1. **Yu.V. Golenkov.** The choice of molding and core-making equipment.

The topic of the article is the correct approach to the selection of foundry equipment using evaluating principles of the current production at the most efficient foundry plants in the economically developed countries of the world — leaders in the quality and production volumes of certain types of castings for the most demanding and well-known consumers. Caution about the most frequent mistakes — formal tender procedures and delegation of responsibility to engineering companies.

Keywords: selection of foundry equipment, impropriety of a tender approach, efficient foundry plant.

2. **D.A. Boldyrev, L.I. Popova, S.G. Prasolov, S.V. Davydov, A.A. Tokarev.** Ductile nodular and compacted graphite ductile iron — a rational alternative to ductile iron.

It has been established that high-strength cast iron with spherical and vermicular graphite in its mechanical properties is a rational alternative to forged cast iron, namely ductile cast iron 45-6 (GOST 1215—79), as well as the ratio spherical/vermicular graphite (70...95/5...30%), which provides for the acquisition of these mechanical characteristics. Differences in the ratio of pearlite/ferrite and hardness for high-strength cast iron with spherical and vermicular graphite and ductile cast iron are shown, providing a brand of 45-6.

Keywords: ductile cast iron, cast iron with spherical and vermicular graphite.

3. **V.Yu. Kulikov, Sv.S. Kvon, A.M. Dostaeva, E.P. Shcherbakova, S.K. Barinova, A.A. Alina.** Influence of highly dispersed filler in the composition of cold-hardening mixtures on its technological properties.

The work considered the impact of highly dispersed am filler consisting of HTS on technological Properties of the finished foundry. As you Soft filler is offered to Pyrocarbon in the amount of 3% by weight. In as a result of the research was established that when the pyrocenter is introduced into the HTS in the quality of highly dispersed filler improve strength to compression and gap, as well as Sigger. In addition, the specific putting a knockout job, which significantly reduces Energy costs in general.

Keywords: cold-hardening mixtures, high Codispered fillers, foundry, pi-Round carbon, properties.

4. **A.G. Netkachev, P.I. Galinov, V.K. Kiradiev.** Additive manufacturing in casting metal.

Additive manufacturing (AM) have found their application in almost all industries. One of the most important application for mechanical engineering is the use of AT in foundry. There are several ways for using AM in foundry, the most promising is the printing of casting molds from quartz sand directly from the digital model of the product, which significantly increases the flexibility of production and shortens the process chain. ZIAS BPrint 3D printers easily solve the problem, especially in combination with the use of domestic consumable materials.

Keywords: additive technologies, molds, quartz sand, digital models.

5. **A.Popov**. Newest Laempe technologies at the plant Inacore.

The article describes the application of BeachBox core technology to the production of auto parts castings at the BMW plant. Shown are modern types of rod equipment that are used to carry out such a production program.

Keywords: BeachBox process, aluminum castings, auto parts.

6. **Yu.N. Loginov, S.I. Stepanov, O.Yu. Kornienko.** Physico-mechanical properties of moderate porous titanium aft er selective laser fusion.

The results of experiments on selective laser alloyingof titanium powder on a MELTMASTER 3D-550 device manufactured by NPO TsNIITMASH JSC inorder to obtain a metal with moderate porosity arepresented. After fabrication of specimens in tension, the density was measured, the relative density was calculated as a percentage of the density of compact titanium, and the mechanical properties of the obtained material were determined: conditional yield stress, ultimate tensile strength, elongation after rupture, and relative neck narrowing. With an increase in the scanning speed from 300 to 700 mm/s, the density of the product decreases at a radiation power of 120 W from 97.6% to 90.7%. It was revealed that the maximum value of the ultimate tensile strength of 437 MPa is achieved at a scanning speed of 300 mm/s, at the same speed the maximum value of the conventional yield stress of 398 MPa and the maximum values of plastic properties are achieved.

Keywords: additive technologies, selective laser fusion, 3D printing of products, density, strength properties, plastic properties.

7. **I.E. Volokitina, A.B. Nayzabekov, D.V. Kuis, A.V. Volokitin.** Relationship between microstructure evolution and mechanical properties of aluminum in the process of equal channel angular extrusion.

The paper considers the correlation between the evolution of the microstructure and the mechanical properties of aluminum grade A0 in the process of equal channel angular extrusion (ECAE) in a stepped matrix. Deformation was carried out at room temperature with the number of passes equal to 7. It is shown that the grains obtained after 7 passes of deformation by the ECAE method are equiaxed, their size is 0.5 μm. It was also found that the strength of aluminum blanks increases after 7 passes by almost 3 times. The tensile strength and the conventional yield stress increase from 145 to 312 MPa (the absolute increase is 167 MPa) and from 102 to 307 MPa (the absolute increase is 205 MPa), respectively, the elongation decreases from 41 % to 30 %, the relative constriction from 52 % up to 27 %. The aluminum strengthening mechanism has been found to be very well interrelated with the microstructure changes observed after the corresponding ECAE cycles. Strengthening of materials up to the 5th pass of deformation occurs mainly due to the accumulation of deformation degree, and then the processes of return and annihilation develop.

Keywords: aluminum, microstructure, deformation, equal channel angular extrusion, properties.

INFORMATION

What, where, when, who, to whom, how much, why?

1. *About holding the XV Congress of Russian foundry workers and the BRICS International Foundry Forum.*
2. *All-Russian Student Olympiad in Foundry Production 2021*
3. *International Exhibition «LITMASH-2021»*
4. *NPP "Foundry Systems"*