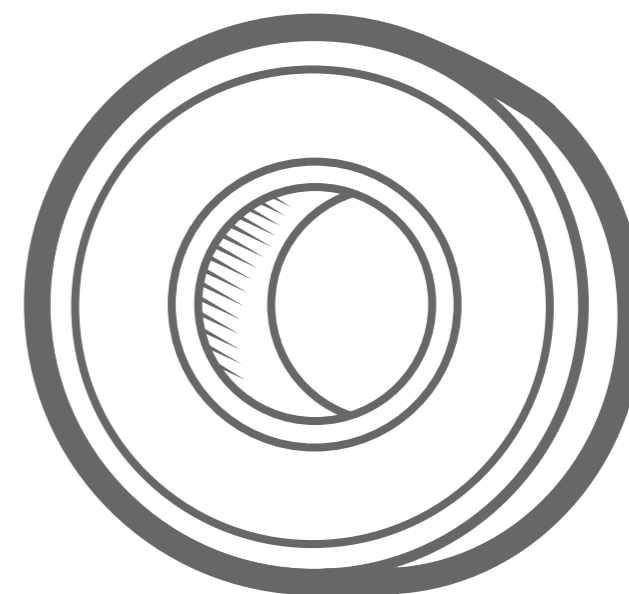


mechel.com



PRODUCT CATALOGUE

FORGED BARS AND STAMPINGS



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- Business segments
- Mining
- Steel
- Power
- Logistics
- Sales
- Procurement



THE URALS STAMPINGS PLANT CHEBARKUL, CHELYABINSK REGION, RUSSIA

The Urals Stampings Plant is Russia's largest producer of stampings made of special steels and alloys. The Chebarkul plant owns the world's most powerful counterblow hammer with an impact energy of 1470 kJ; it produces stampings weighing up to 2.5 tonnes and up to 4.0 metres long. The plant also can make solid-rolled ring blanks of up to 4 metres in diameter, up to 1 metres high, and weighing up to 6.3 tonnes. Urals Stampings Plant's Chelyabinsk facility can make open die forged bars weighing up to 45 tonnes.

The Chelyabinsk unit is equipped to conduct heat treatment (annealing, normalizing, hardening, quenching and tempering, etc.), machining of round and double-diameter rough forged bars and forged washers, abrasive grinding and milling of square and rectangular rough forgings. Forged bars are made from structural steel, alloy steel, tool steel, stainless steel, heat-resistant and titanic alloys manufactured by an electric arc furnace with secondary steel refining, and also by electroslag, vacuum and induction arc remelting.

Products of The Urals Stamping Plant have been certified by a number of Russian and international organizations. It currently holds the following certificates:

- **Certificates of approval for rough car, locomotive and multiple-unit axles** (issued by the Register of certification on federal railway transport);
- **License to make equipment for nuclear installations** (issued by Russia's Federal Service for Ecological, Technological and Atomic Supervision).

Urals Stampings Plant also holds a certificate of compliance issued by TUV Rheinland InterCert affirming that its quality management system complies with the international ISO 9001:2015 standard.



Certificate of compliance with the international ISO 9001:2015 (TUV Rheinland InterCert)
Date of issue: 10.09.2018
Expires on: 22.12.2021



Certificate of approval for rough locomotive axles and multiple-unit axles (produced by open die forging)
Issued by: Register of certification on federal railway transport
Date of issue: 03.10.2016
Expires on: 02.10.2021



Certificate of approval for rough car axles
Issued by: Register of certification on federal railway transport
Date of issue: 03.10.2016
Expires on: 02.10.2021



Certificate of approval for rough locomotive axles and multiple-unit axles (produced by closed die forging)
Issued by: Register of certification on federal railway transport
Date of issue: 03.10.2016
Expires on: 02.10.2021



INFORMATION ABOUT MECHEL AND ITS ENTERPRISES PRODUCING FORGED BARS AND STAMPINGS

Mechel, which was founded in 2003, is a leading Russian mining and steel company, comprising producers of coal, iron-ore concentrates, ferroalloys, steel, steel rolled products, high value added steel products, heat energy and electricity. Mechel's production facilities are located in 11 of Russia's regions and abroad. Its facilities also include three trading ports and its own transportation company. Mechel markets its products both domestically and abroad.

