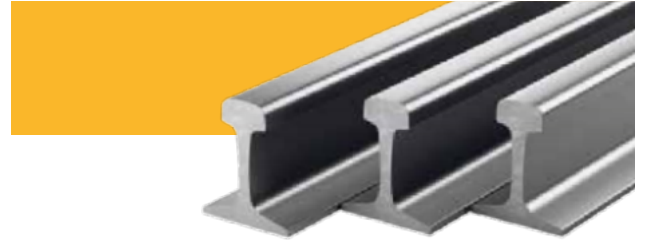




**WAYLAND  
TECHNOLOGIES  
GROUP**

 **EVRAZ**



# Product catalog

Israel



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2020 version

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## Color code

Rail type	
OR50	
OR65	New products are marked yellow

www.evraz.com

## About EVRAZ

EVRAZ is a vertically-integrated steel and mining company with business operations in Russian Federation, the USA, Canada, the Czech Republic, Israel and Kazakhstan.

EVRAZ is among the top steel producers in the world. A significant portion of the Company's internal consumption of iron ore and coking coal is covered by its mining operations. The Group is listed on the London Stock Exchange and is a constituent of the FTSE 100 Index.

EVRAZ is a leading player at the rail market of the Russian Federation and North America and one of the main manufacturers of railroad wheels, a leading manufacturer of rolled steel for infrastructure projects.

### Certificates

High quality of EVRAZ products is proven by numerous certificates.

The complete list of the product and process conformity certificates, certificates of the management systems compliance may be found on the Company representative web-site.

Our Representative in Israel is Wayland Technology & Marketing Ltd.

[www.waylandtec.com](http://www.waylandtec.com)



### Financial and operating highlights (as of 2020 Year-End)

Revenue US\$ million	EBITDA US\$ million	EBITDA margin %	CAPEX <sup>1</sup> US\$ million
9,754	2,212	22.7	657

# No 1

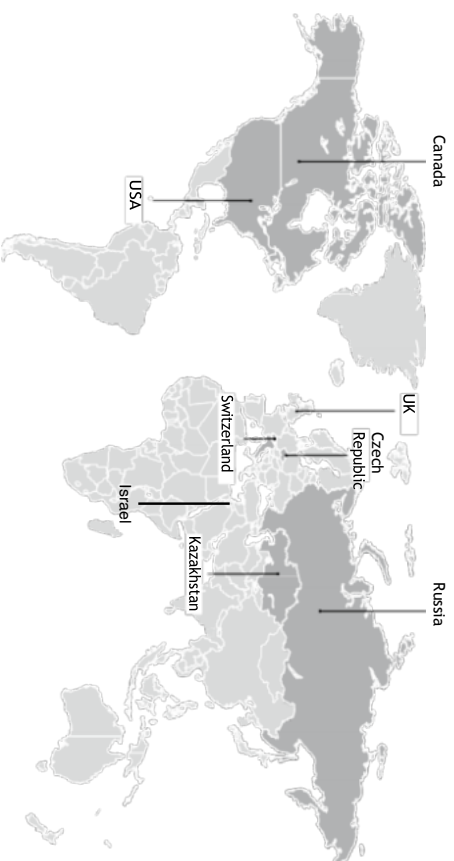
rail manufacturer in the Russian and North American markets

# No 1

rolled steel and I-beam manufacturer in the Russian market

# No 1

large diameter pipe manufacturer in the Russian and North American markets



### Global steelmaking and mining company

- We are among the World's 30 top steel manufacturers
- Key assets in Russia and America
- A constituent of the FTSE-100 Index
- Sales to more than 70 countries worldwide

### Minimum costs at all production stages

- Self-coverage in iron ore - 70%, in coal - 221%
- A leader among the coking coal makers in Russia and the World's top 5



Steel

13,630 Kt



Iron ore products

14,205 Kt



Coking coal

20,653 Kt



Steel products<sup>2</sup>

12,768 Kt



Vanadium slag<sup>3</sup>

19,533 mtV

<sup>1</sup> Including payments on deferred terms recognised in financing activities;

<sup>2</sup> Net of re-rolled volumes;

<sup>3</sup> In tonnes of pure vanadium.

# Transport products

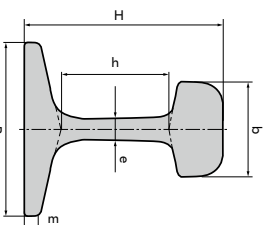
- Innovative wheels by EVRAZ outclass peer products in thermal stability and wear resistance.
- EVRAZ is a world leader in the production of rails.

We analyze world  
experience and  
implement best  
practices



# Railway rails

The rails are manufactured at the rail plant of EVRAZ ZSMK and at the rail and structural steel mill of EVRAZ NITMK.



## Main rail dimensions

Rail type	Reference document	1 m weight, kg	Cross sectional dimensions, mm					Manufacturer	
			rail depth, H	web depth, h	head width, b	base/foot width, B	web thickness, e		base blade height, E
R65	GOST R 51685-2013 TU 0921-276-0124323-2012 TU 0921-293-057576-2016 TU 2410/3/11-298-057576-2017	64.88	180	105	74.59	150	18	11.25	EVRAZ ZSMK EVRAZ NITMK
R50	GOST R 51685-2013	51.8	152	83	71.59	132	16	10.5	
OR65	GOST R 55820-2013	81.7	140		77.5	132	58	18	
OR50		64.06	112		74	132	58	16	
UR65	TS 037576-44-2017	84.70	180		97.5	150	30	12.7	
49E5		49.39	149	70	67	125	14	10.5	
49E1		49.13	149	70	67	125	14	10.5	
50E6		50.90	153	76	65	140	15.5	11.2	
54E1	EN 13674-1:2011-A1:2017	54.77	159	79.4	70	140	16	11	
54E4		54.31	154	70	67	125	16	12	EVRAZ ZSMK
60E1		60.21	172	89.5	72	150	16.5	11.5	
60E2		60.03	172	89.5	72	150	16.5	11.5	
90RE		44.65	142.88	80.17	65.09	130.18	14.29	9.13	
15RE	AREMA 2020	57.29	168.28	96.84	69.01	139.7	15.88	11.11	
136RE		67.90	185.74	106.36	74.61	152.40	17.47	11.11	
60E1A1	EN 13674-2:2006-A1:2010	72.97	134		72	140	4.4	20	
50 kgN	KS R 9106.2:006R	50.4	153		65.07	127	15	12.15	
60 kgKR	KS R 9106.2:006R	60.58	174	94.9	65	145	16.5	11.98	

## Rail types manufactured by EVRAZ NITMK

Rail type	Application	Steel grade, category	Product length, m
R50 R55	Rails for jointed tracks, continuous welded tracks and turnout switches.	K76F OT330 NIT260	25 and shorter
R50 R55 for underground/ subway rail systems	Raw rails for underground/subway lines.	K76F NIT260	25

25-m rails are shipped by on two railcars bridged together.

NT category – raw rails;

OT category – heat hardened rails, bulk quenched and tempered.

