

# Welcome To Scientific Systems, Inc.



Scientific Systems, Inc.  
349 N. Science Park Road  
State College, PA 16803

# Vital Statistics

- ▶ Incorporated in 1967 – Celebrating our 40-year Anniversary
- ▶ Privately Owned
- ▶ 20,000 sq. ft. facility, in State College, PA; built in 1988
- ▶ Approx. 40 + Employees & \$ 8-10 Million Yearly Sales
- ▶ Financials

**Consistently Profitable over the History of the Company**

**Very Strong Balance Sheet. No Debt.**

**Sales Revenue Growth: 8 – 10 % (typical last 3 years)**



Scientific Systems, Inc.  
349 N. Science Park Road  
State College, PA 16803

# High Pressure Valves (80 – 100 K p.s.i.) from 1968

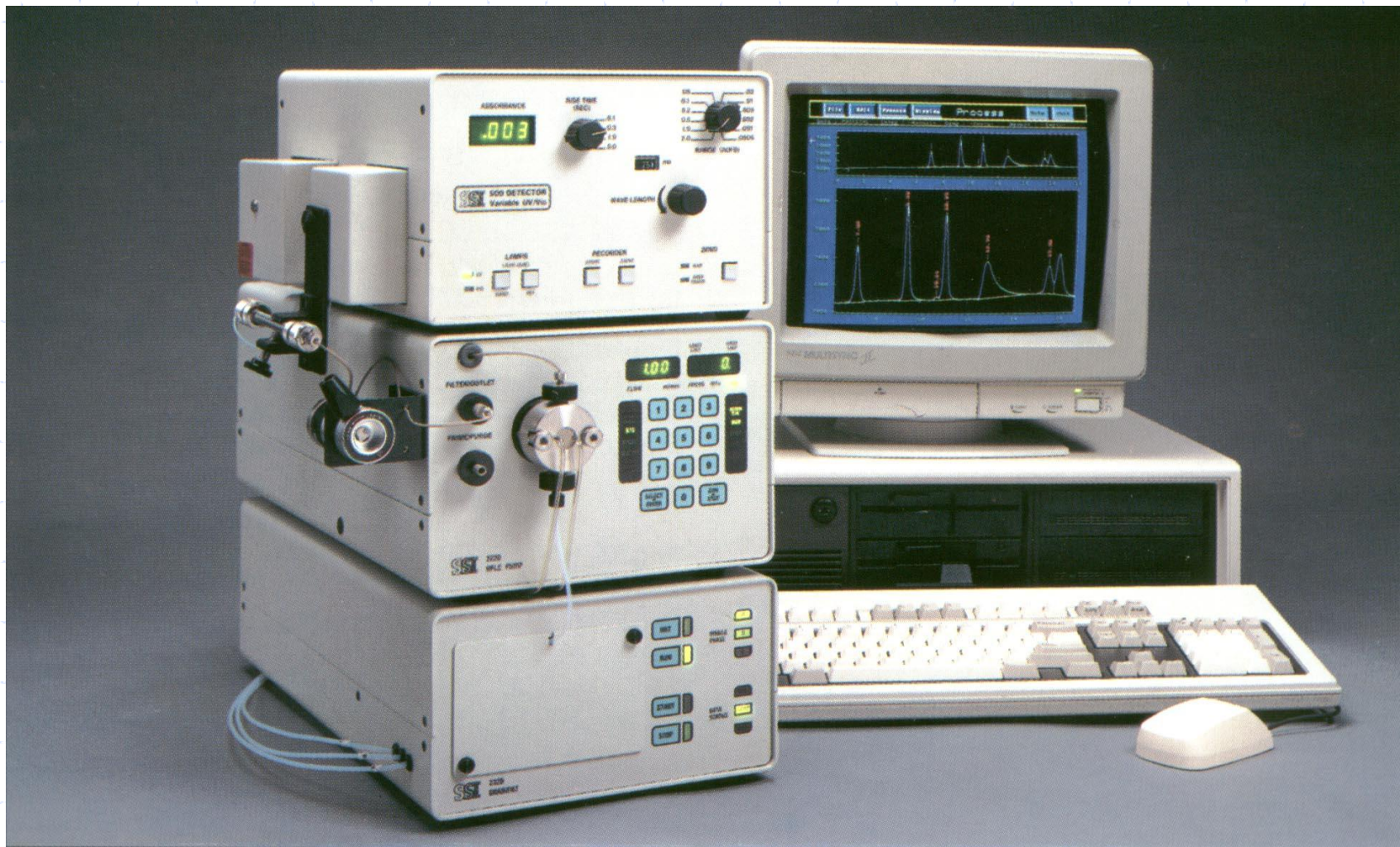


# First OEM Pump Introduced - 1983



**PerkinElmer Series-10**  
**Rapid Refill**  
**Low Pulsation**

# 222 Series HPLC Systems - 1989



# Automatic Piston Wash Introduced – 1990



# Series I-IV Pumps - 1993



Digital Microprocessor Control  
