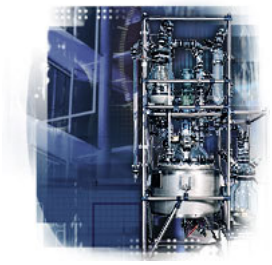


engineered systems

De Dietrich PROCESS SYSTEMS

CASE STUDY

R&D Pilot Plant Upgrade

PROBLEM

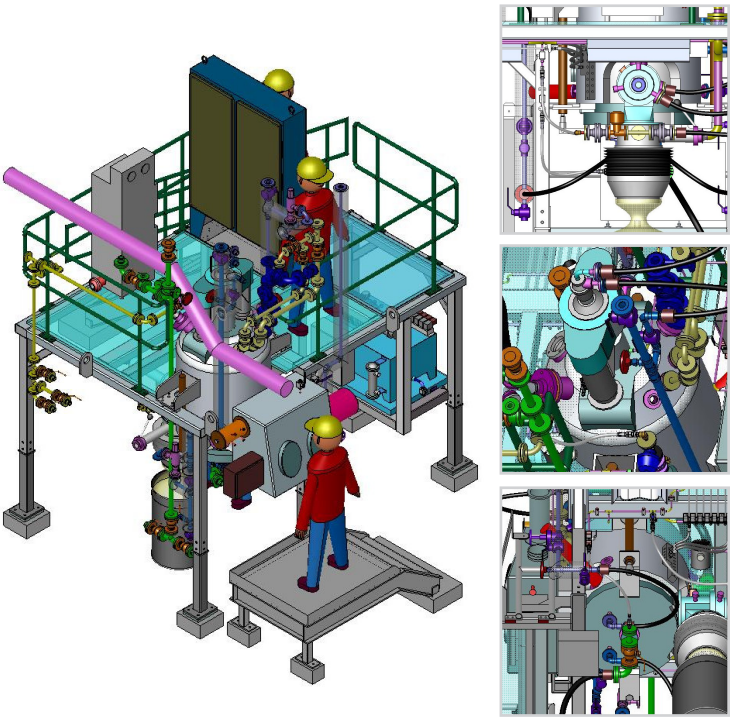
A major global pharmaceutical producer was looking to upgrade their existing filter/dryers with state-of-the-art Rosenmund technology from De Dietrich Process Systems. DDPS was able to provide filter/dryer equipment that addressed all the operating and cGMP demands of the customer, including multi-unit operation functionality, optimized heat transfer and total containment of solid discharge (utilizing heel recovery and solids sampling). The main issue, however, was finding a way to minimize the amount of time that the facility would be shut down during the construction of the upgraded processing area.

A SOLUTION AHEAD

DDPS proposed to provide each filter/dryer as a pre-assembled skid. This skid would be designed with process and service pipework connections conveniently located at the edge of the skid, enabling simple installation with three easy steps. The unit could simply be dropped into place, bolted to the floor, connections made, and it would be ready to run.

SPECIFICATIONS

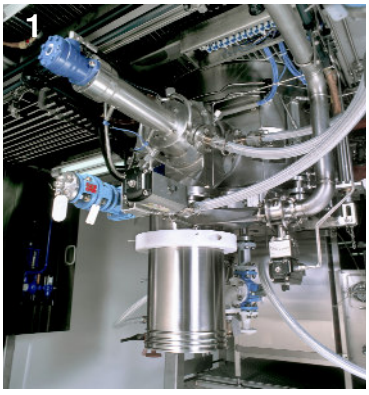
The design challenge for this project was to fulfill all aspects of cGMP and maintain optimum functionality while fitting the skid into an extremely limited envelope of available space. It was also important to the client to maintain good ergonomics for both operation and maintenance activities. Finally, the client wanted all four skids to be identical in every way in order to simplify personnel training, subsequent operation and maintenance, and reduce spare parts inventory.

