

engineered systems
KILO LAB AND
PILOT PLANT SYSTEMS

advantages of DDPS project management

DE DIETRICH
PROCESS SYSTEMS
OFFERS A SINGLE-
SOURCE SOLUTION
THAT IS DESIGNED
TO COMPLEMENT
YOUR OWN
RESOURCES.
WE PROVIDE
THE DESIGN,
ENGINEERING, AND
CONSTRUCTION
OF PROCESS
SYSTEMS TO MEET
YOUR SPECIFIC
APPLICATION
REQUIREMENTS.

OUR OBJECTIVE
IS TO MAKE IT
EASY FOR YOU TO
COMPLETE YOUR
SYSTEMS ORDER
WITH US, USING A
MINIMUM OF YOUR
OWN RESOURCES,
AND WITHOUT
SACRIFICING
EQUIPMENT
QUALITY - ALL
WITHIN THE
CONSTRAINTS OF
YOUR BUDGET.

Modularization

- Complex equipment modules designed and built to fit space, budget and time constraints

Single Point Contact

- Designated project manager coordinates all project activities
- Regular updates provided on project status

Quality Equipment Assurance

- All equipment pre-assembled in the U.S.
- Pre-shipment Factory Acceptance Test (FAT) performed
- User manual (drawings, spare parts list and specifications)
- Validation support (DQ/IQ) available

Superior Service

- DDPS team manages installation and start-up with life-cycle follow-up and maintenance visits
- Process documentation is presented in a single, easy-to-follow format
- Long-term preventative maintenance services provided through global DDPS service network

Better Technical Solutions

- Maximize equipment life and productivity
- Achieve the greatest possible return on capital investment

Fast-Start Economies

- Reduced time from project initiation to system start-up



typical DDPS kilo-lab



WIDE RANGE OF
MULTI-PURPOSE
DESIGNS

DDPS OFFERS A COMPLETE RANGE OF SIZES AND FUNCTIONS TO PROVIDE THE OPTIMAL SOLUTION FOR YOUR PROCESSING NEEDS

•Sizes:

- Research / Kilo lab systems
- Pilot plant systems
- Production scale

•Add-on systems include:

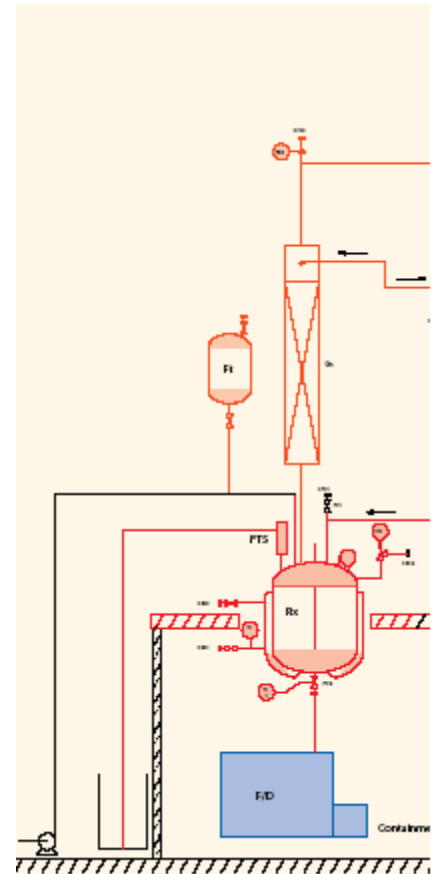
- Heat transfer modules
- Vacuum systems
- Controls
- Instrumentation
- Product handling / containment systems



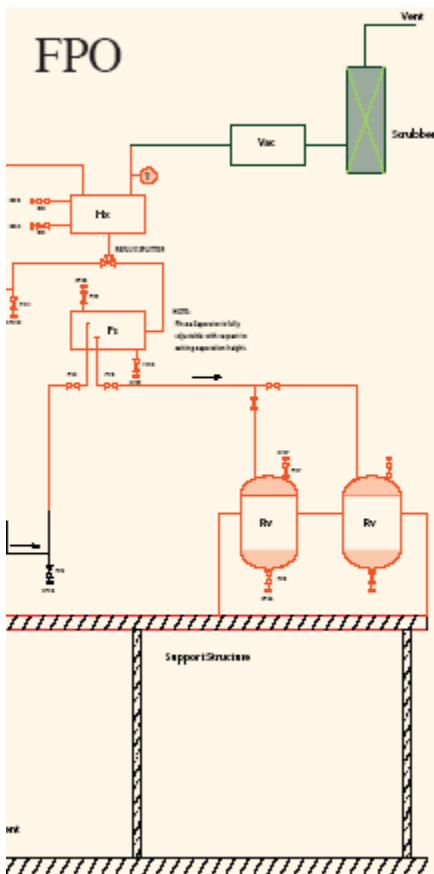
REACTION SYSTEMS FOR
EVERY APPLICATION

STANDARD AND CUSTOM REACTION SYSTEMS ARE A CORE SPECIALTY OF DDPS

- Compact designs allow for efficient use of space
- Systems can be custom built to fit existing installation site constraints
- Our range of prepackaged systems – Pharma Reactor and Spectrum Series – provide standard designs for fast-track projects
- cGMP designs for batch to batch cleanability



/ pilot plant systems



INNOVATIVE SOLUTIONS FOR PRIMARY OR WASTE STREAM PROCESSING

- Reaction systems
- Filtration systems
- Distillation systems
- Nitric acid concentration / Sulfuric acid concentration systems
- Plating Chemical Recovery systems
- Waste Recovery systems



SYSTEMS FOR A VARIETY OF UNIT OPERATIONS

MODULAR CONSTRUCTION – A STANDARD APPROACH FOR DDPS

- Allows for faster installation and start-up of equipment, resulting in a shorter overall project times
- Systems are factory assembled for testing and QA purposes
- Skid-mounted systems can be easily moved – providing future portability
- Rigorous factory acceptance tests are performed prior to shipment – punch lists are developed / addressed before equipment is delivered
- The use of 3D modeling software can dramatically improve the design process:
 - Every item in the scope of supply is designed in the software, enabling early detection and correction of equipment conflicts
 - Skid design is reviewed on a regular basis
 - Ensures all parts fit into constraining envelopes without undermining the ergonomics of operation and maintenance



MODULAR CONSTRUCTION

pre-packaged systems



PHARMA REACTOR

- Glass, glass-lined steel and alloy construction
- Built for small envelopes, perfect for installing inside a hood
- Designed to be easy to use (ergonomics are not sacrificed by wide ranging applicability)
- Meets cGMP requirements
- Two process stages of reaction and distillation can be carried out under either positive pressure or vacuum
- Modular construction can be expanded to handle various special functions including:
 - Hydraulic lifting device for reaction vessel
 - Phase separator
 - Electronic speed indicator
 - High pressure version
 - Coated glass components
 - Weigh cells for reactor, feed and distillate vessel
 - Double-acting mechanical seal
 - Anchor, turbine and propeller type stirrers
 - Process control engineering



SPECTRUM SERIES

- Standard modules that incorporate the complete spectrum of equipment, services, and expertise offered by DDPS
- “Black Box” reactor packages that include all of the necessary accessories to fit into your overall plant design
- Wide variety of material of construction to meet specific process demands
- Modular designs for easy installation
- Local support and engineering services:
 - Installation and start-up
 - Follow-up and inspections
 - Long term preventative maintenance programs
- Ideal for fast track projects or initial project planning
- Standard P&IDs
- Readily available budget pricing
- Includes a number of standard / optional items to complete the system