

dastur business  
& technology consulting  
— A Division of M.N.Dastur & Company (P) Ltd —



**Level-1 Automation System for a Gas Cleaning Plant, India**

### **Case viewpoint:**

**Situation:** As a part of the expansion in capacity, a Ferro-alloys company was installing a 27 MVA furnace for production of high carbon ferrochrome. To control the effluent emissions from the furnace, the company required an advanced automation system for the operation of the Gas Cleaning Plant (GCP).

**Role:** DBTC was responsible for the complete architecture, design, basic engineering, detailed engineering, software development and turnkey implementation of the GCP. DBTC was also responsible for the sourcing and procurement of equipment from automation vendors and working with the French technology provider for process inputs.

### **Platform ,Technologies and Environment :**

1. GE Fanuc PLCs
2. I/O modules with both digital and analog inputs/outputs with up to 1000 I/Os.
3. Modbus and Profibus integration to drives and higher level systems.
4. GE Ladder logic and SFC software
5. HMI software
6. Operator control panels
7. Simulation, Verification, testing and integration tools

**Scope:** DBTC designed and managed the entire project from concept to commissioning. A program manager was assigned along with a project team for development and execution of this project.

Basic engineering included the design and verification of P & I diagram, control philosophy from mechanical equipment supplier.

Detailed engineering included the complete I/O list, PLC panel drawing, and cable schedule and final system architecture. It also included the manufacturing of panel manufacturing and PLC, HMI and integration software development. The software simulation, verification and testing was performed at DBTCs integration labs. Process sensitivity analysis was also carried out to validate the robustness of the automation system.

DBTC also managed the third-party and integrated testing which included the Factory Acceptance Test (FAT) and the Site Acceptance Test (SAT) at the customer site. The latter included the integration to complex instrumentation systems which measured various GCP parameters. In the final commissioning of the automation system, various inputs like changes in process parameters, set points, process timing were incorporated and evaluated and the final system tuned for handover to the plant operation people for production operations.