

## PRESS RELEASE

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# NLMK and Paul Wurth accomplish major Blast Furnace Reline successfully



NLMK's BF6 after complete rebuild.

Within the frame of NLMK Group's Strategy 2022, No. 6 Blast Furnace at NLMK's main site in Lipetsk, Russia, has been completely rebuilt during a furnace outage stretching from May until October. On October 31<sup>st</sup>, short before midnight, the new Blast Furnace No. 6, designed and equipped by Paul Wurth, has been blown-in.

NLMK's order awarded to Paul Wurth foresaw engineering, supply of equipment and site supervision related to the complete rebuild of BF6's central unit, i.e. the blast furnace proper and directly attached systems and equipment.

Under this contract, Paul Wurth had first to adapt the earlier delivered Basic Engineering to the final Main Technical Solutions chosen together with the customer. Further on, the company was in charge of the overall engineering which has been executed in close collaboration with local design specialist NLMK Engineering.

Paul Wurth's scope of supply comprised the blast furnace shell, hearth lining with super-microporous carbon and ceramic cup, all other refractories, all cooling elements (copper and cast iron staves, copper cooling boxes, tuyeres and tuyere coolers), low energy tuyere stocks and a completely new bustle pipe. The original Bell Less Top<sup>®</sup>, Paul Wurth's first ever reference in the former Soviet Union and in operation since 1978, has been replaced completely by a new, state-of-the-art parallel-hopper type system (60 m<sup>3</sup> hopper volume) including the pressure equalizing and bleeder valves. Furthermore, Paul Wurth supplied the cooling water pump house with the complete instrumentation, general electrical and control equipment. The process control for the all-new furnace will now be supported by TMT's stockline recorders, SOMA<sup>®</sup> acoustic top gas temperature measurement and 3DTopScan<sup>®</sup> burden profile mapping system. Some dedicated mathematical models out of Paul Wurth's BFXpert<sup>®</sup> level-2 automation package complement the new process automation system. For the casthouse, four sets of TMT's fully hydraulic clay guns, taphole drills and radar level probes for torpedo ladles have been part of the order.

The previous No. 6 blast furnace has been taken out of operation in May 2019. A dedicated team of Paul Wurth experts was supporting the customer and other contractors during pre-shutdown activities, supervising erection and commissioning of the new plant units.

NLMK's new BF6, with a hearth diameter of 12.0 m, an inner volume of 3,818 m<sup>3</sup>, 32 tuyeres and 4 tapholes, is designed for nominal production of 3.4 million tons of hot metal per year. It was part of the contract that the customer purchased from Paul Wurth not only engineering and equipment but also the process technology for operating the furnace. Important auxiliary plant units for the operation of the new BF6 have been installed and commissioned even before this year's shutdown during the previous furnace's campaign already: Paul Wurth's top gas cleaning technology, top gas energy recovery system with turbine (TRT), the joint pulverized coal injection (PCI) plant for blast furnaces No. 6 & 7 as well as the upgradation of existing cold blast generation blowers. From now on, they are integral parts of another all-modern ironmaking facility at NLMK Lipetsk.

### **About Paul Wurth**

Headquartered in Luxembourg since its creation in 1870, the Paul Wurth Group is an established technology provider for the primary stage of integrated steelmaking. Paul Wurth is a leading market player for the design and construction of complete blast furnace and coke oven plants. Direct reduction plants, environmental protection solutions and recycling technologies complete Paul Wurth's product portfolio. With more than 1 500 employees and entities in around 20 countries, the Paul Wurth Group has a strong presence in the significant iron and steel regions of the world.

TMT Tapping Measuring Technology is a joint company of Paul Wurth S.A. and Dango & Dienenthal Maschinenbau GmbH.

*SMS group is a group of companies internationally active in plant construction and mechanical engineering for the steel and nonferrous metals industry. It has some 14,000 employees who generate worldwide sales of more than EUR 2.8 billion. The sole owner of the holding company SMS GmbH is the Familie Weiss Foundation.*