## Rail types manufactured by EVRAZ ZSMK

Rail type	Application	Steel grade, category	Product length, m
R65 R30	DT350: direct head-hardened rails for general applications. NIT260: standard strength raw rails for general applications. Intended for jointed tracks, continuous welded tracks and turnout switches. DT350SS: rails designed for speeds up to 250 km/hr, intended for application primarily in the high speed combined traffic lines. Enhanced geometry rails. DT350NN: rails for ultra low temperature applications primarily intended to operate in subzero climatic regions. DT320K: rails of enhanced wear resistance and contact fatigue strength for applications in 600-m and shorter railway curves. DT400K: rails of enhanced wear resistance and contact fatigue strength for applications in tangent tracks for speeds up to 200 km/hour and curves with no tonnage restrictions, steel grade E50HAF, rail length 25 m. DT300VS: rails for high-speed passenger traffic, steel grade E76HF, rail length 25 m.	E76HF (DT350SS) E6HAF (DT350NN) E50HAF (DT300K) E76HF (NIT260)	13.5, 25 100, 18 to 24.5 25, 100 25
R65 for special applications			
R65 R50 for underground/ subway rail systems	Raw rails for underground/subway lines.	E66F (NIT260)	25
OR65 OR50	Switch point rails types OR50 and OR65 are used in the general interchange and non-public wide gauge track structures, rail category NIT260. <b>Switch point rails type OR65</b> are used in the general interchange track structures, rail category NIT20.	E73F E76HSF	1310, 10290, 8340, 6555 mm
UR65	The rails are intended to fabricate railway junctions and crossings/frogs.	E66F	1005
49E1 49E5 50E6 54E1 54E4 60E1 60E2	The rails are intended for normal and high speed railway traffic.	R260 R350HT 90QA (for 54E1) 90QA (for 54E4) 108QA (for 60E1) G24H (for 60E1)	18, 25
90RE 15RE 136RE	The rails are intended for railway track.	Standard-, medium- high-strength rails	24, 25
RP65 RP50	The rails are intended for approach/branch tracks and service lanes of non-public use for industrial railway applications.	E66HF (DT350) E66F (NIT260)	12.5, 25

25-m rails are shipped on two railcars bridged together. The rail plant of EVRAZ ZSMK manufactures head-hardened rails up to 100 m long.

100-m rails are also head-hardened.

NT category – raw rails;

SS category – rails for combined high-speed traffic;

IK category – high wear resistance and contact fatigue strength;

NN category – ultra low temperature applications.

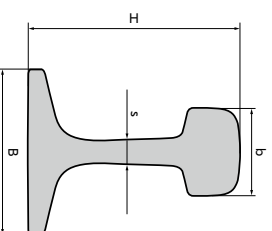
## Wide-gage head-hardened railway rails type R65

The rails are manufactured at the rail plant of EVRAZ ZSMK. Intended for operation in the general interchange and non-public railway tracks.

Direct head-hardened railway rail type R65 category DT350 for general interchange applications.

Direct head-hardened railway rail type R65 for special applications:

- DT350SS category: rails designed for speeds up to 250 km/h, intended for application primarily in the high speed combined traffic lines. Enhanced-geometry rails;
- DT350NN category: rails for ultra low temperature applications primarily intended for operation in subzero climatic regions;
- DT370K category: rails of high wear resistance and contact fatigue endurance for applications in 600-m and shorter railway curves;
- DT400K category: rails of enhanced wear resistance and contact fatigue strength for applications in tangent tracks for speeds up to 200 km/hour and curves with no tonnage restrictions;
- DT350VS category: rails for high-speed passenger traffic.



Rail type	Reference document	H, mm	B, mm	b, mm	S, mm
R65	GOST R 51685-2013 TU 0921-276-01124323-2012 TU 0921-293-057576-2016 TU 2410.2511-298-057576-2017	180	150	74.99	18

### Main rail dimensions

### Steel chemical composition

Rail type	Steel grade	Reference document	Element mass fraction, %								
			C	Mn	Si	V	Cr	P	S	Al	
DT350	E74HF	GOST R 51685-2013 TU 0921-276-01124323-2012 TU 0921-293-057576-2016 TU 2410.2511-298-057576-2017	0.71 to 0.82			0.03 to 0.15	0.20 to 0.80				
DT350SS	E74HF		0.71 to 0.82			0.03 to 0.15	0.20 to 0.80				
DT350NN	E74HAF		0.75 to 1.25	0.25 to 0.60		0.08 to 0.15	0.20 to 0.60	0.020	0.020	0.004	
DT370K	E90HAF		0.83 to 0.95			0.08 to 0.15	0.20 to 0.60				
DT400K	E74HF		0.71 to 0.82			0.03 to 0.15	0.20 to 0.80				
DT350VS	E74HF										

### Mechanical properties

Rail type	Reference document	Ultimate resistance, N/mm <sup>2</sup>	Yield stress (yield point), N/mm <sup>2</sup>	Elongation, %	Area reduction, %	Impact strength, J/cm <sup>2</sup>	Running surface hardness, HB
DT350							
DT350SS	TU 0921-276-01124323-2012	1240	800		25.0		363 to 401
DT350NN <sup>1</sup>	GOST R 51685-2013 TU 0921-293-057576-2016			9.0	14.0	15	370 to 409
DT370K	TU 2410.2511-298-057576-2017	1300	870		18		400 to 450
DT400K		1350	900				352 to 405
DT350VS		1180	800		25.0		

### Product length

12.5 m and 25 m, with or without bolt holes, 100-m rails without bolt holes.

#### Note:

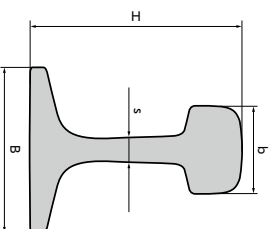
1. Impact strength for rails of DT350NN category is measured on samples at minus 60 °C.

## Wide-gage raw railway rails types R50, R65

The rails are manufactured at the rail plant of EVRAZ ZSMK and at the rail and structural steel mill of EVRAZ NTMK.

Intended for underground/subway lines and turnout switches.

The rails are supplied of NT260 quality category: raw, normal strength for general use.



### Main rail dimensions

Rail type	Reference document	H, mm	B, mm	b, mm	S, mm
R50	GOST R 51685-2013	152	132	71,59	16
R65	GOST R 51685-2013	180	150	74,59	18

### Steel chemical composition

Steel grade	Reference document	C	Mn	Si	Element mass fraction, %				S	Al
					V	P	S	Al		
K76F E76F	GOST R 51685-2013	0,71 to 0,82	0,75 to 1,25	0,25 to 0,60	0,03 to 0,15	0,020	0,020	0,020	0,004	

### Mechanical properties

Rail type	Reference document	Ultimate resistance, N/mm <sup>2</sup>	Yield stress (yield point), N/mm <sup>2</sup> at least	Elongation, %	Running surface hardness, HB

### Product length

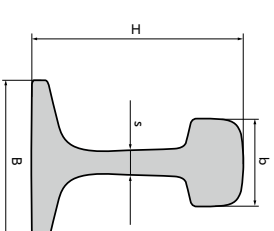
12,5 m and 25 m, with or without bolt holes.

## Wide-gage bulk hardened railway rail types R50, R65

The rails are manufactured at the rail and structural steel mill of EVRAZ NTMK.

Intended for operation in the railway tracks of general interchange and non-public use and for making turnout switches.

The rails are supplied of OT350 quality class: heat hardened, bulk quenched and tempered.



### Main rail dimensions

Rail type	Reference document	H, mm	B, mm	b, mm	S, mm
R50	GOST R 51685-2013	152	132	71,59	16
R65	GOST R 51685-2013	180	150	74,59	18

### Steel chemical composition

Steel grade	Reference document	C	Mn	Si	Element mass fraction, %				S	Al
					V	P	S	Al		
K76F	GOST R 51685-2013	0,71 to 0,82	0,75 to 1,25	0,25 to 0,60	0,03 to 0,15	0,020	0,020	0,020	0,004	

### Mechanical properties

Rail type	Reference document	Ultimate resistance, N/mm <sup>2</sup>	Yield stress (yield point), N/mm <sup>2</sup> at least	Elongation, %	Area reduction, %	Impact strength, J/cm <sup>2</sup>	Running surface hardness, HB

### Product length

12,5 m and 25 m, with or without bolt holes.

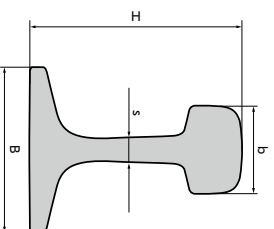
## Rail types RP50, RP65 for industrial and service railway applications

The rails are manufactured at the rail plant of EVRAZ ZSMK and at the rail and structural steel mill of EVRAZ NTMK.

The rails are intended for industrial tracks and turnout switches manufactured under GOST R 51045-2014.

