OMK is a leader in the markets for tubulars, train wheels, automotive springs, pipeline valves, and fittings
## Integrated Casting and Rolling Facility

<table>
<thead>
<tr>
<th>No.</th>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>01</td>
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<td>02</td>
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<td>Machine Building</td>
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<td>03</td>
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<td>04</td>
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<td>Shipbuilding</td>
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<td>05</td>
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<td>Rolled Products for Tubulars</td>
</tr>
</tbody>
</table>

## Heavy Plate Mill-5000

<table>
<thead>
<tr>
<th>No.</th>
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</tr>
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<tbody>
<tr>
<td>01</td>
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<td>Structural Metal</td>
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<tr>
<td>02</td>
<td>30</td>
<td>Rolling Stock Construction</td>
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<tr>
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<td>06</td>
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<td>Heavy Engineering</td>
</tr>
<tr>
<td>07</td>
<td>40</td>
<td>Rolled Products for Tubulars</td>
</tr>
</tbody>
</table>
OMK Structure

OMK is a high-tech integrated manufacturer of steel, rolled products, pipes, pipeline valves and fittings, train wheels, and automotive springs. Our products make it possible to transport power, convey cargoes and people safely and efficiently.

The group consists of five major manufacturing sites:

- Vyksa Steel Works (Nizhniy Novgorod Region)
- Blagoveshchensk Valve Plant (Republic of Bashkortostan)
- Trubodetal Facility (Chelyabinsk)
- Almetyevsk Pipe Mill (Republic of Tatarstan)
- Chusovoy Metallurgical Works (Perm Territory)

These facilities employ over 24,000 people.
OMK National Presence
Vyksa Steel Works (VSW)
The largest national manufacturer of welded steel pipes and train wheels founded in 1757. It has been a part of OMK since 1999 and employs over 12,000 people. The plant manufactures steel pipes with an outside diameter ranging from 21.3 to 1,422 mm and a wall thickness ranging from 1 to 50 mm. The product is coated to protect from corrosion and thermally insulated. The plant comprises the following manufacturing facilities:

- **Heavy Plate Mill-5000 (MKS-5000)**
  Heavy plate manufactured using the MKS-5000 rolling mill is designed to be processed into large diameter pipes used in the construction of oil and gas mains. MKS-5000 products may be used in shipbuilding, machine building, nuclear power engineering, and other metal-intensive industries. MKS-5000 products are rolled plates with a thickness of 8.0 to 150.0 mm and a width of 900 to 4,800 mm.

- **Integrated Casting and Rolling Facility**
  Casting and rolling facility products are hot-rolled coils and sheet metal with a thickness of 1.2 to 12.7 mm, and a width of 64 to 1,750 mm. The facility is equipped with two slitting units capable of producing:
  1) strip with a width of 64 to 1,750 mm;
  2) sheet metal with a length of 3000 to 12,200 mm and a width of 800 to 1,750 mm.

- **Electrically Resistance-Welded Pipe Shop No. 1 (ERW Shop No. 1)**
  ERW Shop No.1 comprises two production facilities: a pipe finishing center (FC) and a 60-178-mm pipe mill. The finishing center is designed to increase production of casing and to extend the range of products up to a diameter of 426 mm, with Buttress, OTTM, Semi-premium, and Premium threaded connections. The 60-178-mm pipe mill is designed to increase production of electrically welded casing in the OD range of 114 to 178 mm, and of tubing within the OD diameter range of 60 to 114 mm. The equipment scope includes the pipe mill itself and heat treatment, cutting, and inspection (non-destructive testing and hydrostatic testing) lines.

- **Electrically Resistance-Welded Pipe Shop No. 2 (ERW Shop No. 2)**
  ERW Shop No.2 produces water and gas pipes, general purpose pipes, and pipes for construction. The workshop is equipped with a slitting unit and three electric welding pipe mills. Products: round pipes: 21.3 to 133 mm; square pipes: 15 x 15 to 100 x 100 mm; rectangular pipes: 30 x 20 to 120 x 80 mm; wall thickness: 1.0 to 6.0 mm; pipe lengths: 5,000 to 12,000 mm.