Pulse Damper & Integrated  
Prime-Purge Valve

Real-Time Pressure Readout  
with Upper / Lower Limits



Scientific Systems, Inc.  
349 N. Science Park Road  
State College, PA 16803

# ISO-9001 Certification - 1994





# LabAlliance Division Formed - 1994



# Vital Statistics (continued)

## ▶ Core Strengths

### **HPLC Pump Design & Customization**

- Value Oriented Single-Head Positive Displacement Pumps
- High Performance Dual-Head pumps (UHP, Flash, Column Packing Pumps)
- Micro Flows through Preparative Chromatography pumps
- Application Specific Pumps & Systems (PCR, CO<sub>2</sub>, Custom Subassemblies)
- Wide Range of Fluid Path Accessories (Valves, Fittings, Pulse Dampers)

### **Precision Machining & Injection Molding Capability**

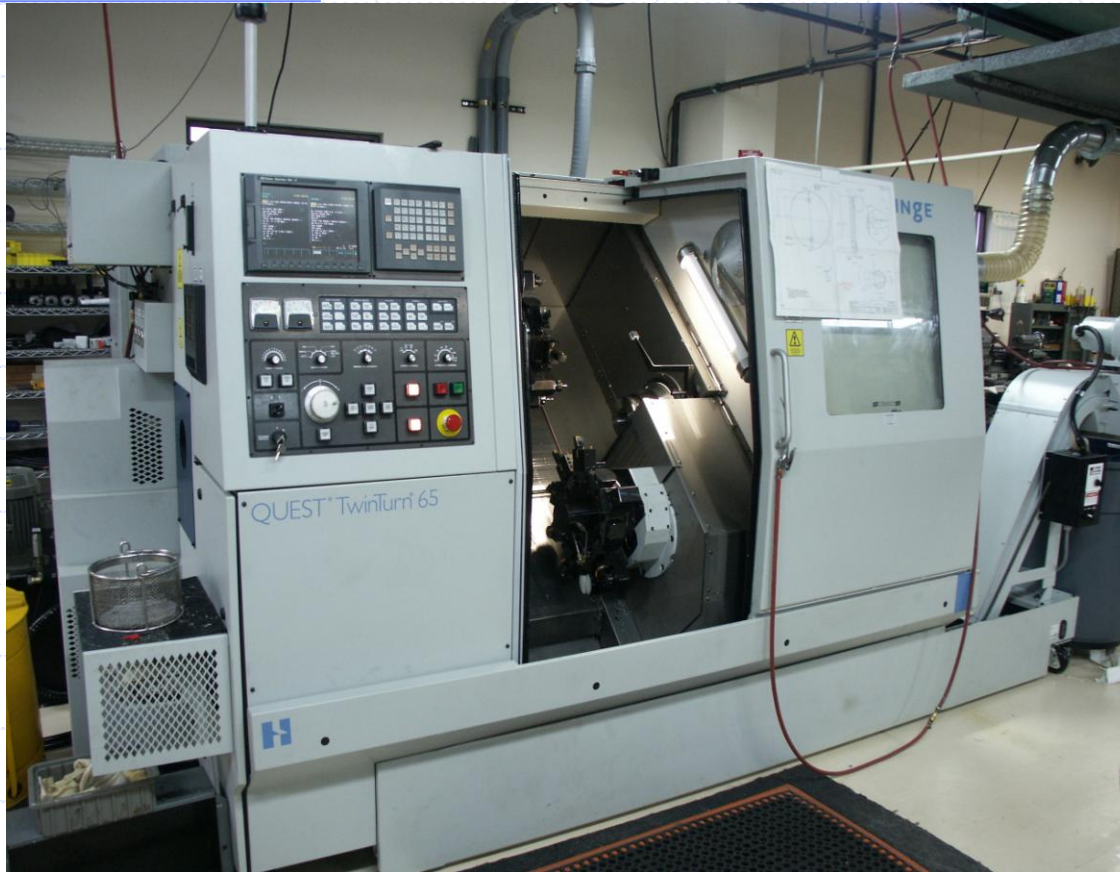
### **Controlled Electromechanical Assembly & Test Processes**