Supplied rails can be of the quality classes below:

- NT260: raw rails as per GOST R 51045-2014;
- DT350: direct head-hardened railway rails for general interchange applications as per GOST R 51045-2014;
- OT350: heat hardened rails, bulk quenched and tempered.



Rail type	Reference document	H, mm	B, mm	b, mm	S, mm
RP50	GOST R 51045-2014	152	132	71.99	16
RP65	GOST R 51045-2014	180	150	74.99	18

### Main rail dimensions

### Steel chemical composition

Steel grade	Reference document	Element mass fraction, %							
		C	Mn	Si	V	Cr	P	S	Al
E76F K76F	GOST R 51045-2014	0.71 to 0.84	0.25 to 1.25	0.18 to 0.60	0.03 to 0.15	not to exceed 0.30	0.025	0.025	0.005
		0.71 to 0.82	0.25 to 0.60	not to exceed 0.15	0.20 to 0.80	not to exceed 0.025	0.025	0.025	0.005
E76HF									

### Mechanical properties

Rail type	Reference document	Ultimate resistance, N/mm <sup>2</sup>	Elongation, % at least	Impact strength, J/cm <sup>2</sup>	Running surface hardness, HB
DT350 OT350	GOST R 51045-2014	1,080	6	15	311 to 401

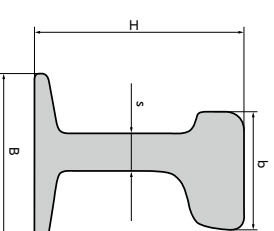
### Product length

12.5 m and 25 m, with or without bolt holes.

## Check/wing rails

The rails are manufactured at the rail plant of EVRAZ ZSMK

Intended for fabrication of railway junctions and crossings/frogs. The rails conform to TS 0575/6/6-44-2017 in the mix, chemical and mechanical properties.



Rail type	H, mm	B, mm	b, mm	S, mm
UR65	180	150	97.5	30

### Main rail dimensions

### Steel chemical composition

Steel grade	Element mass fraction, %							
	C	Mn	Si	V	P	S	Al	
E76F	0.71 to 0.82	0.25 to 1.25	0.25 to 0.60	0.03 to 0.15	0.020	not to exceed 0.020	0.004	

### Mechanical properties

Rail type	Ultimate resistance, N/mm <sup>2</sup> (Kgf/mm <sup>2</sup> )	Yield stress (yield point), N/mm <sup>2</sup> (Kgf/mm <sup>2</sup> ) at least	Elongation, %

### Product length

10.05 m, in multiple lengths by agreement with a customer, not to exceed 25 m, without bolt holes.

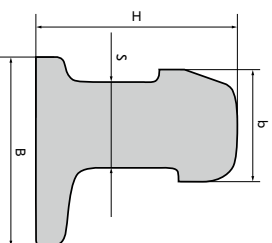


## Switch point rails

The rails are manufactured at the rail plant of EVRAZ ZSMK.

Switch point rails types OR50 and OR65 are used in the general interchange and non-public wide gauge track structures.

In terms of product mix, chemistry and mechanical properties switch point rails types OR65 and OR50 comply with GOST R 55820-2013.



### Main rail dimensions

Rail type	Reference document	H, mm	B, mm	b, mm	S, mm
OR50	GOST R 55820-2013	112	132	74	58
<b>OR65</b>		140	132	77,5	58

### Steel chemical composition

Steel grade	Element mass fraction, %							
	C	Mn	Si	V	Cr	P	S	Al
E73F	0,67 to 0,78	0,25 to 1,05	0,18 to 0,45	0,03 to 0,15	—	0,025	0,025	0,004
E76HSF	0,69 to 0,80	0,70 to 1,00	0,30 to 0,70	0,03 to 0,15	0,35 to 0,80	0,020	0,020	0,004

### Mechanical properties

Rail type	Steel grade	Ultimate resistance, $\sigma_{0,2}$ , N/mm <sup>2</sup>	Yield strength, $\sigma_{0,2}$ , N/mm <sup>2</sup>	Elongation, $\delta$ , %	Area reduction, $\psi$ , %	Running surface hardness, HB
		at least				
OR50 OR65	E73F	900	500	5,0	10,0	260 to 321
OR65	E76HSF	1080	600	6,0	12,0	321 to 363

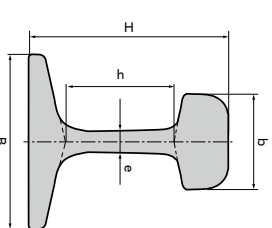
### Product length

13,110 mm, 10,790 mm, 8,340 mm, 6,555 mm, not longer than 25 m.

**Note:**  
Switch point rail type OR65 category NT320 is a new product.

## Narrow gauge railway rails

The rails are manufactured at the heavy section mill of EVRAZ NTMK.



### Main rail dimensions

Rail type	Reference document	1 m weight, kg	Cross sectional dimensions, mm					
			rail depth, H	web depth, h	head width, b	base/foot width, B	web thickness, e	flange depth, E
R33	TU 14-2R-383-2004	33,48	128	68	60	110	12	8,54

### Narrow gauge rail versions

Rail type	Application	Steel grade, category	Product length, m
R33	Mining railway rails for mine conductors. Also used in company tracks, mine car tracks, crane runways.	VP1, PP1, NP1	8, 10

### Supply conditions

The rails are supplied without bolt holes.

**Note:**  
1. High strength (carbon 0,60 to 0,82%);  
2. Increased strength (carbon 0,50 to 0,59%);  
3. Standard strength (carbon 0,40 to 0,49%).

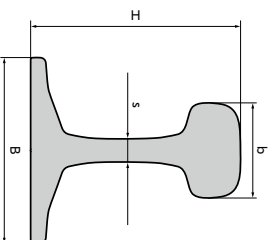
## Railway rails as per EN 13674-1:2011+A1:2017

The rails are manufactured at the rail plant of EVRAZ ZSMK.

The rails are intended for use in jointed tracks and continuous welded tracks. Rails as per EN 13674-1:2011+A1:2017 are intended for export.

The rails are manufactured of the grades below:

- R260: raw rails of non-alloyed (C-Mn) steel, hardness (260 to 300) HB;
- R350NT: head hardened rails of non-alloyed (C-Mn) steel, hardness (350 to 390) HB.



### Main rail dimensions

Rail type	Reference document	H, mm	B, mm	b, mm	S, mm
49E1		149	125	67	14
49E5		149	125	67	14
50E6		153	140	65	15,5
54E1	EN 13674-1:2011+A1:2017	159	125	67	16
54E4		154	125	67	16
60E1		172	150	72	16,5
60E2		172	150	72	16,5

### Steel chemical composition

Steel grade	Reference document	Element mass fraction, %								
		C	Mn	Si	V	Cr	P	S	Al	
R260	EN 13674-1:2011+A1:2017	0,60 to 0,82	0,65 to 1,25	0,13 to 0,60	not to exceed 0,030	≤ 0,15	0,030	not to exceed 0,030	0,030	0,004
R350NT		0,70 to 0,82					0,025		0,030	

### Mechanical properties

Steel grade	Reference document	Tensile strength, N/mm <sup>2</sup>	Elongation, %		Running surface hardness, HB
			880	10	
R260	EN 13674-1:2011+A1:2017	880	1,75	9	260 to 300
R350NT					350 to 390

### Product length

18, 25 m.

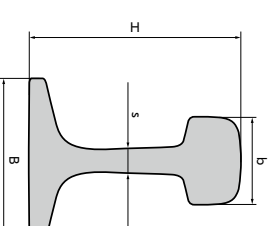
## Railway rails as per AREMA

The rails are manufactured at the rail plant of EVRAZ ZSMK.

Intended for jointed tracks, continuous welded tracks and turnout switches. Manufactured as per AREMA 2020, intended for export.

The rails are manufactured of:

- steel of standard chemical composition;
- low alloy steel.