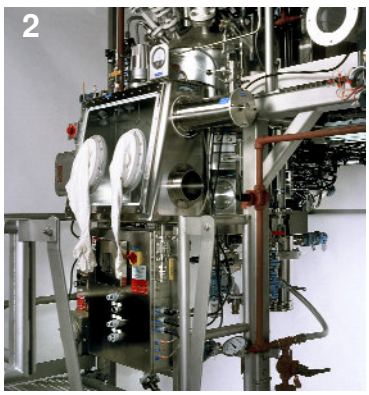


SCOPE OF SUPPLY

For the four identical modules the scope of supply was as follows:

- Filter/dryer with glove box for contained heel discharge and solids sampling
- Hydraulic power pack
- PLC control system with multiple panels for machine operation
- All local process and service piping, valves and instruments
- Support platform with lighting on the lower level for operator visibility purposes
- Electrical pre-wiring to junction boxes
- Platform with support legs and access stairway
- Validation documentation





Left 1: *Side discharge valve with metal-to-metal seal and pressure rated housing. Although installed in an extremely small envelope, easy maintenance access was still provided by careful design of skid.*

Left 2: *Glove box allows contained heel recovery and solids sampling.*

Above: *Skid model designed using Solidworks 3D software.*

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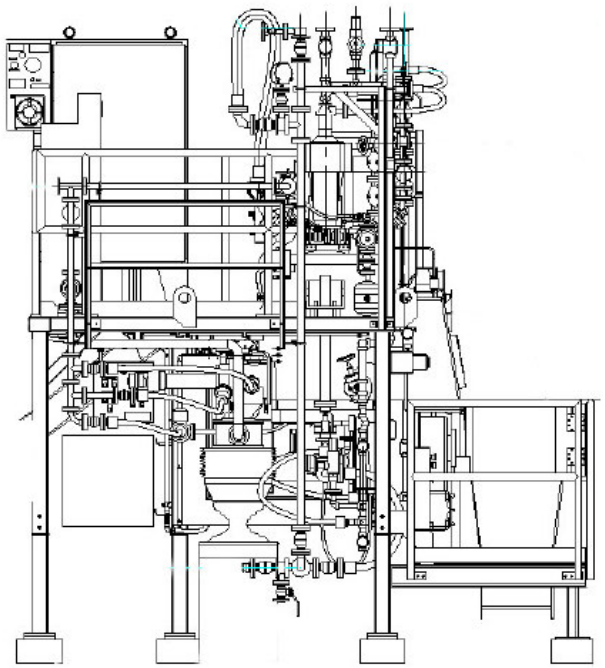
De Dietrich PROCESS SYSTEMS
A SOLUTION AHEAD

CASE STUDY



DESIGN

DDPS engaged in a design approach with the client that satisfied both operational and maintenance requirements, which are often in conflict with each other. From an operational perspective, the design met the clients need to have extensive process and service valves in reachable locations. The assembly also gave unobstructed access to key areas to enable future maintenance activities that will arise during the module's life cycle, such as mechanical seal PM and dust filter replacement.

The complete design was undertaken in 3D by DDPS, with regular reviews conducted with the client team, which included representatives of all interested departments, from operations to maintenance, process engineering to validation. For the reviews, the 3D model would be projected onto a large wall and viewed from every possible angle, with each and every feature being discussed at length. Using this method, the complete module design was completed "layer by layer", resulting in the optimum final result.

FACTORY ACCEPTANCE TEST

Before shipment to the client's site, the complete modules were assembled in the DDPS factory in Charlotte and subjected to rigorous testing. The testing was in accordance to DDPS-written, customer approved protocols and witnessed by the client team. Testing included every line of software as the control system validation was a key element of DDPS's scope of supply.

INSTALLATION

Due to transportation and installation limitations, the module was not built as a single piece. Instead, it was constructed in such a way to facilitate easy removal (and subsequent replacement) of parts and allow uncomplicated shipment and installation.

From module delivery to start-up, the installation of the skid was reduced to just one month. Commissioning and validation were completed in record time and the client realized significant project cost savings (upwards of 20%) over stick building on site.

CONCLUSION

The client received pre-assembled skids that encompassed all operational and maintenance requirements and process specifications. Installation, commissioning and validation time were significantly reduced, minimizing plant shutdown and production downtime.

244 Sheffield Street
Mountainside, NJ 07092

De Dietrich

ROSENMUND

QVF

9110 Forsyth Park Drive
Charlotte, NC 28273

Phone: 908-317-2585 Fax: 908-889-4960 www.ddpsinc.com Email: sales@ddpsinc.com