- **Electrically Resistance-Welded Pipe Shop No. 3 (ERW Shop No. 3)**
  ERW Shop No. 3 produces oil and gas pipes with a diameter ranging from 219 to 530 mm and a wall thickness of 4.5 to 12.7 mm, shaped pipes 160 x 160 x 4.5-12.7 mm to 300 x 300 x 4.0-12.7 mm, and plain-end casing with diameters ranging from 219 to 530 mm and a wall thickness of 4.5 to 12.7 mm.

- **Electrically Resistance-Welded Pipe Shop No. 4 (ERW Shop No. 4)**
  ERW Shop No. 4 produces longitudinal seam, single-seam, or double-seam electrically welded pipes with an interior flow or anti-corrosion coating and exterior two- or three-layer polyethylene or polypropylene coating, with an option for the application of PU foam coating in a protective shield. There are two production lines for pipes: line 1020: for pipes with a diameter of 508 to 1,067 mm, a wall thickness of 8 to 32 mm, grades of up to K65 (X80); line 1420 for pipes with a diameter of between 508 and 1,422 mm, a wall thickness of 8 to 48 mm for operating pressures of up to 32 MPa.

- **Electrically Resistance-Welded Pipe Shop No. 5 (ERW Shop No. 5)**
  ERW Shop No.5 makes electrically resistance-welded casing with diameters of 146 to 244.5 mm and a wall thickness of 5.7 to 11.1 mm, as well as pipe couplings with buttress-type OTTM, OTTG, and VMZ-1 thread of grades С, Дс, Ес, Лс, Мс as per plant specifications, and with round (SC - short or LC - long) thread or buttress-type thread of grades H40, J55, L80, R95, N80, P110 as per API Spec5CT, and as per GOST 53366-2009.
Almetyevsk Pipe Mill (ATZ)
This manufacturing facility founded in 1966 and equipped with state-of-the-art equipment to produce steel electrically resistance-welded pipe with a high-quality external polyethylene coating.
The principal production lines are capable of manufacturing pipes with an outside diameter of 21.3 to 219 mm and a wall thickness of 1.5 to 8.0 mm. Upon customer request, pipe length may vary from 6.0 to 12.0 m.

Trubodetal Facility
One of Russia’s and CIS’ largest manufacturers of carbon and low-alloy steel fittings for pipelines with a diameter of 57 to 1,420 mm. The facility is a key supplier to companies involved in the construction of oil and gas supply pipelines as well of oil and gas mains networks.

Blagoveshchensk Valve Plant (BAZ)
One of Russia’s largest manufacturers of pipeline valves. Founded in 1756. AO BAZ specializes in pipeline valves made from carbon, low-alloy, and stainless steel grades with nominal diameters of 25 to 800 mm and operating pressures of 16 to 250 kgf/cm².

Key customers for OMK products include Russian and international leaders, such as Gazprom, Gazprom Neft, Rosneft, Lukoil, Transneft, Surgutneftegaz, TNK-BP, and others.

OMK’s products are exported to more than 30 countries worldwide.

Over the past few years, the company was a pipe supplier for such projects as South Stream, OML 58 O.U.R. (Obite — Ubeta — Rumuji), Eastern Siberia — Pacific Ocean, Nord Stream, North European Gas Pipeline, Baltic Pipeline System, Vankor Field Oil Pipeline, Central Asia — China Gas Pipeline, Bovanenkovo — Ukhta Gas Pipeline, Dzhubga — Lazarevskoye — Sochi Gas Pipeline, Sakhalin — Khabarovsk — Vladivostok Gas Pipeline, Ukhta — Torzhok Gas Pipeline, and others. Recently constructed state-of-the-art production facilities, serious existing capacity upgrades, and the introduction of innovative and unique technologies have enabled us to participate in these large-scale projects.
In 2009, an engineering and technology center (ETC) was established at Vyksa Steel Works by an OMK management decision.