### Main rail dimensions

Rail type	Reference document	H, mm	B, mm	b, mm	S, mm
90RE		142,88	130,18	65,09	14,29
115RE	AREMA 2020	168,28	139,70	69,01	15,88
136RE		185,74	152,40	74,61	17,47

### Steel chemical composition

Steel grade	Reference document	Element mass fraction, %							
		C	Mn	Si	Cr	V	P	S	Al
Standard	AREMA 2020	0,74 to 0,86	0,75 to 1,25	0,10 to 0,60	not to exceed 0,30	0,010	0,020	0,020	0,010
Low alloy		0,77 to 0,82	0,70 to 1,25	0,10 to 1,00	0,40 to 0,70				

### Mechanical properties

Steel grade	Rail type	Reference document	Yield stress (yield point), N/mm <sup>2</sup>	Tensile strength, N/mm <sup>2</sup>	Elongation, %	Running surface hardness, HB
Standard	Standard strength		510	983	310	310
	Medium strength		105	155	350	350
	High Strength		827	1,179	370	370
Low alloy	Standard strength	AREMA 2020	510	983	310	310
	Medium strength		552	1,014	325	325
	High Strength		827	1,179	370	370

### Product length

24, 25 m.

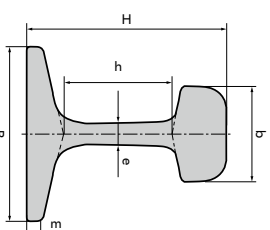
## Railway rails as per KS R 9106:2006R

The rails are manufactured at the rail plant of EVRAZ ZSMK.

Intended for use in jointed tracks and continuous welded tracks. The rails as per KS R 9106:2006R are intended for export.

The rails are manufactured of the grades grades below:

- R260: raw rails of non-alloyed (C-Mn) steel, hardness (260 to 300) HB;
- R350NT: head hardened rails of non-alloyed (C-Mn) steel, hardness (350 to 390);



### Main rail dimensions

Rail type	Reference document	1 m weight, kg	Cross sectional dimensions, mm					Manufacturer	
			rail depth, H	web depth, h	head width, b	base/root width, B	web thickness, e		base blade height, EI
50 kgN	KS R 9106:2006R	50.4	153	74	65.07	127	15	1215	EVRAZ ZSMK
60 kgKR	KS R 9106:2006R	60.58	174	94.9	65	145	16.5	1198	

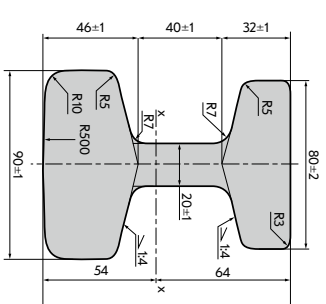
### Product length

18, 25 m.

## Conductor rails for underground railways

### Conductor rails for supplying electric current to subway cars

The rails are manufactured at the rail and structural steel mill of EVRAZ NTMK.



Dimensions shown free of tolerance are given for roll gap engineering, ensured by the process tools and not cracked in finished rails.

### Main rail dimensions

Reference document	Cross section area, cm <sup>2</sup>	1 m weight, kg	Steel grade	Supply conditions
TU ZS112-043-00186269-2019 TU ZS112-040-00186269-2018	65.94	51.69	08U	Rail length 12.5 m, tolerance: Length tolerance not to exceed -30 mm

### Steel chemical composition

Steel grade	Element mass fraction, %									
	C	Mn	Si	S	P	Cr	Ni	Cu	N	Al
08U	0.05 to 0.12	0.25 to 0.50	0.03	0.03	0.03	0.1	0.3	0.3	0.008	0.02 to 0.08

**Note:**

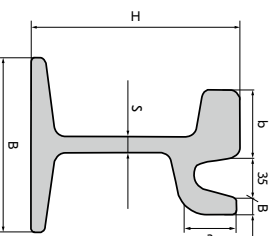
Specific electrical resistance of steel (at plus 15°C), not to exceed 0,125 μOhmm (Ohmm<sup>2</sup>/m).

## Tram rails

### Grooved tram rails

The rails are manufactured at the rail plant of EVRAZ ZSMK. Intended for urban electric railways in tangent and curved tracks.

In terms of product mix, chemistry and mechanical properties the rails comply with GOST R 55941-2014, TU-2R-320-96.



#### Main rail dimensions

Rail type	B, mm	b, mm	H, mm	c, mm	a, mm	S, mm	1 m weight, kg
RT62	150	58	180	40,8	23	12	62,10

#### Steel chemical composition

Steel grade	Element mass fraction, %							
	C	Mn	Si	Cr	P	S	not to exceed	
E/6	0,71 to 0,82	0,74 to 1,05	0,18 to 0,40	0,30	0,025	0,025	0,025	

#### Mechanical properties

Rail type	Ultimate resistance, $\sigma_{Rm}$ , N/mm <sup>2</sup>	Elongation, $\delta_5$ , %	Running surface hardness, HB
	at least		
RT62	820	6,0	260

#### Supplied lengths, product length

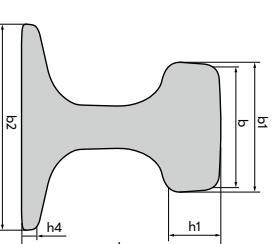
The rails are made with/without two bolt holes, 12,5 m long, length tolerance  $\pm 10$  mm.

The rail macrostructure is guaranteed by the manufacturer. The rail manufacturing process ensures that they are free from flakes.

## Crane rails

The rails are manufactured at EVRAZ ZSMK and EVRAZ NTMK.

Intended for the lifting crane tracks.



#### Main rail dimensions

Rail type	Reference document	Steel grade	H, mm	b <sub>1</sub> , mm	b <sub>2</sub> , mm	b, mm	1 m weight, kg	Manufacturer
KR70			120	120	70	70	47,47	
KR80			130	130	80	80	64,24	
KR100	GOST R 53866-2010	K/76F as per GOST R 51685-2013	150	150	100	100	89,05	EVRAZ NTMK
KR120			170	170	120	120	118,29	
<b>KR140</b>			170	170	140	140	146,98	
KR80	GOST R 53866-2010		130	130	80	80	64,24	
KR120	TU 14-2R-395-2005	63 as per GOST R 53866-2010	170	170	120	120	118,29	EVRAZ ZSMK

#### Steel chemical composition

Steel grade	Element mass fraction, %							
	C	Mn	Si	S	P	Cr	NI	Cu
63	0,53 to 0,73	0,60 to 1,00	0,15 to 0,35	0,035	0,040	0,30	0,30	0,30
K/76F	GOST R 51685-2013	0,71 to 0,82	0,75 to 1,25	0,25 to 0,60	0,03 to 0,15	0,020	0,020	0,004

#### Supplied lengths, product length

Product lengths offered from EVRAZ ZSMK, m:

fixed: 9,0; 9,5; 10,0; 10,5; 11,0; 11,5; 12,0;  
non-fixed: 4,0 to 12,0.

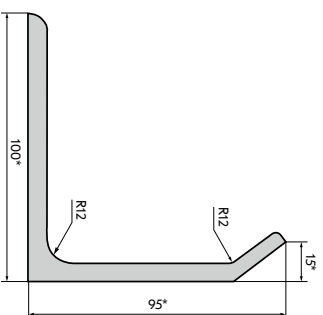
Product lengths offered from EVRAZ NTMK, m:

fixed lengths: 11,0; 12,0.

Rails may be shipped both loose or in tight bundles-cross strapped or wired. The rails are supplied as per the standard rolling accuracy requirement.

## Railcar building sections

The products are manufactured at EVRAZ NTMK channel type 20V-2, Z-beam section — at the rail and structural steel mill, I-beams for car building — at the H-beam plant, the railcar post — at the heavy section plant, and at EVRAZ ZSMK (top cord section, I-beam type 15V1, channel type 8V — at the medium section mill 450, channel types 30V, 30V-2 for railcar building — at the rail and structural steel mill.