Mechel's steel segment produces and sells carbon and special steel long products, unalloyed and stainless steel flat products, forged bars and stampings made of special high-grade steel and alloys, and also a large variety of customized steel shapes billets.

Forged and stamped products are manufactured by Mechel PAO's subsidiary called Urals Stampings Plant PAO (based in the town of Chebarkul, Chelyabinsk Region) and by its affiliate located in Chelyabinsk, Russia.

MORE DETAILS

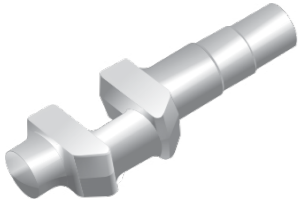
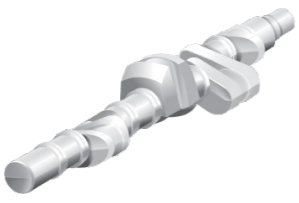


PLEASE VISIT OUR WEBSITE TO SEE THE FULL INFORMATION BY SCANNING THE QR CODE OR FOLLOWING THE LINK BELOW:

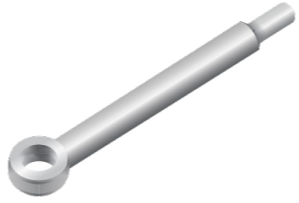
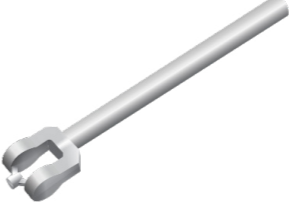

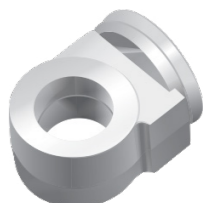
<https://www.mechel.com/production/metallurgy/forging/>



CRANKSHAFTS, CONNECTING RODS

FLUID POWER SYSTEMS

SINGLE-THROW CRANKSHAFT	FIVE-THROW CRANKSHAFT	CONNECTING ROD WITH COVER	CONNECTING ROD WITHOUT COVER
			
Dimensions / Mass			
Length: up to 1500 mm Mass: 3–675 kg	Length: up to 3000 mm Mass: 470–1550 kg	Mass: 30–100 kg	Mass: 3–100 kg
Steel grade			
structural steel grades			
Standards for chemical composition			
DIN EN 10083–2; DIN EN 10083–3; DIN EN 10084			
Technical requirements (subject to agreement at the time of ordering): <ul style="list-style-type: none"> • heat treatment (normalization, quenching and tempering); • premachining; • macrostructure control; • UT control acc. to GOST 24507-80, quality groups 2n, 3n, 4n, OST 5P.9675-88, ПНАЭ Г 7-014-89, SEP 1921, class C/c; • carrying out of mechanical properties on heat-treated specimens or in delivery; • testing of mechanical properties for resistance to intercrystalline corrosion; • rating of non-metallic inclusion content as per DIN 50602 (K4) or ASTM E45, method A (A, B, C, D); • grain size as per ASTM E112 or DIN 50601; • hardenability; • control of thermal stability; • capillary control; • hardness. 			

ROD	ROD CLEVIS	FORK	EYELET
			
Dimensions / Mass			
Length: up to 1500 mm Mass: 5–800 kg	Length: up to 1500 mm Mass: 10–800 kg	Mass: 1–50 kg	Mass: 4–250 kg
Steel grade			
structural steel grades			
Standards for chemical composition			
DIN EN 10083–2; DIN EN 10083–3; DIN EN 10084			
Technical requirements (subject to agreement at the time of ordering): <ul style="list-style-type: none"> • heat treatment (normalization, quenching and tempering); • premachining; • macrostructure control; • UT control acc. to GOST 24507-80, quality groups 2n, 3n, 4n, OST 5P.9675-88, ПНАЭ Г 7-014-89, SEP 1921, class C/c; • carrying out of mechanical properties on heat-treated specimens or in delivery; • testing of mechanical properties for resistance to intercrystalline corrosion; • rating of non-metallic inclusion content as per DIN 50602 (K4) or ASTM E45, method A (A, B, C, D); • grain size as per ASTM E112 or DIN 50601; • hardenability; • control of thermal stability; • capillary control; • hardness. 			

