



## Case Study

# Ergonomic Upgrade Phase 1

*Upgrade of two modules comprising 12 reactors to improve operability  
(£400k Detailed Design and Construction)*


Pharmaceutical Pilot Plant North of London

### The Problem

The 50L scale modules of this pilot plant had a number of operating limitations. Pipework was inefficiently arranged, access to valves was difficult, instruments were badly positioned, valve operations were complex and certain components were excessively sized for the scale of operation. These issues were packaged under remedial works within the Phase 1 Ergonomic Upgrade.

### The Solution

The objective of the work was to make the reactor systems more user friendly through the simplification of the equipment layout and the process operations, and through improved access to valves and instruments.



Initial studies indicated that a number of key areas common to the 12 Reactors of the two modules needed to be re-designed. Targeted were the elimination of unnecessary instrument systems, the re-routing of poorly laid out pipework, the automation of frequently used valve sequences, the replacement of oversized pipe components, the introduction of smaller hoses and the addition of triclover fittings to replace flanges on all configurable connections.

The before and after photographs in the Project files show the dramatic change in the visual impact of the reactors which are now clear of the 'clutter' that was so obtrusive prior to the upgrade. Reports from Users confirm that the improvements have had a beneficial effect on the performance of the Reactors and their batch cycle time.

Mike Brown of BPE says that he is pleased with the finished plant. He goes on to say,

"When we first looked at the Reactors and their support systems it was difficult to see the wood for the trees! The impression you had was of a piece of plant completely swallowed up in its support systems. But with persistence we were able to untangle the issues and categorise a series of individual improvements that were implemented across all Reactors."

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