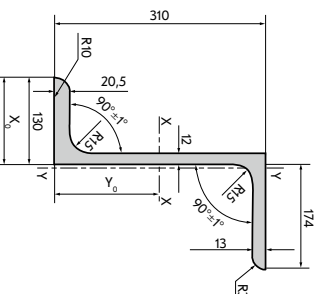


### Top cord section new products

#### Material and shape specification

Section reference document	Cross sectional area, cm <sup>2</sup>	1 m weight, kg	Steel code		Chemistry reference document	Techspecs reference document	Supplied lengths, m
			class	grade			
GOST 5267-4-90	13,601	10,668	325	09G2S	GOST 19281-2014	GOST 52670-90	up to 12.7
			345	09G2SD			
			375				

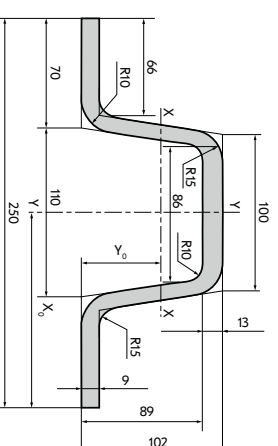
## Z-beam section



#### Material and shape specification

Section reference document	Cross sectional area, cm <sup>2</sup>	1 m weight, kg	Steel code		Chemistry reference document	Techspecs reference document	Supplied lengths, product length, m
			class	grade			
GOST 5267-3-90	84,74	66,52	345	09G2S 09G2SD 15HSND	GOST 19281-2014	GOST 19281-2014 GOST 52670-90	Fixed lengths: 10.8 to 15.8; non-fixed lengths
			390	10HSND			
			12G2F				
			12G2FD				
			12G2F				
			12G2FD				

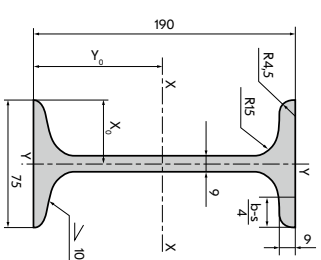
## Railcar post



#### Material and shape specification

Section reference document	Cross sectional area, cm <sup>2</sup>	1 m weight, kg	Steel code		Chemistry reference document	Techspecs reference document	Supplied lengths, product length, m
			class	grade			
GOST 52676-90	36,57	28,71	345	09G2S 09G2SD 15HSND	GOST 19281-2014	GOST 19281-2014 GOST 52670-90	Fixed lengths: 4.2 to 13.0; multiple of fixed lengths; non-fixed lengths
			390	10HSND			
			12G2F				
			12G2FD				
			12G2F				
			12G2FD				

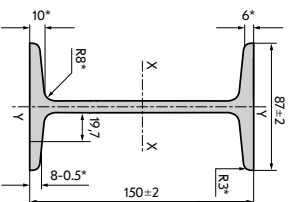
## I-beam №19



#### Material and shape specification

Section reference document	Cross sectional area, cm <sup>2</sup>	1 m weight, kg	Steel code		Chemistry reference document	Techspecs reference document	Supplied lengths, product length, m
			class	grade			
GOST 52675-90	30,37	23,84	325	09G2S 09G2SD 15HSND	GOST 19281-2014	GOST 19281-2014 GOST 52670-90	Fixed lengths: 4.2 to 12.4; multiple of fixed lengths; non-fixed lengths
			345	10HSND			
			390				
			12G2F				
			12G2FD				
			12G2F				

## Center sill section



Section	Profile dimensions, mm								Cross sectional area $F_x, \text{cm}^2$
	h	b	s	t	$h_w$	$h_u$	R	r	
15M	150	87	8	6	138	39.5	8	8	25.77

### Section mix

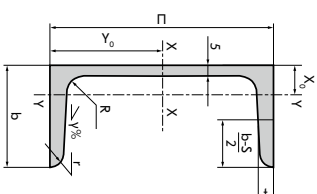
### Material and shape specification

Section reference document	1 m weight, Kg	Steel code		Chemistry reference document	Techspecs reference document	Supplied lengths, product length, m
		class	grade			
TS 573/6/6-45-2019	19.6	345	09G2S 09G2SD 12G2S 12G2SD	GOST 9228-2014	GOST 9228-2014	Fixed length: 12.7

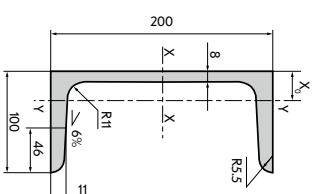
**Note:**

1. Other specified fixed lengths may be shipped upon approval by the customer.

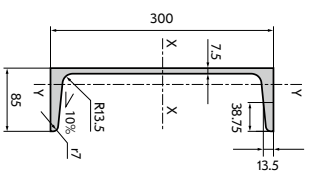
## Channels



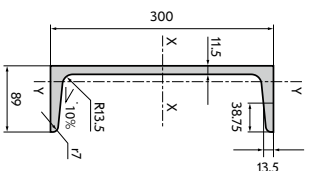
Channel/C-beam type 8V



Channel/C-beam type 20V-2



Channel/C-beam type 30V



Channel/C-beam type 30V-2

### Material and shape specification

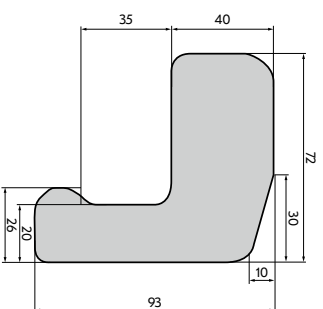
Product name	Section reference document	Cross sectional area, $\text{cm}^2$	1 m weight, kg	Steel code		Techspecs reference document	Supplied lengths, product length, m		
				class	grade				
Channel/C-beam type 8V		11.8	9.2	345	Sps/Sp 09G2S	GOST 380-2005 GOST 9228-2014	Fixed length: 6 to 12		
Channel/C-beam type 20V-2	GOST 52671-90	36.58	28.71	390	12G2F 12G2FD 12G2F 12G2FD	GOST 9228-2014	Fixed lengths: 6 to 12 non-fixed lengths		
								345	09G2S 09G2SD 09G2D 15H5ND
								375	10H5ND
Channel/C-beam type 30V		43.88	34.44	345	3Sp 09G2S	GOST 9228-2014	12		
Channel/C-beam type 30V-2		55.88	43.80	345 (category 14)	3Sp 09G2S	GOST 9228-2014	12		

## Track superstructure sections

### Counter-rail angle type SP850

The product is manufactured at the heavy section plant of EVRAZ NTMK.

The angles are used in R65 rail-based track superstructures.

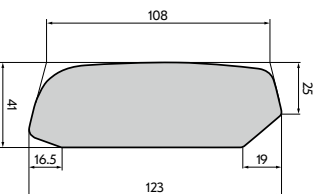


### Material and shape specification

Section reference document	1 m weight, kg	Steel grade	Chemistry reference document	Supplied lengths, product length, m
TU 0921-245-0124233-2007	301	K68	TU 0921-245-0124233-2007	Fixed length multiples: 6 to 10

### Fishplate/joint plate strip type "ApATech R65 MK-BO"

The product is manufactured at the heavy section plant of EVRAZ NTMK. The product is used to manufacture of full section combination (metal-composite) fishplate type "ApATech R65 MK-BO" which is used in high strength bonded-bolted block joints of R65 rails.



### Material and shape specification



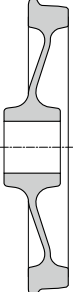
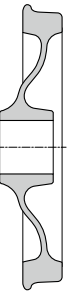

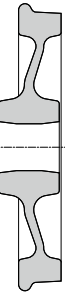
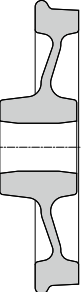
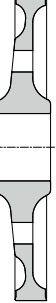

Section reference document	1 m weight, kg	Steel grade	Chemistry reference document	Supplied lengths, product length, m
TS 00186269-309-2018	34,58	30HGSA	GOST 4543-2016	Fixed lengths: 6 to 12





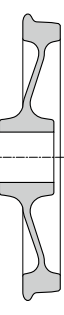



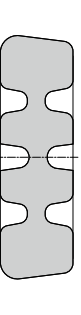
## Railway wheels, wheel blacks, wheel centers

The products are manufactured at the wheel and tire plant of EVRAZ NTMK.