Today, it is a professional team consisting of more than 200 highly skilled specialists, including about 20 analysts: experts of the highest qualification with advanced academic degrees.

**Principal tasks**

1. Innovative, highly efficient technology advancement of the company along the key lines of production and engineering business.

2. Research, development, and advance implementation of state-of-the-art and promising products and process engineering solutions in the field of steel, rolled products, train wheels, pipe, and pipeline fittings.

3. Enabling a sustainable company presence in the key product markets.

4. Development, maintenance at a high level, and upgrades of production technologies for products used in the energy sector, the railway industry, and other industries to meet all the requirements of end users and to achieve maximum operational efficiency.

**ETC can be considered a unique organization because it has an in-house "research and development institute" in the form of a research laboratory center utilizing state-of-the-art research equipment and test benches.**

An efficient system for development of new materials and technologies has been created at the research lab center that uses the approach below:

modeling → process simulation → laboratory process reproduction → commercial trials → efficient verification of results.

This helped improve development quality and reduce time expenditures associated with the introduction of new technologies and materials, mitigate risks arising from technology development.

Annually, ETC conducts over 60 in-house research projects designed to develop new and upgrade existing steel making, pipe and flat rolling technologies for manufacturing. Last year, ETC developed and introduced over 20 brand new products.
The integrated casting and rolling facility produces hot-rolled coils, strips, and sheets.
The Integrated Casting and Rolling Facility is the only casting and rolling facility in Russia combining unique technologies and efficiency. The process flow chart used for this mill’s layout enables the manufacture of rolled products from the most complex and high-strength grades of steel.
Process Flow Chart

The integrated casting and rolling facility consists of two principal areas: electric steel melting shop and rolling mill.

1. Electric arc furnace
2. Ladle furnace
3. Vacuum Degasser
4. Ladle bench
5. Tundish
6. Mold
7. Secondary cooling
8. Soft dynamic reduction
9. Hydraulic descaling
10. Pendulum-type shears
Integrated Casting and Rolling Facility

**Production Capacity:** 1.3 mln metric tons of hot-rolled coils per year

- Rolled Thickness: 1.20-12.70 mm
- Coil Width: 1,000-1,770 mm
- Strip Width: 64-1,750 mm
- Coil Diameter (inside/max. outside): 762/2,300 mm
- Maximum Coil Weight: 12-36 tons
- Sheet Length: 3,000-12,200 mm. Additional approval is required for lengths different from the ones above
- Sheet Width: 800-1,750 mm

The melt shop utilizes the following primary process equipment:
- electric arc furnace EAF180/200 with heat size of 180 tons;
- two-position ladle-furnace arrangement;
- two chamber vacuum degasser;
- single-strand thin-slab continuous casting machine (CCM) to obtain slabs with the following parameters: width — 800-1,800 mm, thickness 70-90 mm.

The rolling mill utilizes the following primary process equipment:
- tunnel-type furnace;
- group of continuous roughing mill stands;
- heated roller table;
- group of continuous finishing mill stands;
- laminar cooling arrangement;
- area for winding, inspection, weighing, marking, and wrapping of coils;
- finished product warehouse;
- sheet finishing area

11. Tunnel-type furnace
12. Shuttle section
13. Roughing stands
14. Intermediate cooling area
15. Heated roller table
16. Crop shears
17. Hydraulic descaling
18. Finishing stands
19. Laminar cooling
20. Basement coiler
Structural Metal

Rolled Thickness: 4-12.70 mm

Sheet Length: 3000-12 200 mm. Additional approval is required for lengths different from the ones above

Sheet Width: 1000-1750 mm

### Civil Engineering Structures

<table>
<thead>
<tr>
<th>Steel Grade</th>
<th>Product Standard</th>
<th>Geometry Standard, Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>St2ps, St3sp, St3ps</td>
<td>GOST 14637-89; GOST 16523-97</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>GOST 1577-93</td>
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<tr>
<td>20</td>
<td>GOST 19903-2015</td>
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<tr>
<td>C235-C440</td>
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<td>S235-S450</td>
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</tr>
<tr>
<td>09G2S, 17G15-U</td>
<td>GOST 19281-2014</td>
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</table>

