



A Rockwell Automation Company

Johns Manville International Inc. Cleburne, TX, 1902 Rebuild

The Client:

Johns Manville (NYSE:JM) is a leading manufacturer and marketer of premium quality insulation and building products. The 142-year-old Denver-based company had sales of \$2.2 billion in 1999. Johns Manville produces and markets insulation products for buildings and equipment, commercial/industrial roofing systems, and engineered products including high-efficiency filtration media, fibers, fabric and non-woven mats used as reinforcements in

building and industrial applications. Johns Manville employs approximately 9,700 people and operates 55 manufacturing facilities in North America, Europe and China.

Johns Manville's Cleburne Texas plant manufactures fiberglass for use in commercial/industrial roofing and reinforcements.

The Requirement:

One of the plant's two furnaces was nearing the end of its eight year campaign and scheduled to be rebuilt. In conjunction with the mechanical work, Johns Manville was going to upgrade the furnace control system and replace or upgrade the control system and field instruments.

The basic requirement was to upgrade the existing furnace control system including the Fisher and Porter (F&P) DCS. The changeover had to be accomplished while the glass furnace was being rebuilt, a time-frame of 90 days from the shutdown of the old glass furnace to the start of glass flow in the new furnace. Once the furnace began operation, it was not to be shutdown for the eight year lifespan of the construction materials.

The objectives of the furnace control system upgrade were as follows:

- Upgrade the existing Fisher and Porter DCI5000 DCS.
- Instrument and thermocouple replacement.
- Replace alarm annunciator panels.
- Add new Maxon bypass valves with their associated safety interlocks.
- Replace Nuclear Level Source.
- Add Melter TV camera system to monitor conditions inside the furnace.
- Upgrade the DCS air/fuel logic and CRT screens to new furnace configuration.

The Design Solution:

For the project, Hinz was contracted by Johns Manville to act as an extension of its engineering staff.

Hinz worked closely with Johns Manville personnel to set final furnace control strategies including combustion air-fuel ratio algorithms and modification of Process and Instrumentation (P&ID) Drawings.

Hinz assisted plant personnel in assessing the condition of the Fisher & Porter DCS equipment, including equipment recovered from a decommission furnace, and arranged for its retrofit and upgrades. Hinz then performed DCS programming including modification to the combustion air-fuel ratio control.

Hinz also prepared requisitions and drawings for all replacement equipment including instruments, alarm annunciator panels, thermocouples, and Maxon safety valves.

Electrical and control installation drawings necessary to complete all electrical work were prepared.

During commissioning the electrical and controls work was

to be completed within 90 days and could not interfere with the mechanical construction activities. Hinz worked with the plant personnel and electrical contractor to develop a plan that worked within these constraints. Hinz coordinated service and calibration of the nuclear level gauge, and verified the nuclear source's lifespan to be at least eight more years, the lifetime of the furnace.

In addition, Hinz was assigned the tasks of providing requisition and drawings for electrical materials and labor to connect the new screw-batch type chargers to deliver raw materials into the furnace.

