



AUTOMATION

IMPORTANCE OF AUTOMATION

Automation plays a very important role in the control and management system of a plating plant. It can trace the progress of work through records and the conditions under which it was processed. Besides controlling the process parameters, it also gives management data with regards to plant output, historic data and alarm conditions, down time with specific causes and much more. Repeatability in quality and thickness is the major advantage of using automation.

AUTOMATION IN PLATING

Today, beyond the control of the transportised material handling systems, PLC based automation systems control the temperature of the baths, current density of plating baths, additive dosing, bath solution level etc.

Automation is greatly preferred in bulk plating operations, predominantly for the following reasons:

- Consistent plating quality
- Reduction in Labor costs
- Elimination of human error
- Reduced operation costs
- Versatility in production
- Traceability.

CONTROL & NETWORK SYSTEMS

Normally, in modern industrial automation systems, the PLC is the master that uses the data input from the Scada PC or from the HMI to control various accessories in the plant and send back information to Scada system for visualization and recording of the plant status.

PLC and Scada systems of international companies like Siemens, Allen Bradley, Mitsubishi are normally used for the control and visualization of the operation of plating plants. Connectivity of scada system to computer languages like Visual Basic, C+ etc by writing scripts, gives a wide range of possibilities for controlling the plating plant and also for recording the production details, process parameters in the trend format, errors and abnormalities.

Instruments like pH meters, temperature controllers, rectifiers etc, which are designed and manufactured with modern technology, can be connected to PLC system through networks like Profibus, Modbus, Ethernet etc. This facility will make the control system more compact and simple.

Automation control system can be connected to standard networks for visualizing the management data on plant output and various operating conditions from various terminals. Visualization from a different place is also possible via internet.

Automation control system designed based on Master - Slave concept will have slave input, output and special modules spread through out the plant. This will reduce the electrical cable requirement drastically to make the overall system simple and easily maintainable.



STANDARD AUTOMATION FEATURES

Some of the standard automation features that are being incorporated in plating plants are: • Load as you like for Rack and Barrel Plants • Automatic Current and Temperature control • Auto Level and Conductivity control of rinse water • Production and event data recording • Event warning by SMS • Voice Alarms • Barrel rotation sensing by current monitoring

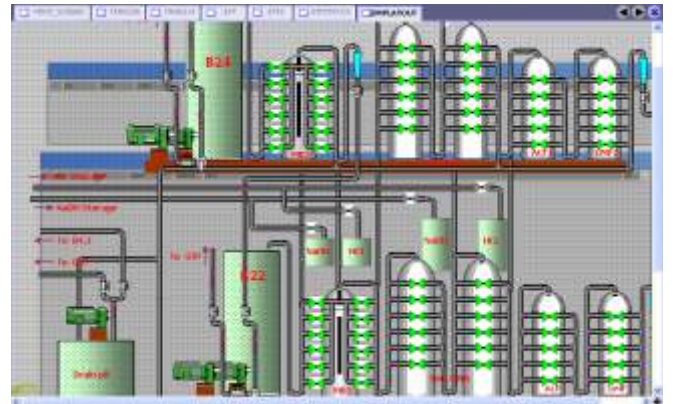
MODERN AUTOMATION FEATURES

Auto connectivity to CAD will help in easy understanding and maintenance of the system. Automation system can be connected to SAP for recording the quantity of consumables used in the plant. This can be directly captured from the material issue note from stores.

Input from electrical power panel, water storage tank ect are possible for reading the consumption in the plating plant. Accumulating all such inputs including the manpower input details received from HR Department, the average cost of plating per piece can be worked out.

Bar code reader can be connected to the automation system which will practically avoid the human errors which can happen at loading station while entering loading details to the computer system or HMI.

An Intelligent Vision system at loading area can interface with the PLC system for physically reading the components loaded on the flight bar. This data can be used for current setting, additive dosing etc.



SCADA - Water Treatment Plant



SCADA - Surface Treatment Plant

A database can be created for planning shift wise / daily production schedule. With the help of data base management, various loads needing different process parameters can be loaded in to the plant simultaneously. Plating plant with multiple program running simultaneously, PLC with the help of Data base management system can achieve optimization for best utilization of the plating baths.

Many more features like Anodizing profile program, current pulsation for silver plating can also be programmed in the PLC system.

PLC based automation system makes the plating plant possible to run efficiently round the clock with least manpower.

IN A NUTSHELL

The state of the art automated plating systems eliminate deadline and capacity issues. With a new control system one is assured of exceptional quality in every part every time.



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