### Coil Geometry and Possible Weight

<table>
<thead>
<tr>
<th>Thickness, mm</th>
<th>Width, mm</th>
<th>Weight, tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2-3.99</td>
<td>1000-1250</td>
<td>12-15</td>
</tr>
<tr>
<td>4.00-12.70</td>
<td>1250-1750</td>
<td>24-36</td>
</tr>
</tbody>
</table>

* Rolled products with different requirements for range, including thickness/width ratio, can be produced subject to additional approval.
Rolled Thickness: 1,20-12,70 mm

Coil Width: 1000-1750 mm

Strip Width: 170-1750 mm

Coil Diameter (inside/max. outside): 762/2300 mm

Maximum Coil Weight: 12-36 tons

Sheet Length: 3000-12 200 mm. Additional approval is required for lengths different from the ones above

Sheet Width: 1000-1750 mm

### Machine Building

<table>
<thead>
<tr>
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<td>S235-S450</td>
<td>EN 10025-2</td>
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<td>09G2S, 17G15-U, 10-15KhSND</td>
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</tr>
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</table>

* Rolled products with different requirements for range, including thickness/width ratio, can be produced subject to additional approval.
Rolling Stock Construction

- Rolled Thickness: 1.20-12.70 mm
- Sheet Length: 3000-12200 mm. Additional approval is required for lengths different from the ones above
- Sheet Width: 1000-1750 mm

<table>
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</table>

* Rolled products with different requirements for range, including thickness/width ratio, can be produced subject to additional approval.
05
Rolled Products for Tubulars

- Rolled Thickness: 1.20-12.70 mm
- Coil Width: 1000-1750 mm
- Strip Width: 170-1750 mm
- Coil Diameter (inside/max. outside): 762/2300 mm
- Maximum Coil Weight: 12-36 tons
- Sheet Length: 3000-12 200 mm. Additional approval is required for lengths different from the ones above
- Sheet Width: 1000-1750 mm

Pipes, including those for main pipelines

<table>
<thead>
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<th>Steel Grade</th>
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<th>Geometry Standard, Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>K34-K60 St3ps, St3sp, St3ps, 09G25, 09G2FB, 09GCSF, 17G1S(-U), 22Gyu, 08ps, 10, 20, S235-S440, S235-S420</td>
<td>GOST 1577-93, GOST 14637-89, GOST 16523-97, GOST 19281-2014, TS 14-1-3579-83, TS 14-1-5493-2004</td>
<td>GOST 19903-2015</td>
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</table>

<table>
<thead>
<tr>
<th>Coil Geometry and Possible Weight</th>
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<tr>
<td>Thickness, mm</td>
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</table>

* Rolled products with different requirements for range, including thickness/width ratio, can be produced subject to additional approval.
Option of cutting coils into strips and sheets

<table>
<thead>
<tr>
<th>Item</th>
<th>Slitting-and-shearing unit</th>
<th>Slitting unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheet length, mm</td>
<td>3000-12 200</td>
<td>–</td>
</tr>
<tr>
<td>Sheet pack weight, max. tons</td>
<td>15</td>
<td>–</td>
</tr>
<tr>
<td>Width after cutting, mm</td>
<td>1000</td>
<td>170</td>
</tr>
<tr>
<td>- Minimum</td>
<td>1750</td>
<td>1750</td>
</tr>
<tr>
<td>- Maximum</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Packaging, Shipping

Packaging: no packaging

Strapping: 3 straps along the generatrix, 4 cross-wise straps. Upon Customer request, a different number of straps can be used.

Shipping: no lubrication, pinch-pass rolling, etching, painting
Certificates

The Integrated Casting and Rolling Facility has TÜV Rheinland certificates confirming compliance of products with the requirements of European Union Regulation No. 305/2011/EU (construction products) and compliance of the Quality Management System with the requirements of European Union Directive No. 2014/68/EU (pressure equipment).

