

“Modernization of the electrolyte tinning line 1200/III drive with thyristor convertors change” Control, diagnostic system and technical process control

Customer: JSC “Mittal Steel Temirtau”

Reconstruction object: the electrolyte tinning line 1200/III

RECONSTRUCTION OBJECT SPECIFICATION

Electrolyte tinning line 1200/III is aimed at tin coating on the surface of steel cold rolling strip by electrolyte way. The final product is tin production for food industry.

The electrolyte tinning line 1200/III includes the following:

- inlet area (picture No1)
- chemical area (middle area)
- outlet area
- cross cutting machine (line)



Picture No1

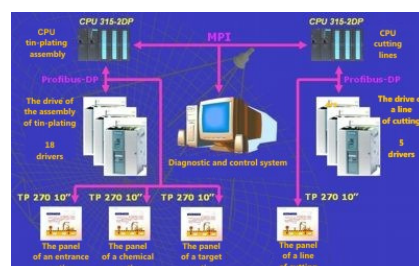
Inlet area is destined for black tin rolls uncoil, overlapped welding of coil tails between them and for strip reservoir forming, which is necessary for chemical area continuous work.

Chemical area is destined for removing of fat and mechanical pollution from the strip surface, covering of tin coating, flowing, passivation, strip washing and drying between separate technological operations, electrostatic oiling.

Outlet area needs for coiling of finished production in coils also for strip reservoir forming, providing chemical area continuous work during rolling change from one coil to another. Cutup line needs for the tin-coated strip cutting on the sheets of specified length, for sheet presorting and sheet stacking.

SOLUTION AND AUTOMATION SYSTEM CHARACTERISTICS

Control system is realized on PLC software (Simatic S7-300) and converters Simoreg DC Master with microprocessor control system, with using of basis functions and technological program functions, option S00. all control system elements are connected between themselves by industrial busbar Profibus-DP. (picture No2).



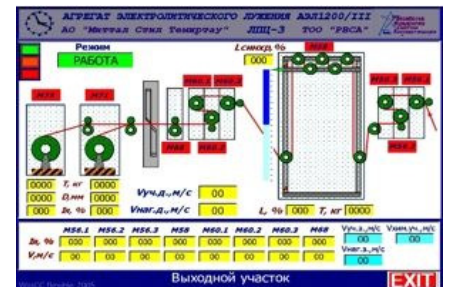
Picture No2

Visualization system includes four pulpits, provided operator's panels TP 270. tinning line control is carried out from three pulpits: inlet, outlet and chemical area. Cutting line control is carried out from the separate pulpit (picture No3).



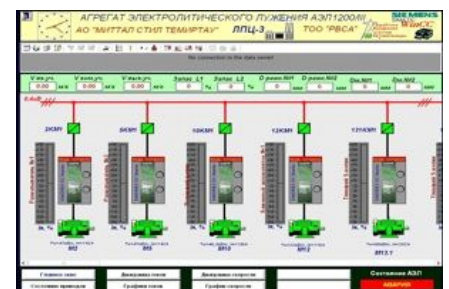
Picture No3

Operator's touch panel TP270-10 needs for displaying of technological process condition, also for control of electrolyte tinning line condition. Developed graphic software structure on the basis of WinCC-flexible, allows electrolyte tinning operator to operate by working modes, to control and respond to all emergency and pre-emergency conditions of line electric drives in time, also to control line technological parameters (picture No4).



Picture No4

For all technological process control and fast response during emergency situations, all information comes down to PC-station, which is situated on the working place of the responsible person electrical; software is developed on the basis of WinCC. (picture No5).



Picture No5

System Functions:

- Warning and emergency signalling.
- Data acquisition about technological process and equipment condition.
- Archiving of current data in the form of diagrams
- Technological parameter setting

Project implementation period

Project implementation period is 9 months, commissioning is 2007.