### **LC Applications Expertise**



Scientific Systems, Inc.  
349 N. Science Park Road  
State College, PA 16803

# Manufacturing Capability – Machine Shop



**New “Twin Turn” Automated  
Machining Systems (2005 & 2007)  
Dual Turret, Dual Spindle**

**Machining,  
Finishing and  
Injection Molding**

Specializing in HPLC

Requirements:

**Finishes, Tolerances  
and Cleanliness**

Maintain Capability for

In-House Needs:

**Pumps & Components**

We Control our Quality  
and Delivery



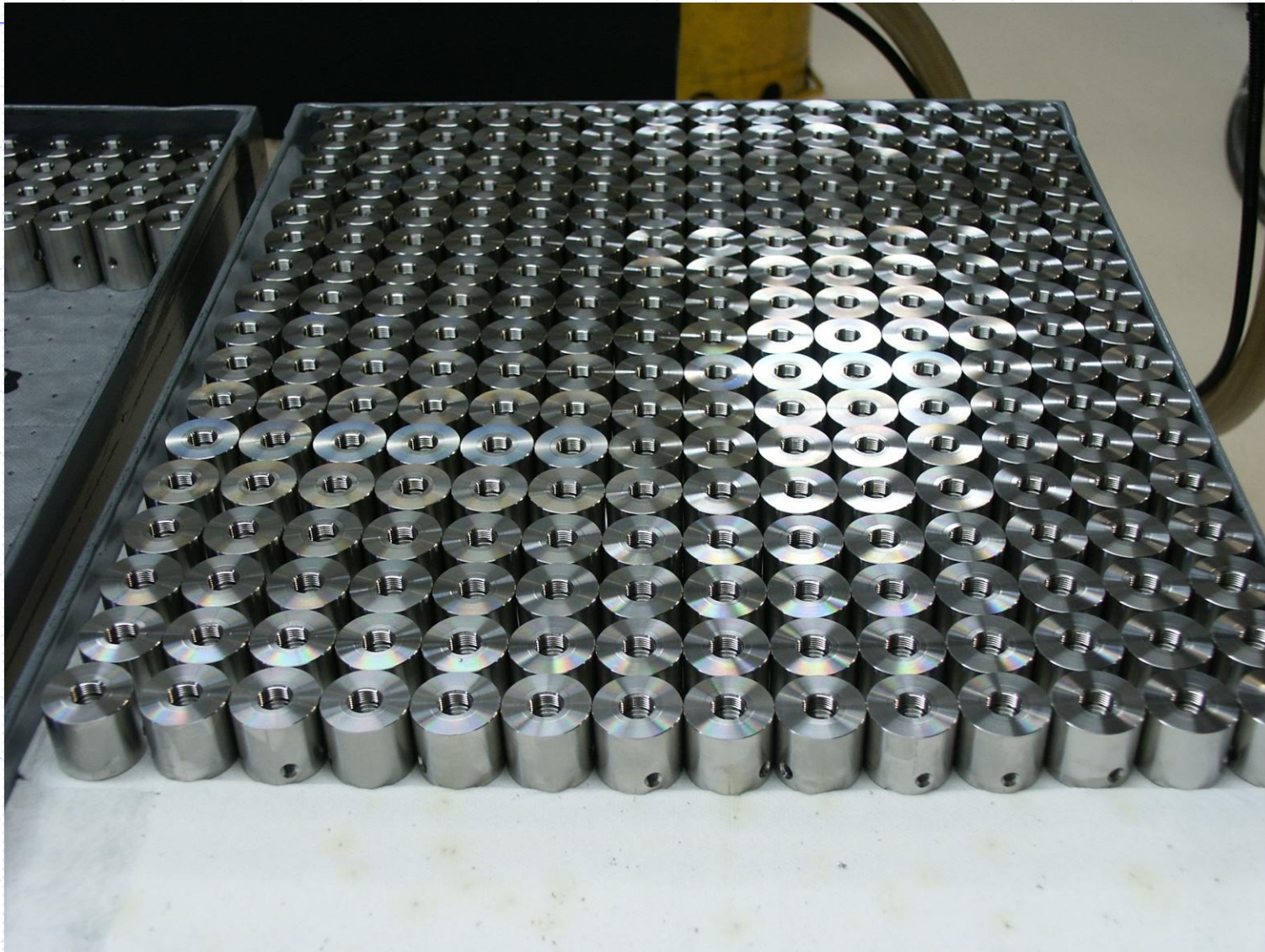
Scientific Systems, Inc.  
349 N. Science Park Road  
State College, PA 16803