The Quality Management System has been certified to meet the requirements of ISO 9001.

The Integrated Casting and Rolling Facility has a certificate of the Russian Maritime Register of Shipping approving the manufacturer for production of shipbuilding steel.
Heavy Plate Mill 5000 was constructed by German company SMS and launched in 2011. This Mill appears to be the most modern and powerful heavy plate mill in Russia
The automation system allows conducting high-performance rolling of complicated high-strength cold-resistant roll stock. The HPM 5000 structure utilizes the most powerful mill stand in the world with the force of 12,000 tons which makes it possible to create new generation high-strength cold-resistant steels. The key peculiarity of the Mill is a special two-section system for spray and laminar controlled cooling of metal in the flow (controlled cooling plant — CCP). The system enables, due to high-precision modes of thermal and mechanical processing, to provide homogeneous properties and microstructure of the material throughout the sheet length and width. The innovative features of the system are particularly important for production of rolled sheets from most complicated steel grades for various industries. The mill stand control system for roll stock shape and flatness, as well as the leveling machines allow output of products with high geometric accuracy.
Process flow chart

The equipment parameters and the sequence of operations are chosen taking into account different kinds of impact on the metal in order to achieve the maximum grain size refinement and prescribed structure for obtaining a unique complex of properties.

1. Heating furnaces
2. Hydraulic descaling
3. Quarto mill stand with a force of 12,000 tons
4. Preliminary leveling unit
5. Accelerated cooling unit with high pressure and low pressure sections
6. Hot sheet leveling machine
7. Disk cooling bed
Heavy Plate Mill-5000

**Mill performance:** 1.2 mln tons per year

- Rolled Thickness: 8-150 mm
- Sheet width: 900-4650 mm
- Sheet length: up to 12,400 mm; for sheet thickness up to 50 mm: 6,000-12,400 mm; for plate thickness over 50 mm: 3,000 mm and more

**Rolled product guide**

**Shipbuilding, drilling rigs:**
PC A, PC B, PC D, PC A32, PC D32, PC A36, PC D36, PC A40, PC D40

**Construction sector:**
St1ps-St5ps, St20-St45, 08ps, S245-C590, S235-S460, 09G2S, 10KhSND, 15KhSND, 17G1S, and others

**Carriage building:**
09G2S, 09G2D, 10KhSND

**Bridge construction:**
10KhSND, 15KhSND (cat. 1 w/o engineering constraints)

**Power engineering:**
09G2S, 15K, 20K, and others
Metal structures

Rolled Thickness: 8-150 mm
Sheet width: 900-4650 mm
Sheet length: up to 12,400 mm; for sheet thickness up to 50 mm: 6,000-12,400 mm; for plate thickness over 50 mm: 3,000 mm and more
Maximum sheet weight: up 35 tons

Basic features:

- Option for ordering rolled products with high flatness;
- High surface quality;
- Guarantee of 100% UT of surface;
- Guarantee of Z-properties (resistance against laminated fracture);
- Guarantee of weldability;
- If necessary, provision of impact strength at temperatures down to −70 °C;
- Normalizing rolling production capability

### Civil Engineering Structures

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<td></td>
</tr>
<tr>
<td>08–25 (sp, ps), 30–70, and others</td>
<td>GOST 1577-93</td>
<td></td>
</tr>
<tr>
<td>S235–S460</td>
<td>EN 10025-2, 3, 4, 5</td>
<td></td>
</tr>
<tr>
<td>09G2D, 09G2S, 17G15-U, and others</td>
<td>GOST 19281-2014</td>
<td></td>
</tr>
<tr>
<td>A36 and other</td>
<td>ASTM A36 and other</td>
<td></td>
</tr>
</tbody>
</table>

* Rolled products with different requirements for range, including thickness and width ratio, can be produced subject to additional approval.
Rolling Stock Construction

- Rolled Thickness: 8-50 mm
- Sheet width: 900-4650 mm
- Sheet length: up to 12,400 mm; for sheet thickness up to 50 mm: 6,000-12,400 mm; for plate thickness over 50 mm: 3,000 mm and more
- Maximum sheet weight: up 35 tons

Basic features:

- Option for ordering rolled products with high flatness;
- High surface quality;
- Guarantee of 100% UT of surface;
- Guarantee of weldability;
- If necessary, provision of impact strength at temperatures down to −70 °C.