4

PRODUCTS FOR OIL AND GAS INDUSTRY

BODY	BODY	PLUG	PLUG WITH JOURNAL
Dimensions / Mass			
Mass: 50–450 kg	Mass: 60–300 kg	Mass: 280–1150 kg Nominal inside diameter: 1.5–12"	Mass: 4–320 kg Nominal inside diameter: 1.5–12"
Steel grade			
structural steel grades			
Standards for chemical composition			
DIN EN 10083-2; DIN EN 10083-3; DIN EN 10084			
Technical requirements (subject to agreement at the time of ordering): <ul style="list-style-type: none"> • heat treatment (normalization, quenching and tempering); • premachining; • macrostructure control; • UT control acc. to GOST 24507-80, quality groups 2n, 3n, 4n, OST 5P.9675-88, ПНАЭ Г 7-014-89, SEP 1921, class C/c; • carrying out of mechanical properties on heat-treated specimens or in delivery; • testing of mechanical properties for resistance to intercrystalline corrosion; • rating of non-metallic inclusion content as per DIN 50602 (K4) or ASTM E45, method A (A, B, C, D); • grain size as per ASTM E112 or DIN 50601; • hardenability; • control of thermal stability; • capillary control; • hardness. 			

HANDLING DEVICES

5

LOAD HOOK	PULL HOOK	LOAD HOOK
Dimensions / Mass		
Mass: 2–63 mt	Mass: 0.5–16 mt	Mass: 2–63 mt
Steel grade		
structural and stainless steel grades		
Standards for chemical composition		
by agreement between the purchaser and the supplier		
Technical requirements (subject to agreement at the time of ordering): <ul style="list-style-type: none"> • heat treatment (normalization, quenching and tempering); • premachining; • macrostructure control; • UT control acc. to GOST 24507-80, quality groups 2n, 3n, 4n, OST 5P.9675-88, ПНАЭ Г 7-014-89, SEP 1921, class C/c; • carrying out of mechanical properties on heat-treated specimens or in delivery; • testing of mechanical properties for resistance to intercrystalline corrosion; • rating of non-metallic inclusion content as per DIN 50602 (K4) or ASTM E45, method A (A, B, C, D); • grain size as per ASTM E112 or DIN 50601; • hardenability; • control of thermal stability; • capillary control; • hardness. 		


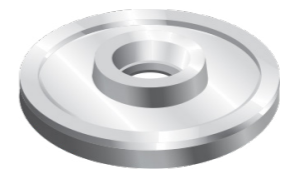



ROLLED RINGS FOR GENERAL MACHINERY AND GAS TURBINE ENGINE

RING OF RECTANGULAR CROSS SECTION	SECTION-SHAPED RING	SECTION-SHAPED RING
		
Dimensions / Mass		
OD: up to 4000 mm Height: up to 1000 mm Mass: 20–6300 kg		
Steel grade		
structural steel grades		
Standards for chemical composition		
DIN EN 10083-2; DIN EN 10083-3; DIN EN 10084		
Technical requirements (subject to agreement at the time of ordering):		
<ul style="list-style-type: none"> • heat treatment (normalization, quenching and tempering); • premachining; • macrostructure control; • UT control acc. to GOST 24507-80, quality groups 2n, 3n, 4n, OST 5P.9675-88, ПНАЭ Г 7-014-89, SEP 1921, class C/c; • carrying out of mechanical properties on heat-treated specimens or in delivery; • testing of mechanical properties for resistance to intercrystalline corrosion; • rating of non-metallic inclusion content as per DIN 50602 (K4) or ASTM E45, method A (A, B, C, D); • grain size as per ASTM E112 or DIN 50601; • hardenability; • control of thermal stability; • capillary control; • hardness. 		



