OMK

Wheels Catalogue

OMK Structure

United Metallurgical Company (OMK) is a top Russian manufacturer and supplier of pipes, railroad wheels, rolled metal products, pipeline valves and other rolled-metal products for energy, transport and industrial domains.

OMK incorporates seven large metallurgical enterprises: Vyksa Steel Works (Nizhny Novgorod region), Almetyevsk Pipe Plant (Tatarstan), Trubodetal Plant (Chelyabinsk region), Casting and Rolling Complex (Nizhny Novgorod region), Blagoveshchensk Valve Plant (Bashkortostan), Chusovoy Metallurgical Works (Perm region) and OMK Tube plant (Texas, USA).

Total employment size is over 30,000 people.

OMK

VYKSA STEEL WORKS

ALMETYEVSK PIPE PLANT

BLAGOVESCHENSK VALVES PLANT

CHUSOVOY METALLURGICAL PLANT

OMK-STEEL

Casting and rolling complex

TRUBODETAL

OMK TUBE

Steel and Wheel Rolling Production

Since foundation of own wheel rolling production (in 1973), the Vyksa Steel Works (VSW) have become a key player at domestic railroad wheels market and the largest supplier for Russian Railroads Company, car building and car repair companies and independent owners. VSW have been recognized for its innovative railroad wheels, the implementation of which allows increasing efficiency of transportation and developing heavy freight transportation and high-speed passenger operations.

At present, VMW owns the Europe's largest (over 850,000 wheels per year) production line of solid wheels and wheel centers from 760 mm to 1098 mm in diameter for freight and passenger cars, locomotives, underground trains. The VSW division, comprising wheel rolling and steel making shop, employs over 1,500 people.

Steel Production

The VSW wheel rolling production (WRP) includes two 250 t each Martine furnaces (scrap-process-based furnaces complete with refractory powder-based 'porous' bottoms). The forthcoming modernization of steel production will include installation of continuous casting plant.

WRP's range of products includes wheel steel certified to local and international standards, including GOST, EN, AAR, IRS.

Annual steel production is up to 450,000 t.

Wheel Rolling Complex

Wheel Rolling Complex includes the following production shops:

- Blank production shop including ingot cutting machines and ingot-breaker press, as well as sawing shop including two 'Linzinger' saws for separation of ingots and removal of ingot's exterior part and bottoms.
- Press-rolling shop including two circular heating furnaces, 19.6, 49, 98 MN hydraulic presses; railway-wheel mill, 34.3 MN press and four through-type exothermic aging furnaces.
- Through-feed wheel machining processing lines up- and downstream thermal processing sections, including high-accuracy numerical control machines for final machining of all wheel surfaces (disk, rim, hub).
- Two wheel heat treatment shops including two circular heating furnaces, vertical-type quenching machine for interrupted quenching of wheel rims, and three belt furnace for wheel delivery. Both lines were upgraded in 2009 to improve accuracy of railroad wheel heating and ensure unified and stable structure and mechanical properties of steel.
- Up-to-date quality management, parameter control and storage system has been implemented to allow for compiling electronic passport of each wheel manufacturing process.

Use of heavy press machines together with rolling and wheel rolling facilities ensure high accuracy of wheel geometric parameters and various wheel disk forms subject to Customer requirements..

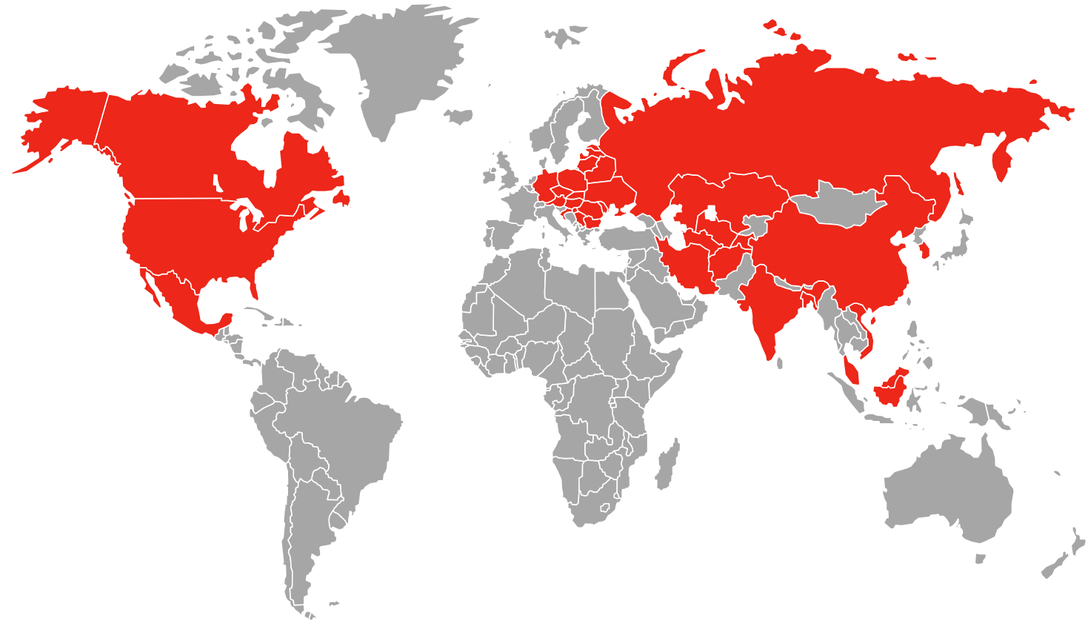
Railroad Wheel Sales Geography

The VSW railroad wheels sales geography spreads over 30+ countries including USA, Canada, Slovakia, Czech Republic, India, Poland, Romania, Bulgaria, Serbia, South Korea, Baltic and CIS countries.