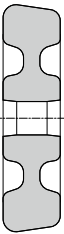
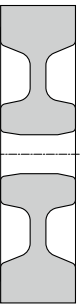
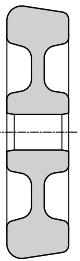
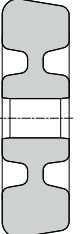




### Material and shape specification


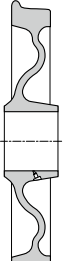




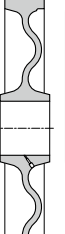


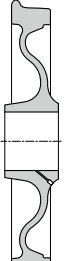
Product name	Application	Section reference document	Taping line/road diameter, mm	Steel grade	Technics reference document
<i>Finished and black wheels as per GOST 10791</i>					
Solid wheel with pan-shaped plate/web	For freight cars	Figure A 1 GOST 10791-2011 Drawing 00186269-162 Drawing 00186269-163	957	2, T	GOST 10791-2011
Solid wheel with pan-shaped plate for maintenance purposes	For freight cars	Drawing 00186269-164	945	2	GOST 10791-2011
Solid wheel with s-shaped plate	For freight cars	Figure A 3 GOST 10791-2011 Drawing 00186269-013A	957	T	GOST 10791-2011
Solid wheel	For special rolling stock	Drawing 010	710	2	GOST 10791-2011
Solid wheel	For special rolling stock	Drawing 012	1050	2	GOST 10791-2011
Solid wheel	For switcher locomotives	Drawing 011	1058	2	GOST 10791-2011

Product name	Application	Section reference document	Taping line/read diameter, mm	Steel grade	Technspecs reference document
Solid wheel	For locomotives	Drawing 81S_224_042	1050	T	GOST 10791-2011
					
Solid wheel	For electric trains	Drawing 00186269-152 Drawing 00186269-153	920	2	GOST 10791-2011
					
Solid wheel	For freight cars	Drawing 00186269-008	957	2	GOST 10791-2011
					
<b>Solid wheel</b>	For freight cars	Drawing 00186269-037	957	2	GOST 10791-2011
					
Black wheel (unmachined)	For underground railway systems	Drawing 073V-1	803	2	GOST 10791-2011 TU 0943-286-01124323-2012
					
Black wheel (unmachined)	For underground railway systems	Drawing 124-1	875	2	GOST 10791-2011 TU 0943-286-01124323-2012
					
Black wheel (unmachined)	For underground railway systems	Drawing 125-1	875	2	GOST 10791-2011 TU 0943-286-01124323-2012
					
<b>Wheel centers, blanks</b>					
Wheel centers	For electric locomotives	Drawing NTMK EP2K_3115102	1,070,6	M	GOST R 55498-2013
					
Wheel centers	For electric locomotives	Drawing NTMK/ EP2K_3115103	1,070,6	M	GOST R 55498-2013
					

Product name	Application	Section reference document	Taping line/read diameter, mm	Steel grade	Technspecs reference document
Wheel centers	For electric locomotive	Drawing ZES6_31101007	1,073	M	GOST R 55498-2013
					
Wheel centers	For diesel locomotive	Drawing 00186269-156	906	M	GOST R 55498-2013
					
Gear wheel blank	For locomotives	Drawing 077A-2	1005	5SF	TU 14-2R-343-2000
					
Gear wheel blank	For locomotives	Drawing 128	990	45HN 5SF	Technical agreement
					
Solid wheel for maintenance purposes	For in-house use	Drawing 082A-2	940	2, T	STO 14-2R-458-2010
					
Black wheel (unmachined)	For ringot cars	Drawing 00186269-097-1B	863	2	Technical agreement
					
Solid work pieces for wheels with parshaped plate/web	For freight cars	Drawing 00186269-147	964	2, T	TU 24108-022-00186269-207
					
Solid work pieces for wheels with s-shaped plate	For freight cars	Drawing 00186269-149	968	T	TU 24108-022-00186269-207 GOST 10791-2011
					
Crane wheel blank	For cranes	Drawing 00186269-180	1010	2	Technical agreement
					



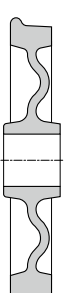
Product name	Application	Section reference document	Taping line/read diameter, mm	Steel grade	Technical specs reference document
Crane wheel blank	For cranes	Drawing 00186269-181	695	2	Technical agreement
					
Crane wheel blank	For cranes	Drawing 00186269-182	831	2	Technical agreement
					
Crane wheel blank	For cranes	Drawing 00186269-184	910	2	Technical agreement
					
Crane wheel blank	For cranes	Drawing 00186269-185	836	2	Technical agreement
					
Crane wheel blank	For cranes	Drawing 00186269-186	695	2	Technical agreement
					
<b>Finished and blank wheels as per EN 13262</b>					
Solid wheel with S-shaped plate	For freight cars	Drawing 00186269-002	920	ER7	EN 13262:2004+A2:2011
					
Solid wheel with S-shaped plate	For freight cars	Drawing 00186269-004	920	ER7	EN 13262:2004+A2:2011
					
Solid wheel with S-shaped plate	For freight cars	Drawing 00186269-006	920	ER7	EN 13262:2004+A2:2011
					
Solid wheel with S-shaped plate	For freight cars	Drawing 00186269-009	920	ER7	EN 13262:2004+A2:2011
					

Product name	Application	Section reference document	Taping line/read diameter, mm	Steel grade	Technical specs reference document
Solid wheel with S-shaped plate	For freight cars	Drawing 00186269-014	920	ER7	EN 13262:2004+A2:2011
					
Solid wheel with S-shaped plate	For freight cars	Drawing 00186269-018	920	ER7	EN 13262:2004+A2:2011
					
Solid wheel with S-shaped plate	For freight cars	Drawing 00186269-023	920	ER7	EN 13262:2004+A2:2011
					
Solid wheel with S-shaped plate	For freight cars	Drawing 00186269-024	920	ER7	EN 13262:2004+A2:2011
					
Solid wheel with S-shaped plate	For freight cars	Drawing 00186269-025	920	ER7	EN 13262:2004+A2:2011
					
Solid wheel with S-shaped plate	For freight cars	Drawing 00186269-026	920	ER7	EN 13262:2004+A2:2011
					
Solid wheel with S-shaped plate	For passenger coach	Drawing 00186269-038	920	ER7	BN 918277:2008 EN 13262:2004+A2:2011
					
Solid wheel with S-shaped plate	For freight cars	Drawing 00186269-039	920	ER7	EN 13262:2004+A2:2011
					
Solid wheel with S-shaped plate	For freight cars	Drawing 00186269-053	920	ER7	EN 13262:2004+A2:2011
					
Solid wheel with S-shaped plate	For freight cars	Drawing 00186269-058	920	ER7	EN 13262:2004+A2:2011
					

Product name	Application	Section reference document	Taping line/read diameter, mm	Steel grade	Technical reference document
Solid wheel with S-shaped plate	For freight cars	Drawing 00186269-059 BA303	920	ER7	EN 13262:2004+A2:2011
Solid wheel with S-shaped plate	For freight cars	Drawing 00186269-060 BA004	920	ER7	EN 13262:2004+A2:2011
		Drawing 00186269-062 BA409	920	ER7	EN 13262:2004+A2:2011
Solid wheel with S-shaped plate	For freight cars	Drawing 00186269-083	920	ER7	EN 13262:2004+A2:2011
		Drawing 00186269-084 BA428	920	ER7	EN 13262:2004+A2:2011
Solid wheel with S-shaped plate	For freight cars	Drawing 00186269-093 EV003	760	ER7	BN 918277:2008 EN 13262:2004+A2:2011
		Drawing 00186269-094	840	ER7	BN 918277:2008 EN 13262:2004+A2:2011
Solid wheel with S-shaped plate	For freight cars	Drawing 131 BA002	920	ER7	EN 13262:2004+A2:2011
		Drawing 00186269-141 BA319	920	ER7	BN 918277:2008 EN 13262:2004+A2:2011