# Machine Shop



Scientific Systems, Inc.  
349 N. Science Park Road  
State College, PA 16803

# Machined Valve Bodies



# Injection Molding



Scientific Systems, Inc.  
349 N. Science Park Road  
State College, PA 16803

# Manufacturing Capability – Assembly & Test



**Pump Production in Process**

Specializing in Electro-Mechanical Assembly:  
**Pump Mechanisms,  
Wiring, Components,  
Fluid Path and Box Build**

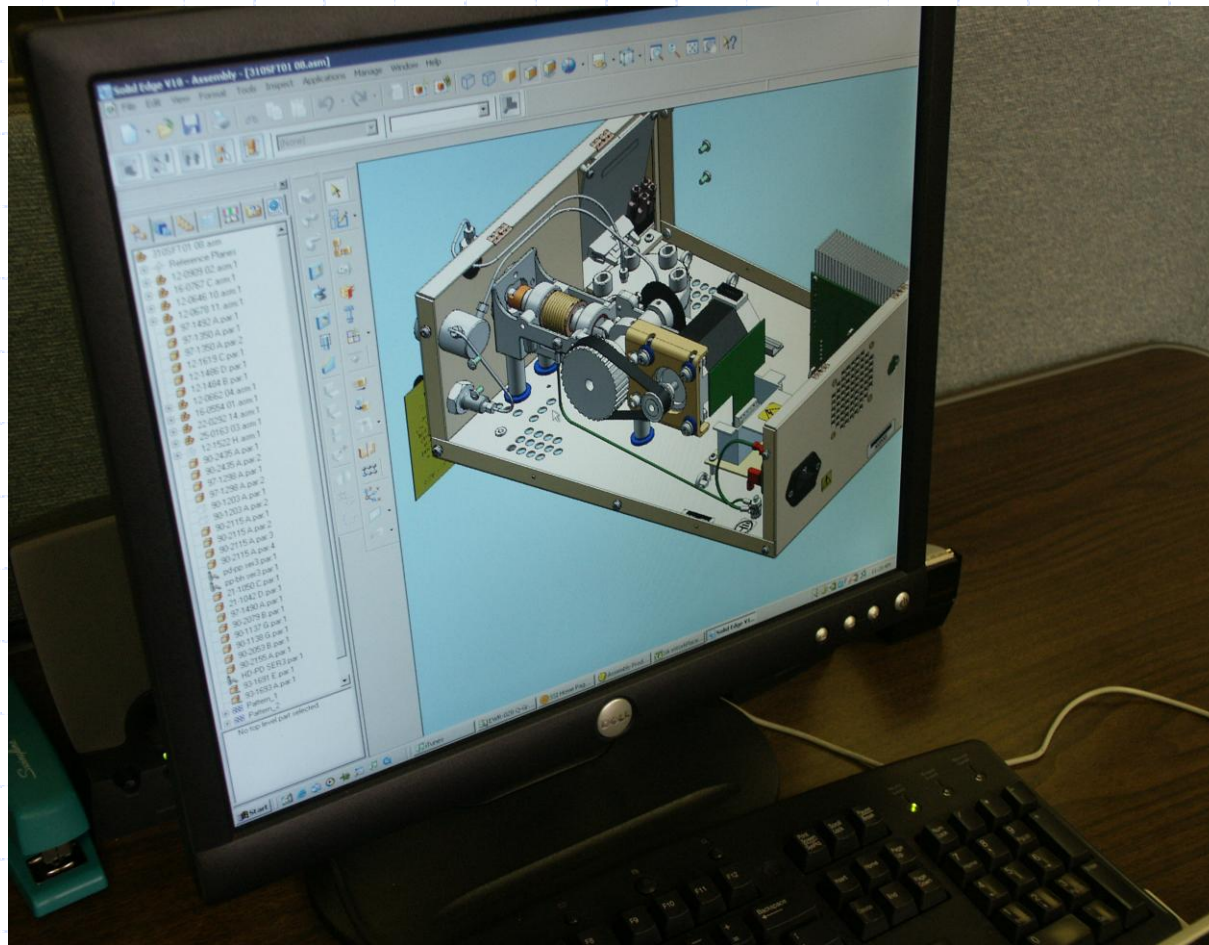
100% Test for Flow Accuracy, Pulsation & Pressure Calibration

