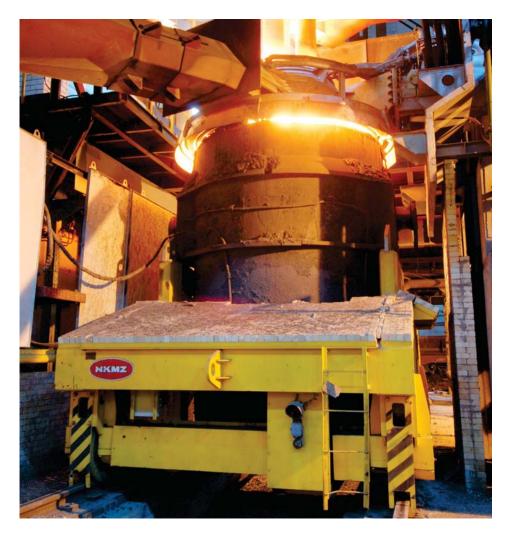


## Частное акционерное общество НОВОКРАМАТОРСКИЙ МАШИНОСТРОИТЕЛЬНЫЙ ЗАВОД

# Metallurgical equipment. Steelmaking equipment. After-furnace ladle steel treatment

#### LADLE FURNACE UNIT

Main purpose of LF-process is execution of process operations range faster and more efficiently than in standard steel-melting units.



### ADVANTAGES OF STEEL TREATMENT AT LFU:

- reduction of heat duration in steel-melting unit limited by the time of charge melting and receipt of semi-product;
- reduction of refractory materials, electrodes and power consumption;
- improvement of manufacturing processes organization through the application of LFU as the "buffer" between steel-melting unit and metal pouring;
- provision of pouring optimum conditions as per temperature mode and increase of metal castability;
- decrease of defective products quantity by means of deviations from stated chemical composition and content of non-metallic inclusions in the ingot.

### Basic tasks being solved:

- equalization of chemical composition and metal temperature;
- alloying with exact bringing up of the chemical composition to the stated one;
- final deoxidation;
- removal of non-metallic inclusions;
- metal desulphuration.

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#### LADLE FURNACE UNIT

■ Наличием системы автоматического управления технологическим процессом.

### HIGH QUALITY OF METAL PROCESSING IS ENSURED BY:

Availability of accurate weighing of metal mass in the ladle and consumables mass in the feed system of bulk materials and ferroalloys in the feeding units of alloying, slag-forming and powder materials.

Capability to maintain an optimal argon feed mode and its regulation during processing.

Providing a non-oxidizing environment over the metal, by covering the ladle with a water-cooled roof with the presence of peripheral exhaust of gases from under the cover.

Formation of the required volume of synthetic slag, which ensures, with the proper purging of the metal with argon, the processes of desulfurization and removal of non-metallic inclusions.

Conducting the processing and transfer of metal to casting with the accurate maintaining of the temperature mode.

Possibility to carry out microalloying, precise obtaining of carbon content and deoxidation of steel by using flux-cored wire and its accurate feed back to the ladle with wire feeder.

Availability of an automatic process control system.

### Obtained operational parameters of LFU

Parameter	Value
Speed of heating, <sub>o</sub> C/min	4,55,8
Power consumption, kW*h/t* <sub>0</sub> C	0,280,30
Electrodes consumption, g/kW*h	8,99,2
Dust content in the cleaned gas, mg/nm3,	2022

### Technical characteristics

Parameter	Value
Transformer power, MVA	18
Ladle capacity, t	30/40/60/90
Electrodes diameter, mm	350
Pitch circle diameter, mm	650±50

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