



DESCRIPTION OF THE REALIZED SOLUTION

"BLAST FURNACE #1 CASTING YARD MACHINES CONTROL SYSTEM AT "ALCHEVSK IRON & STEEL WORKS" PJSC"

FEATURES ASSIGNED TO THE DESIGNED SOLUTION

- Control of casting yard mechanisms, hydraulic system, pumping and accumulator station.

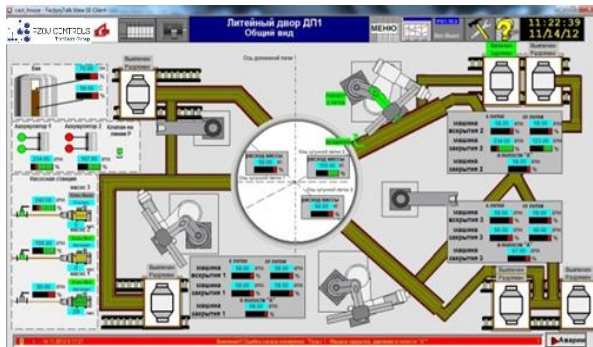


Fig. 1 Screen casting yard mechanisms control

- Control and monitoring of process parameters.

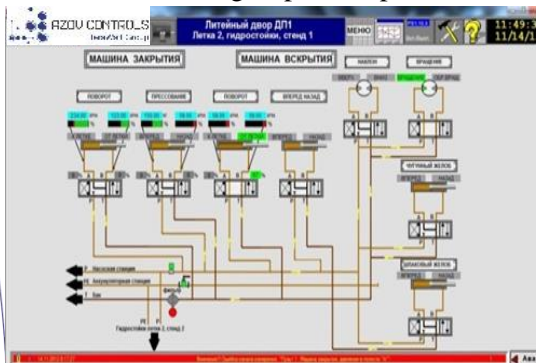


Fig. 2 Screen tap hole №2 control, hydraulic props

- Control and monitoring of equipment state.
- Process control and work machines in different states.
- Monitoring of cast yard mechanisms using remote SCADA stations.
- Operational data logging to provide users history reports about process over a chosen period.
- Alarming system, which provides advisory, diagnostic, warning and emergency user notification with the logging

to provide concerned reports over any period.

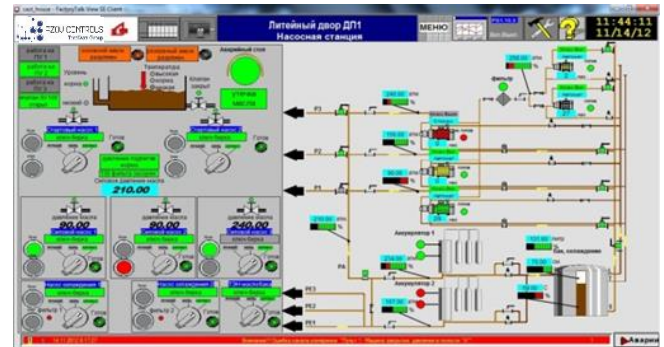


Fig. 3 Screen control of pump station

- Monitoring of machines' state at the remote control panels CP-1, CP-2, CP-3.

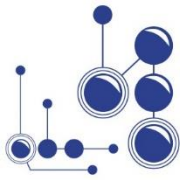


Fig. 4 Screen tap hole №2 control

- Forming and sending data to the PC of furnace technical personal.

LIST OF HARDWARE USED IN THE PROJECT

- All implemented components were placed in cabinets produced by Rittal, which met the required IP protection.
- CompactLogix controllers by Rockwell Automation receive process data and run program algorithm to control all cast yard equipment.
- Implemented design for HMI and PLC level network uses newest Ethernet solutions.



- Extending electromotor lifecycle and energy saving by using SoftStart series of soft starters produced by Rockwell Automation.
- The control system ensure control and mathematical calculation of tap hole mass, which are shown on the furnaceman console, as well as on the HMI station.
- Due to the high-precision adjustment of the system there is a possibility to approach and withdraw mechanisms of cast yard without shock.



Fig. 5 Screen casting yard mechanisms adjustments

- Factory Talk SE by Rockwell Automation, allows to implement all required features including process monitoring, process data and alarm logging etc.



Fig. 6 Trends screen

- Rockwell Automation Web reporting system has been implemented to generate process data reports

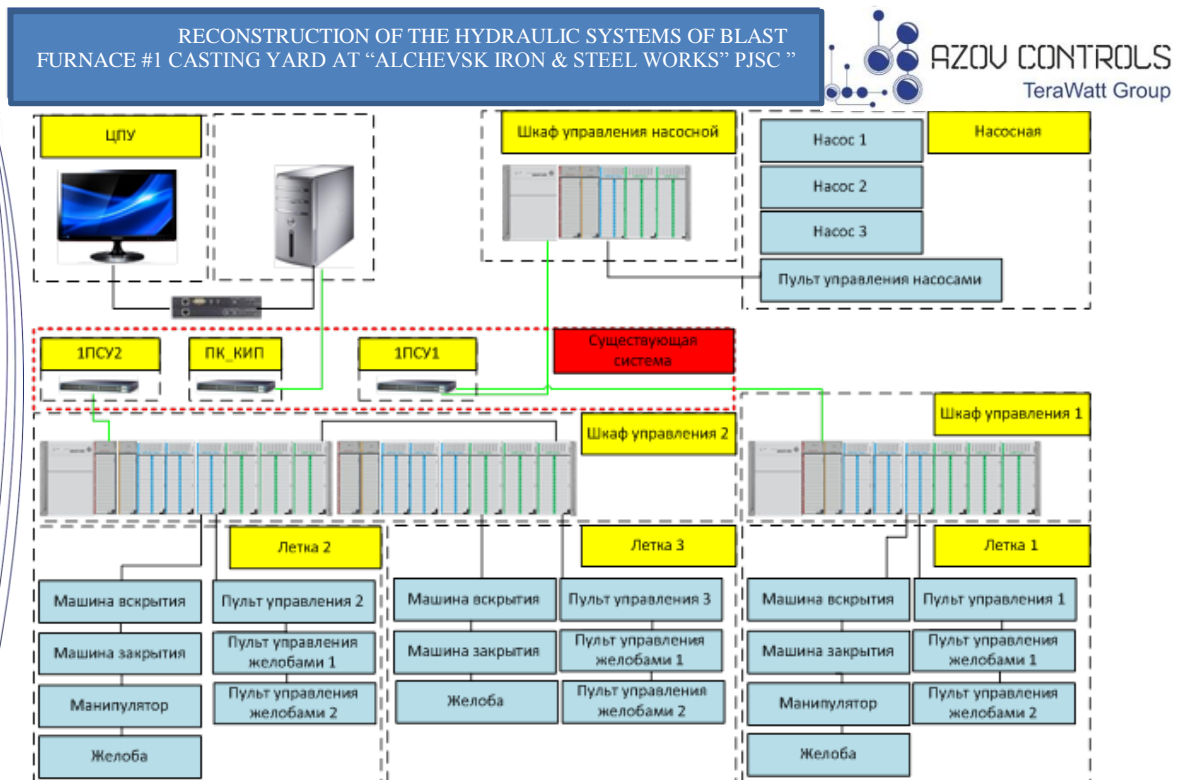


Fig. 7 Schematic diagram "RECONSTRUCTION OF THE HYDRAULIC SYSTEMS OF BLAST FURNACE #1 CASTING YARD AT "ALCHEVSK IRON & STEEL WORKS" PJSC "