Final Quality Assurance

Maintain Capability for In-House Needs:  
**Pumps & Components**

We Control our Quality and Delivery

# Engineering and Development Capability



**Series-III Pump Solid Model**

**Design and  
Documentation**

Solid Modeling using  
*SolidEdge* Software

Excellent Revision &  
Document Control

Effective Engineering  
Change Process &  
Ongoing Product  
Improvements

Production and  
Service Support



Scientific Systems, Inc.  
349 N. Science Park Road  
State College, PA 16803



# SSI Engineering Department

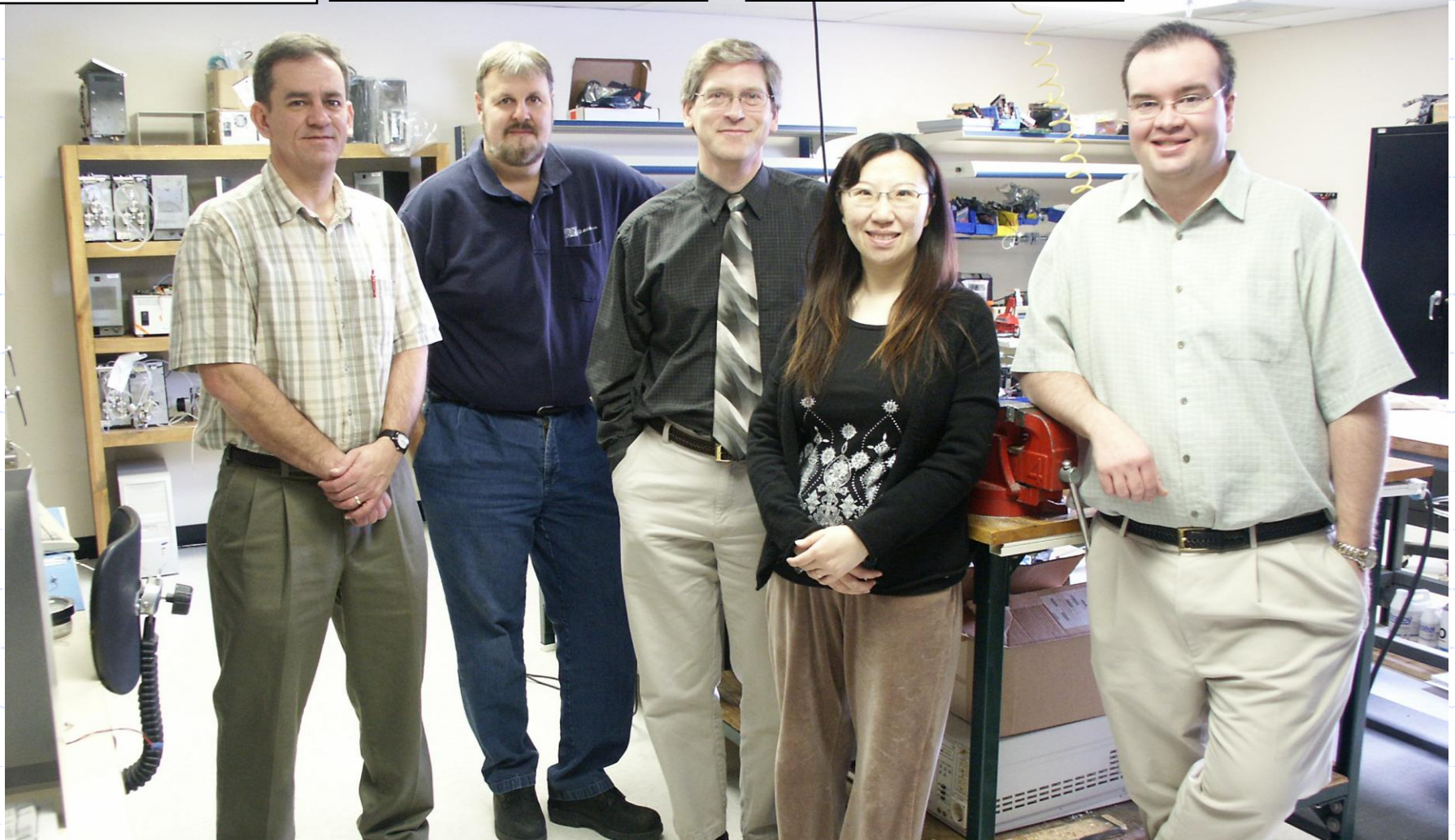
