Background

The history of Ruspolymet is based on over 145 years of active research and production activities in the field of metallurgy and over 50 years of work with special steels. The company’s profile is very wide—from the melting of a range of special steels and alloys to the manufacture of ring blanks and forgings for the needs of the aircraft engine industry, as well as nuclear enterprises, energy and general machine building companies, entities operating in space engineering and many other industries. The equipment of Ruspolymet allows it to melt a whole range of special steel grades, steel and alloys. In other words, the company can make any structural steel grade according to technical requirements of its customers. Moreover, there are no limitations regarding chemical composition, mechanical properties and melting technology. The company supplies ring blanks and discs to more than 100 enterprises of general engineering profile. Its products are successfully used by manu-

FACT BOX

FULL NAME: JSC Ruspolymet

GENERAL DIRECTOR: Viktor Klochay

OPERATIONS: Metallurgical industry

ESTABLISHED: 1866

EMPLOYEES: 3225 people

TURNOVER: 7684882 RUB

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facturers of equipment and special vehicles with ring parts and units, discs, supporting and rotating units. Moreover, the company produces high-quality seamless rolled and welded ring blanks and discs for aircraft engine industry and rocket engineering.

Development of production All the technologies listed above rely on the development of a modern scientific research. For this reason, the company created a Directorate for Science and New Technologies, the mission of which is the development and introduction of modern steel and special alloys’ production technologies as well as technology of production from the aforementioned components ring blanks and discs. Research work is carried out by Ruspolymet in cooperation with the specialists from local institutions such as the Federal State Unitary Enterprise All-Russian Scientific and Research Institute of Aviation Materials, FGUP TSNKhChertom named after I.P. Bardin, National Research Technological University -Moscow Institute of Steel and Alloys, Moscow Aviation Institute, Cherepovets State University, as well as academic institutions from the near abroad (Donetek National Techni-
cal University). Ruspolymet also plans the production of metal powders. Such powders may be used in the medical, general engineering or defense industries and for the production of high abrasive materials. Ruspolymet will be cooperating on this project with State Corporation Rosnano. Each year the company develops a thematic plan of scientific research and experimental design work. This year, in the thematic plan of NIOKR-2012 there are 40 subjects addressing various issues. For example, the development of a wide range of steel melting, including nickel-based alloys, a new steelmaking complex on the basis of DSP-6 furnace with secondary treatment of alloys in the ladle-furnace unit and in the vacuum degasser. The company also develops the technology of manufacturing different types of forgings made from various complex alloyed steels as well as nickel and titanium-based super alloys with the use of a new forging module. The last but not least, the company plans to develop technology of gas-isostatic treatment of forgings from powder composite materials and producing ring blanks from them. An important part of Ruspolymet’s activity is the development of the manufacture of large-sized (3000-6000 mm diameter) ring blanks on the ring rolling machines of a German company SMS MEER from steels, nickel-based al-
loys, titanium and aluminum. In the current year, the company envisaged more than RUB 17 million to fund research on the thematic plan of NIOKR-2012. In May 2012, the company started development of smelting stain-
less steel using a completely new techn-
ology. Technology for smelting a high-quality stainless steel is to achieve the minimum carbon content in metal. It can be achieved by applying new conditions for smelting. Anther form of Ruspolymet’s work is smelting of heat-resistant alloys on iron-nickel and nick-
el base. In July the company smelted for the first time complex super alloys, which are used in the aircraft industry – EI 437, EI 868 and EP708. According to the industry experts, these are complex, super duty alloyed steel smelted by any other company, as there is no other en-
tity with the equipment capacity of 5-9 tons. The innovative project of Ruspolymet, organization of a modern electro metallurgical production of high quality steel was the winner in the competition “Innovations of the Nizhny Novgorod region in 2011” in the category “Innova-
tion in heavy industry”. At the beginning of August 2012, the company started to release new products: square, rectangular section and variable cross-section forgings. This is the most expensive and most popular product on the market. The company manufactures forgings both for its own use as well as for its clients. All these characteristics make Ruspolymet a unique enterprise, but, at the same time, the responsibility for the highest quality provided to custom-
ers is getting bigger. At the end of the last year, the company launched a new steel complex of an Italian company DANIELI. The forging module comprises of a 1600-ton open die forging hydraulic press and two manipulators (rail mounted and mobile), as well as two furnaces – a chamber-type gas heating furnace and a heat treating furnace. Application of international business models for any company of Ruspolymet’s profile and scale of operations is very important. The quality management system is al-
ready working at Ruspolymet. It is com-
pliant with the requirements of interna-
tional and interstate standards identical to the following ones: ISO 9001:2008 Quality Management System and gener-
al requirements for competence of text-
laboratories ISO / IEC 17025:2005. Regarding aerospace industry, the company has certificates of compliance from the Interstate Aviation Committee, as well as a certificate of the international standard AS/EN 9100 Quality Manage-
ment System, containing all requirements for companies from aviation, space, and defense industries. Taking into account the aforementioned, the integration of Ruspolymet to the world community is not something new. This fact became especially relevant in connection with entry of Russian Federation into World Trade Organization. Ruspolymet’s task is to maintain a high rate of development, continue to improve the products’ quality, as well as to meet the needs of cus-
tomers and partners.

Mission Ruspolymet is an integral part of the international and Russian aerospace en-
ngine building community, dedicated to its progress and development. The com-
pany’s mission is to constantly searching for the best solutions for its partners and persistent contribution into the state-of-the-art technology. The company is proud of its staff – a professional team, a strong crew of specialists with unique skills, experience and knowledge. The company is able to deal with the most complicated and sophisticated alloys thanks to rich experience cumulated through the decades of processing cus-
tomized alloys. The company’s vision is based on experience of the past and the ideas of the present. It is also an entity which invests in unique technology and new methods which will lay the

Innovations The company is now establishing a new electrometallurgical com-
plex, containing steel making and forging modules. The new electrometal-
lurgical complex comprises of, among others: a 6-ton steel-making arc furnace with furnace transformer, a ladle fur-
nace, and a double-chamber steel de-
gassing unit, allowing the manufacture of all types of steel used in the ring roll-

ing business. The forging module will be responsible for the manufacture of forg-
ings and blanks for the production of rings from steel. The production volume will achieve 60,000 tons of liquid steel per year. Ruspolymet is also planning to launch commercial production of ingots from heat-resistant and special alloys at the new production complex. The new production complex allows the company to manufacture ingots up to 12 tons and 900 mm in diameter - from car-
bon, alloyed, titanium and heat-resistant steels and alloys destined for aircraft, power, nuclear engineering and other industries. In the course of development and improvement of a ring rolling mill Ruspolymet commissioned a new hy-
draulic press manufactured by Schuler (Germany), which allowed the entity to improve precision characteristics of a ring blank by means of its accurate po-
sitioning at the table and, at the same time, preventing eccentricity during piercing and punching. The company can produce large-size seamless rolled ring blanks and discs with weight up to 12,000 kg from heat-resistant steels and alloys with nickel and titanium base, as well as from heat-resistant and alloyed steels, in order to meet requirements of customers producing power and nucle-
ar engineering facilities. Written by Magdalena Kucypera