BILLETS FOR EQUIPMENT OF CARS

SHAFT	GEAR	RIM
		
Dimensions / Mass		
Mass: 250–870 kg	OD: up to 1000 mm Mass: 110–500 kg	OD: up to 1000 mm Mass: 110–500 kg
Steel grade		
structural and stainless steel grades		
Standards for chemical composition		
by agreement between the purchaser and the supplier		
Technical requirements (subject to agreement at the time of ordering):		
<ul style="list-style-type: none"> • heat treatment (normalization, quenching and tempering); • premachining; • macrostructure control; • UT control acc. to GOST 24507-80, quality groups 2n, 3n, 4n, OST 5P.9675-88, ПНАЭ Г 7-014-89, SEP 1921, class C/c; • carrying out of mechanical properties on heat-treated specimens or in delivery; • testing of mechanical properties for resistance to intercrystalline corrosion; • rating of non-metallic inclusion content as per DIN 50602 (K4) or ASTM E45, method A (A, B, C, D); • grain size as per ASTM E112 or DIN 50601; • hardenability; • control of thermal stability; • capillary control; • hardness. 		

FORGED ROUND BARS (also machined (rough turned))			FORGED SQUARE AND RECTANGULAR BARS (also machined (abrasive ground or milled))		
Dimension (after machining)					
D: 90–1 500 mm L: up to 7 000 mm (D: 90–1 000 mm L: up to 6 000 mm) Mass: up to 45 000 kg (up to 20 000 kg)			A: 80–1 500 mm B: 180–2 000 mm L: up to 6 000 mm B/A not more than 5 Mass: up to 45 000 kg (up to 20 000 kg)		
Standards for steel product					
by agreement between the purchaser and the supplier			by agreement between the purchaser and the supplier		
Steel grades					
S355J2G3; A105; C15E(R); C22E(R); C35E(R); C45E(R); C55E; C60E; 16MnCr(S)5; 18CrNiMo7-6; 25CrMo4; 30CrNiMo8; 34CrNiMo6; 39NiCrMo3; 42CrMo(S)4 and others	X2CrNiMo18-14-3; X6CrNiTi18-10; X12Cr13; X20Cr13; X30Cr13; X46Cr13 and others	1.2311; 1.2767; 1.2714; 1.2344; 1.2080; 1.2365; 1.2379; 1.2343; L6; H10; H11; H13; D2; D3 and others	S355J2G3; A105; C15E(R); C22E(R); C35E(R); C45E(R); C55E; C60E; 16MnCr(S)5; 18CrNiMo7-6; 25CrMo4; 30CrNiMo8; 34CrNiMo6; 39NiCrMo3; 42CrMo(S)4 and others	1.2311; 1.2767; 1.2714; 1.2344; 1.2080; 1.2365; 1.2379; 1.2343; L6; H10; H11; H13; D2; D3 and others	
Standards for chemical composition and technical requirements					
DIN EN 10250-1; DIN EN 10250-2; DIN EN 10250-3; DIN EN 10083-3; DIN EN 10084; SEW 550; ASTM A29; ASTM A350	DIN EN 10250-4; DIN EN 10088-1(2)	DIN EN ISO 4957; ASTM A 681	DIN EN 10250-1; DIN EN 10250-2; DIN EN 10250-3; DIN EN 10083-3; DIN EN 10084; SEW 550; ASTM A29; ASTM A350	DIN EN ISO 4957; ASTM A 681	

One of Mechel's important competitive advantages lies in its sales policy, based on its effort to create long-term partnership ties with the company's clients and meet their needs in steel products and services as fully as possible. We can fulfill any order regardless of size and complexity. Our clients can order various steel products made from an assortment of special steels.

For our clients' convenience and to increase the efficiency of our sales, we created the international sales network Mechel Service Global B.V., which focuses on marketing our steel products domestically as well as in Europe and the CIS member states. In addition to sales of steel products, the company offers a wide range of services within at its storage facilities.

The company's headquarters are located in the Hague (the Netherlands). They function as a coordination center for steel product sales and ensure efficient interaction between our clients and Mechel Group's steel producers.

The extensive sales network, with its highly proficient staff, storage infrastructure, sweeping product range and sufficient stores, allows us to fulfill our clients' needs fully and promptly.

CONTACTS 10

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