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</table>

* Rolled products with different requirements for range, including thickness and width ratio, can be produced subject to additional approval.
Sheet width: 900-4650 mm

Sheet length: up to 12,400 mm; for sheet thickness up to 50 mm: 6,000-12,400 mm; for plate thickness over 50 mm: 3,000 mm and more

Maximum sheet weight: up 35 tons

Basic features:

– Option for ordering rolled products with high flatness;
– High surface quality;
– Guarantee of 100% UT of surface;
– Guarantee of Z-properties (resistance against laminated fracture);
– Guarantee of weldability;
– If necessary, provision of impact strength at temperatures down to −70 °C.

<table>
<thead>
<tr>
<th>Энергетическое Machine Building</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Steel Grade</strong></td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>09G2S</td>
</tr>
<tr>
<td>15K, 20K, 22K</td>
</tr>
</tbody>
</table>

* Rolled products with different requirements for range, including thickness and width ratio, can be produced subject to additional approval.
Shipbuilding

Rolled Thickness: 10–30 mm

Sheet width: 900–4650 mm

Sheet length: up to 12,400 mm; for sheet thickness up to 50 mm: 6,000–12,400 mm; for plate thickness over 50 mm: 3,000 mm and more

Maximum sheet weight: up 35 tons

**Basic features:**

- Option for ordering rolled products with high flatness;
- High surface quality;
- Guarantee of 100% UT of surface;
- Guarantee of Z-properties (resistance against laminated fracture);
- Guarantee of weldability;
- If necessary, provision of impact strength at temperatures down to −70 °C.

* Rolled products with different requirements for range, including thickness and width ratio, can be produced subject to additional approval.
Bridge Construction

Rolled Thickness: 8-100 mm

Sheet width: 900-4650 mm

Sheet length: up to 12,400 mm; for sheet thickness up to 50 mm: 6,000-12,400 mm; for plate thickness over 50 mm: 3,000 mm and more

Maximum sheet weight: up 35 tons

Basic features:

- Option for ordering rolled products with high flatness;
- High surface quality;
- Guarantee of 100% UT of surface;
- Guarantee of Z-properties (resistance against laminated fracture);
- Guarantee of weldability;
- If necessary, provision of impact strength at temperatures down to −70 °C.

Мостостроение

<table>
<thead>
<tr>
<th>Steel Grade</th>
<th>Product Standard</th>
<th>Geometry Standard, Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>10KhSND, 15KhSND</td>
<td>GOST 6713-91&lt;br&gt;GOST P 55374-2012&lt;br&gt;(cat. 1 w/o engineering constraints)</td>
<td>GOST 19903-2015</td>
</tr>
</tbody>
</table>

* Rolled products with different requirements for range, including thickness and width ratio, can be produced subject to additional approval.
Basic features:

- Option for ordering rolled products with high flatness;
- High surface quality;
- Guarantee of 100% UT of surface;
- Guarantee of Z-properties (resistance against laminated fracture);
- Guarantee of weldability;
- If necessary, provision of impact strength at temperatures down to −70 °C.

| Сорт 
| Сталь | Толщина, мм | ГОСТ | ГОСТ |
|---|---|---|---|---|
| 09Г2С | 8–150 | ГОСТ 19281-2014 | ГОСТ 19903-2015 |
| 10Кх5НД, 15Кх5НД | 8–100 | | |

* Rolled products with different requirements for range, including thickness and width ratio, can be produced subject to additional approval.
Rolled Tubular Products

 Rolled Thickness: 8-50 mm

 Sheet length: 4000-12 000 mm. Additional approval is required for length values different from the specified ones