High technology intensiveness of the wheel rolling production makes it possible to manufacture rolled-steel wheels which high operational performances. The wheels are suitable for diverse climatic environments and heavy loads and high traffic speeds. These wheels have accurate geometric parameters and ideal physical and mechanical properties.

VSW's range of gauge 1520 mm wheel products:

- Wheels GOST 10791-2011 for freight and passenger cars, underground trains, locomotive railroad wheels and centers.
- Wheels with higher rim hardness 320-360 NM at 30 mm depth from tread surface.
- High hardness curved disk wheels for cars with high axial loading of 25-30 t/axle.
- Grade L microalloying steel wheels for passenger cars.



Certification

OMK' railroad wheels and related products conform to international standards including GOST, AAR M107/V208, EN13262, UIC 812-3, IRS R19-93, KRS 2242-2107 as well as dedicated Specifications (TU). OMK railroad wheels are certified to and comply with requirements of RSFZhT, ISO, European and American railroads.

The Company's Quality Management System is certified to IRIS, ISO 9001:2008, ISO 14001:2004, QHSAS 18001:2007, as well as National Railroad Standard. VSW' research laboratory equipment makes it possible to perform tests subject to Russian, European, North American, Mexican, Indian and Korean railroads standards and norms.

VSW makes extensive certification efforts, annually performing certifications of several new types of railroad wheels for domestic and international segments.


IRIS Certification

CERTIFICATE

International Railway Industry Standard (IRIS)
Revision 02, May 2009


CERTIFICATE

Vyksa Steel Works OJSC

ISO 9001 : 2008


VUZ

CERTIFICATE

Quality Management System Approval


VUZ

CERTIFICATE

Quality Management System Approval


ASSOCIATION OF AMERICAN RAILROADS
QUALITY ASSURANCE PROGRAM CERTIFICATION

VYKSA STEEL WORKS

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Please e-mail your orders to wheels@omk.ru

www.omk.ru

Range of Products

Gauge 1520 wheels

Description	Technical Requirements
∅57 mm solid wheels for freight and passenger cars, axle load 23.5 t/axle, 25030 t/axle including wheels of improved low-stressed structures. Steel grades: 1, 2, T, L, B.	GOST 10791-2011, TU 0943-256-01124323-2009
∅790 mm wheels for underground trains, ∅860 mm wheels for underground trains and rail-road buses. Steel grades: 1, 2, T, L, B.	GOST 10791-2011
∅920-957 mm wheels for high-speed passenger trains.	TU 0941-265-01124323-2011, GOST 10791-2011
∅900 mm, Ø1050-1058 mm pre-machined locomotive wheels and wheel centers.	GOST 10791-2011, TU 0943-259-01124323-2009
∅770, 880 mm crane wheel blank, wheels ∅850, 957 mm for factory trucks	GOST 10791-2011

Exported Products

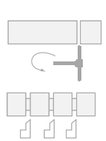
Description	Technical Requirements
∅914-960 mm solid wheels for freight transport, North America.	AAR M-107/M-208
∅920-950 solid wheels for freight and passenger cars, Europe.	EN 13262:2004, +A2:2011
∅840-1016 solid wheels for passenger cars, Asia.	IRS R 19-93 part II, AAR M-107/M-208

Production Scheme

VSW hi-tech equipment makes it possible to manufacture higher hardness/axle load solid wheels for diverse ambient conditions. VSW range of wheels is best know for precise geometric parameters and improved mechanical properties.

Production facilities allow machining of all wheel surfaces.

∅957 mm Railroad Wheel Production Scheme GOST, TU



1. Ingot cutting

2. Ingot breaking

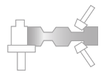
3. Blank heating

4. Water descaling

5. Press 2,000 ton-force

6. Press 5,000 ton-force

7. Press 10,000 ton-force



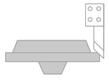
8. Wheel rolling

9. Press 3,500 ton-force

10. Accelerated cooling

11. Isothermic aging

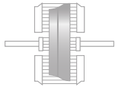
12. Inspecting crude products



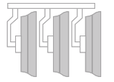
13. Preliminary machining

14. Inspection and test

15. Heating before quenching

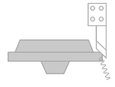


16. Quenching



17. Delivery and retarded cooling

18. Disk shot-blasting



19. Final machining

20. Ultrasonic test

21. Acceptance of finished products