Product name	Application	Section reference document	Taping line/read diameter, mm	Steel grade	Technical reference document
Solid wheel	For freight cars	Drawing 00186269-158	920	ER9	EN 13262:2004+A2:2011
Solid wheel with S-shaped plate	For freight cars	Drawing 00186269-159 Supplied to DB only	920	ER7	BN 918277:2008 EN 13262:2004+A2:2011
		Drawing 00186269-161 BA004	920	ER7	EN 13262:2004+A2:2011
Solid wheel with S-shaped plate	For freight cars	Drawing 00186269-187 BA002	920	ER7	TU 0943-031-00186269-2015 EN 13262:2004+A2:2011
		Drawing 00186269-190 BA409	920	ER7	EN 13262:2004+A2:2011
Solid wheel with S-shaped plate	For freight cars	Drawing 00186269-191 BA314	920	ER7	EN 13262:2004+A2:2011
		Drawing 00186269-194 BA004	920	ER7	EN 13262:2004+A2:2011
Solid wheel with S-shaped plate	For freight cars	Drawing 00186269-200 BA005	920	ER7	EN 13262:2004+A2:2011
		Drawing 00186269-034 BA004	934	ER7	EN 13262:2004+A2:2011



Product name	Application	Section reference document	Taping line/read diameter, mm	Steel grade	Technical reference document
Solid work pieces for wheels with S-shaped plate	For freight cars	Drawing 00186269-068 BA072	934	ER7	TU 0943-019-00186269-2015 EN 13262:2004+A2:2011
<b>Solid work pieces for wheels with S-shaped plate</b>	For freight cars	Drawing 00186269-072	776	ER7	TU 0943-019-00186269-2015 EN 13262:2004+A2:2011
Solid work pieces for wheels with S-shaped plate	For freight cars	Drawing 00186269-081	835	ER7	TU 0943-019-00186269-2015 EN 13262:2004+A2:2011
Solid work pieces for wheels with S-shaped plate	For freight cars	Drawing 00186269-088 BA303	935	ER7	TU 0943-019-00186269-2015 EN 13262:2004+A2:2011
Solid work pieces for wheels with S-shaped plate	For freight cars	Drawing 00186269-166 BA409	935	ER7	TU 0943-019-00186269-2015 EN 13262:2004+A2:2011
Solid work pieces for wheels with S-shaped plate	For freight cars	Drawing 00186269-167 BA004	934	ER7	TU 0943-019-00186269-2015 EN 13262:2004+A2:2011
Solid work pieces for wheels with S-shaped plate	For freight cars	Drawing 00186269-176 BA314	935	ER7	TU 0943-019-00186269-2015 EN 13262:2004+A2:2011
Solid work pieces for wheels with S-shaped plate	For freight cars	Drawing 00186269-183	939	ER7	EN 13262:2004+A2:2011

Product name	Application	Section reference document	Taping line/read diameter, mm	Steel grade	Technical reference document
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Solid wheel with S-shaped plate

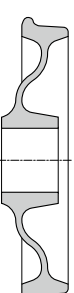
For freight cars

Drawing 00186269-015  
1-33

838,2

Class C

TU 0943-024-00186269-2016  
AAR M-107/M-208:2020



**Solid wheel with S-shaped plate**

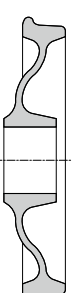
For freight cars

Drawing 00186269-139  
H-36

914,4

Class C

TU 0943-024-00186269-2016  
AAR M-107/M-208:2020



**Solid wheel with S-shaped plate**

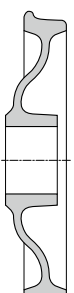
For freight cars

Drawing 00186269-091  
B-38

965,2

Class C

TU 0943-024-00186269-2016  
AAR M-107/M-208:2020



Solid wheel with S-shaped plate

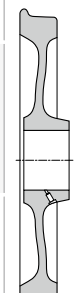
For locomotives

Drawing 00186269-043

1,041,4

Class B

AAR M-107/M-208:2020



Solid wheel with S-shaped plate

For locomotives

Drawing 00186269-044  
D-42

1,066,8

Class C

AAR M-107/M-208:2020



**Solid wheel with S-shaped plate**

For locomotives

Drawing 00186269-047  
E-42

1,066,8

Class B

AAR M-107/M-208:2020



Solid wheel with S-shaped plate

For locomotives

Drawing 00186269-052  
D-42

1,066,8

Class B

AAR M-107/M-208:2020



**Solid wheel with S-shaped plate**

For locomotives

Drawing 00186269-090  
A-41

1,041,4

Class C

AAR M-107/M-208:2020



**Solid wheel with S-shaped plate**

For locomotives

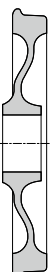
Drawing 00186269-092  
E-42

1,066,8

Class C

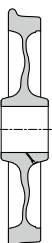
AAR M-107/M-208:2020

Product name	Application	Section reference document	Taping line/tread diameter, mm	Steel grade	Technspecs reference document
Solid wheels with S-shaped plate	For locomotives	Drawing 00186269-192 A-43	1,092.2	Class B	AAR M-107/М-208:2020



Wheels as per other standards

Solid wheel with S-shaped plate	For passenger coach cars	Drawing 00186269-021	918	IRS	IRS R-19/93
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## Rings/Tires



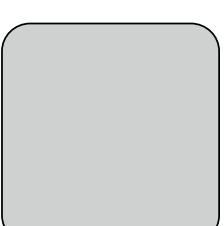
The products are manufactured at the wheel and tire plant of EVRAZ NTMK.

### Material and shape specification

Product name	Application	Section reference document	Technspecs reference document	Steel grade	Main dimensions, mm
Black tires/rings	For wide gauge railway locomotives (flanged)	GOST R 52366-2005 Drawing 001A	GOST 398-2010	2	1,690×143×83 1,540×143×83 1,240×143×83
		GOST R 52366-2005 Drawing 003	GOST 398-2010	4	1,160×143×83 1,090×143×83 1,060×143×83
Black tires/rings	For wagons For wide-gauge railway cars and tenders (flanged)	GOST 5000-83 Drawing 005	GOST 398-2010	2	890×134×83 870×134×83 840×134×83 810×134×83 790×134×83
Black tires/rings	For diesel locomotives	GOST R 52366-2005 Drawing 001A	GOST 398-2010	2	890×143×98
Black tires/rings	For narrow gauge tracks	Drawing 00186269-033	UIC 810+2003	B3	603×119×64

## Axle blanks

The products are manufactured at the rail and structural steel mill of EVRAZ NTMK.



Section name	Section reference document	1 m weight, kg
200×200	GOST 4728-2010	30.4
215×215		33.3
220×220		37.0
230×230		40.6

### Material and shape specification

#### Grade mix

Steel grade	Reference document
OC	GOST 4728-2010
EAIN	DIN EN 13261

# Annex. Production facilities

- EVRAZ ZSMK and EVRAZ NTMK go forward with the “Clean Air” national project.
- Upon the launch of blast furnace 6, the EVRAZ NTMK blast furnace complex has become the most advanced and environmentally friendly facility in Russia.



| New technologies for  
a better future



# EVRAZ NTMK



EVRAZ NTMK is located in the Middle Urals, in Nizhny Tagil, the second largest city in Sverdlovsk region in terms of population and industrial output.

The company operates as a full-scale integrated steelmaker.

The Russia's largest titanium-magnetite ore field along with the in-house blast furnace feedstock dressing factory is the plant's raw materials base.

