mostly parts for turnouts and other permanent way components.



## Turnout Components

- Base
- Heel blocks
- Distance blocks
- Brackets
- Clamps
- and other components



# HSE AND QUALITY MANAGEMENT



**ISO 9001**



**ISO 14001**



**OHSAS 18001**

Dnipropetrovsk Railway Switch Plant (DnSZ) operates quality management system certified in accordance with ISO 9001 (Quality Management System standard), ISO 14001 (Environmental Management System standard) and OHSAS 18001 (Occupational Health and Safety Management System standard).





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