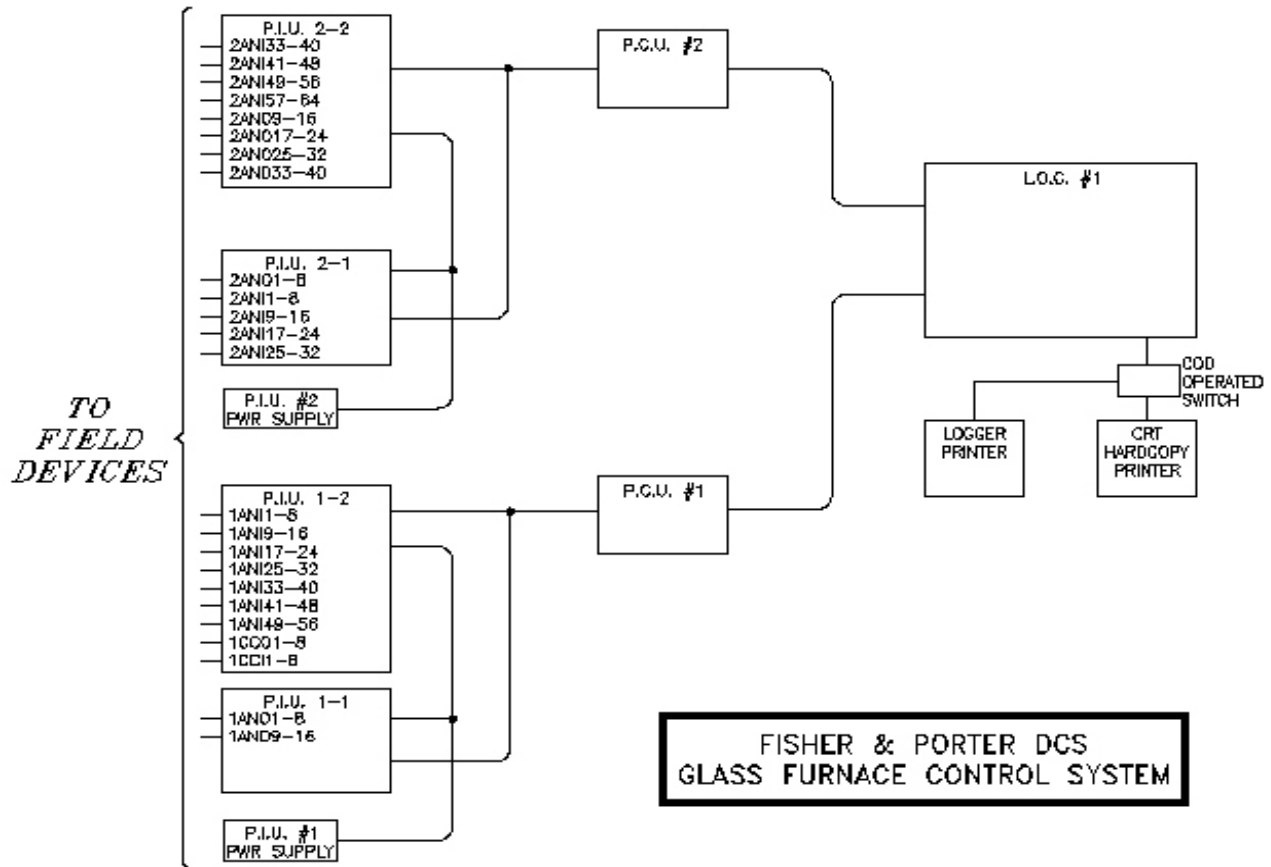
Construction and commissioning assistance of the furnace and control systems were provided.

Checkout was finished ahead of schedule, which allowed the furnace to be brought online two days ahead of schedule. Quick completion of the final loop checkout allowed plant production to reach the desire level days ahead of schedule.



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**FISHER & PORTER DCS
GLASS FURNACE CONTROL SYSTEM**

System Specifications:

- (2) LOC2500 units (Local Operators Center) setup in a Master/Slave arrangement. Either LOC can communicate to any of the operational PCUs.
- (6) PCUs (Process Controls Unit) in the furnace control room. (2) PCUs are controlling each of the plants (2) furnaces. The remaining (2) PCUs are "Hot-Standby" spare units.
- On the replaced furnaces (2) PCUs, the 40 input/outputs (I/O) breakdown is: (1) Analog Output Boards (ANO), (11) Analog Input Boards (ANI), (1) Digital Input Board (CCI) and (1) Digital Output Board (CCO)
- The Field Units are (3) Current Termination Boards and (2) Universal Termination Boards. These boards are used to terminate the Thermocouple and RTD transmitters.

For further information or to contact a Hinz office near you, please check our website at:

www.hinz.com