The most advanced and environmentally friendly blast furnace complex in the Russian Federation includes two effective blast furnaces (BF No. 6 and 7) each capable of putting out 2.55 million tpa of hot metal. The complex is equipped with the effective pulverized coal injection technology to save on natural gas and coke.

Liquid steel is produced at the Basic Oxygen Plant which can make 4,480 K tpa. Steel is produced from vanadium hot metal by a two-phase method where sellable V slag is produced at the first step.

Rolling operations include seven hot rolling mills which manufacture a wide mix of finished products:

- a rail and structural steel mill with a heat treatment plant: railway rails, crane rails, conductor rails for underground railways channels, track shoes (grouters) sections, railcar sections (Z-beam, railcar post, special channels), pipe blanks, round bars, square bars, axle blanks;
- a heavy section mill: channels, angles, railcar post, mine working supports (pit props), R33 rails, R65 fish plate blank, counter-rail angle type SPB50, pipe blanks, round bars, square bars.

- a universal beam mill: general purpose I-beams, H-beams, UC beams, sheet piles, square and rectangular bars, pipe blanks;
- a wheel rolling mill: locomotive and railcar wheels, locomotive wheel centers, wheel blanks;
- a fire mill: railcar wheel tires, machine building rings;
- ball mills SPSn-40-80, SPSn-80-120, SPSn-60-120: grinding balls, diameters 40 to 120 mm.



# EVRAZ ZSMK



EVRAZ ZSMK is located in Novokuznetsk and is the largest steelmaker in Siberia.

Since July 1, 2011 ZSMK and NKMK have merged into EVRAZ – Consolidated West Siberian Metallurgical Plant. EVRAZ ZSMK includes the construction steel facility and the rail facility which represent the integrated steelmaking company. In 2018, Evrazruda, which consolidated several mining and dressing companies of the Kemerovo region, has become the mining unit of EVRAZ ZSMK. The company operates as a full-scale integrated steelmaker.

Hot metal is manufactured in three blast furnaces of the total usable volume of 8,000 m<sup>3</sup>. Blast furnaces №1 and 3: 3,000 m<sup>3</sup>, blast furnace № 2: 2,000 m<sup>3</sup>. Each blast furnace is equipped with four stoves.

Steelmaking operations of the construction steel facility comprise two oxygen melt plants, five converters (three 160-t converters and two 350-t converters), bar and slab strand casters and an ingot teeming plant.

The rolling plant of the construction steel plant comprises:

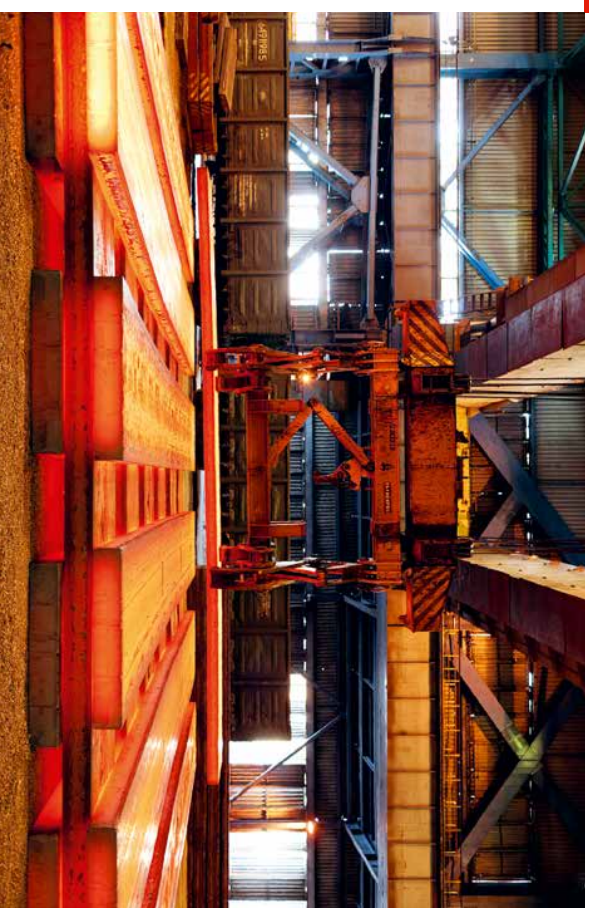
- a breakdown mill (1,250 (square bars, slabs);
- a continuous bar mill (square bars);
- a wire mill 250-t (wire rod, rebars, round bars);
- two light section mills:
  - 250-t (rebars, round bars, angles),
  - 250-2 (rebars, round bars);
- a medium section mill 450 (special interchangeable section type SVP I-beam, channel, monorail beam, angle, round bar, square bar 60 x 60, rebar);
- a steel rolling mill (SPRP): wire, nails and mesh.

EVRAZ ZSMK Rail Mill is the leading manufacturer in terms of rail range in Russia and worldwide. The rail and beam mill produces railway, tram line and underground railway rails, rails for turnouts. Furthermore, ball mills 1 and 2 located on the same premises produce grinding balls of various diameter.

In April 2013 EVRAZ has completed a large-scale revamping project of the rail and beam plant. In fact, a brand new production facility was launched equipped with cutting-edge machinery: a universal rolling mill by SMS MEER, a SES rail head-hardening plant, a KOCH cooling bed, a BRONKS roller straightening plant, a non-destructive test line with several rail test phases, drilling and cutting machines by AIFL, hydraulic presses by GEISMAR.

After revamping EVRAZ ZSMK has become one of the world's most modern rail manufacturers. The integrated steelmaker was the first in Russia and the CIS to master manufacturing of rails up to 100 meters long using the innovative head-hardening process.

The design capacity of the steelmaking operations of the rail facility is 950 K tpa of liquid steel. Liquid steel is produced in an electric steelmaking furnace of the rated capacity of 100 tons; secondary metallurgy: ladle metallurgy furnaces and a VD degasser.



# EVRAZ Caspian Steel



EVRAZ Caspian Steel is a manufacturer of light sections. Located in Kostanay, the Republic of Kazakhstan, the investment project was implemented by "Evraz Caspian Steel" LLC, where 65% of the shares belong to EVRAZ, 35% – to JSC "Caspian Group".

The plant was commissioned in December 2013. Its construction took two and a half years. The investments totaled 131 million US dollars.

The design capacity of the rolling mill: 450 K tpa of rebars; steel billets are sourced from EVRAZ ZSMK. The products of the plant are marketed in Kazakhstan and exported to Ukraine, Tajikistan, Kyrgyzstan, etc.).

The plant is based on modern engineering where advanced technologies are used. Siemens SPA, Italy, was the general supplier of equipment for the company. During the project implementation the environmental issues were a special focus. Indeed, there is a zero environmental impact on water bodies.

Product mix of EVRAZ Caspian Steel:

- hot-rolled round steel;
- hot-rolled deformed rebar sections for reinforcement of
- reinforced concrete structures;
- ebars for reinforced concrete structures.

Rebars are manufactured in compliance with the national standards. Product quality is ensured by the latest technological equipment and quality inspection in the testing laboratory of the plant. All products are certified to comply with regulatory documents in the Kostanay branch of JSC "National Center for Expertise and Certification". The company has passed the certification procedure for quality management system ST RK ISO 9001-2009 (ISO 9001: 2008).

The 6S system is in place, which offers the principles of lean production, streamlined procedures, production standards as well as safe work practices.

In 2014 the company was awarded the "Golden Hephaestus" in the category "Project of the Year" of the industry contest of the Republic of Kazakhstan.

In 2016, EVRAZ Caspian Steel was awarded the special "Isker" established by the National Chamber of Entrepreneurs of Kazakhstan. It was awarded to 10 companies of the country; the plant was awarded for the production of steel products.

In 2017, EVRAZ Caspian Steel has won the regional exhibition and contest "The Best Product of Kazakhstan" and took 2nd place in the Kostanay region.

The participants of the republican "The Best Product of Kazakhstan" exhibition and contest became the laureates of the award. In the fall of 2016, EVRAZ Caspian Steel has won the regional stage for a second year in a row.