 Sheet width: 900-4650 mm

 Maximum sheet weight: up 35 tones

---

### Pipes, including those for main pipelines

<table>
<thead>
<tr>
<th>Steel Grade</th>
<th>Product Standard</th>
<th>Geometry Standard, Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>K42–K65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>St3sp, 09G2S, 17G1S(-U), 20, and other</td>
<td>GOST 19281, ISO 3183, API 5L, TU, TS, TT</td>
<td>GOST 19903, TU, TS, TT</td>
</tr>
<tr>
<td>05KhGB, 13KhPhA, 08GBPh-U, 09G5Ph</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X42–X80</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Rolled products with different requirements for range, including thickness and width ratio, can be produced subject to additional approval.
Our company’s specialists developed high-strength, wear-resistant steel grades capable to be used for dump truck bodies, shovel buckets, and other machinery engaged for heavy duty applications.

 Rolled Thickness: 8-50 mm
 Sheet width: 900-4650 mm
 Sheet length: up to 12,400 mm; for sheet thickness up to 50 mm: 6,000-12,400 mm; for plate thickness over 50 mm: 3,000 mm and more
 Maximum sheet weight: up 35 tones

**Basic features:**

- Wear resistance due to high rigidity;
- Adaptability (yield ability, weldability) due to microalloying system;
- High surface quality;
- Increased flatness;
- UT grade 1.

### Heavy Machine Building

<table>
<thead>
<tr>
<th>Steel grade</th>
<th>Yield strength, $\sigma_{0.2}$</th>
<th>Tensile strength, $\sigma_b$</th>
<th>Elongation, A5</th>
<th>Impact strength, J/cm²</th>
<th>Hardness, HB</th>
<th>Bending test</th>
</tr>
</thead>
<tbody>
<tr>
<td>VMZ100</td>
<td>1000</td>
<td>1100</td>
<td>11</td>
<td>40</td>
<td>40</td>
<td>360–400</td>
</tr>
<tr>
<td>S80/70</td>
<td>685</td>
<td>790</td>
<td>14</td>
<td>40</td>
<td>30</td>
<td>180</td>
</tr>
<tr>
<td>S70/60</td>
<td>590</td>
<td>690</td>
<td>14</td>
<td>40</td>
<td>30</td>
<td>180</td>
</tr>
</tbody>
</table>

KCV at $-40^\circ C$  KCV at $-70^\circ C$ Bend angle $d$ — mandrel diameter $a$ — sheet thickness

* Rolled products with different requirements for range, including thickness and width ratio, can be produced subject to additional approval.
The metallurgical complex Heavy Plate Mill 5000 has TÜV Rheinland certificates confirming compliance of output products with the requirements of European Union Regulation No. 305/2011/EU (construction products) and compliance of the Quality Management System with the requirements of European Union Directive No. 2014/68/EU (pressure equipment).

The Quality Management System has been certified to meet the requirements of ISO 9001.

The HPM 5000 has a certificate of the Russian Marine Register of Shipping and the Russian River Register of Shipping approving the manufacturer for production of rolled stock for shipbuilding. Also, the HPM 5000 has a certificate of the Russian Marine Register of Shipping approving the manufacturer for production of rolled sheets for marine underwater pipelines.
Contacts

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www.omk.ru
DIRECT RELATIONS, FLEXIBLE SOLUTIONS
OMK’S SHEET AND COIL ROLLED PRODUCTS

8-150 mm sheet thickness
900-4650 mm sheet width

1,2-12,7 mm strip thickness
1000-1750 mm strip width

- Yield strength up to 1,000 MPa
- Impact energy KV at least 300 J/cm² at −60 °C
- Guarantee of Z-properties
- Steels with increased corrosion resistance
- Increased ductility (equal elongation +3% of GOST requirements)
- Installation batch 25 tons or more

ADVANTAGES

APPLICATION
- Pipe industry
- Shipbuilding
- Drilling rigs
- Construction
- Machine building
- Carriage building
- Bridge construction
- Power plant engineering

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POWER PLANT ENGINEERING