**Jeff Field**  
Engineering Manager

**Kirk Kerstetter**  
Mech. Design  
Engineer

**Marty Karduck**  
Sr. Electrical Eng.

**Nancy Ma**  
Electrical Engineer

**Rabon Johnson**  
Electrical Engineer





## **New Environmental Test Chamber**

Temperature Cycling

Humidity Cycling

Sized for capability to test complete pumps, including in the shipping box.

## **All Products, including New Designs and Current Production are Thoroughly Tested**

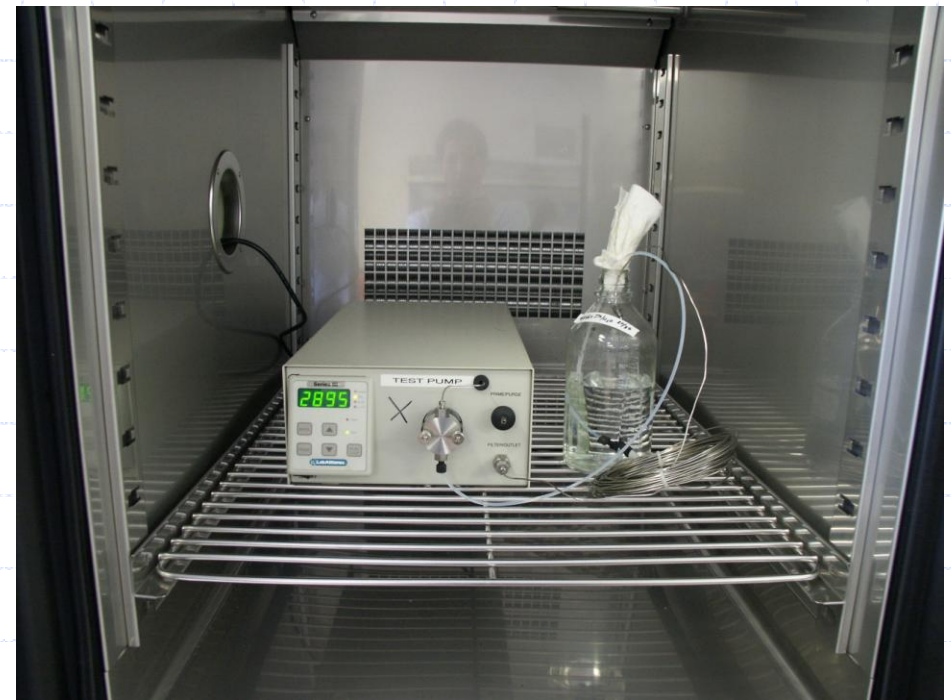
Life testing at maximum flow/pressure

Temperature cycling (new)

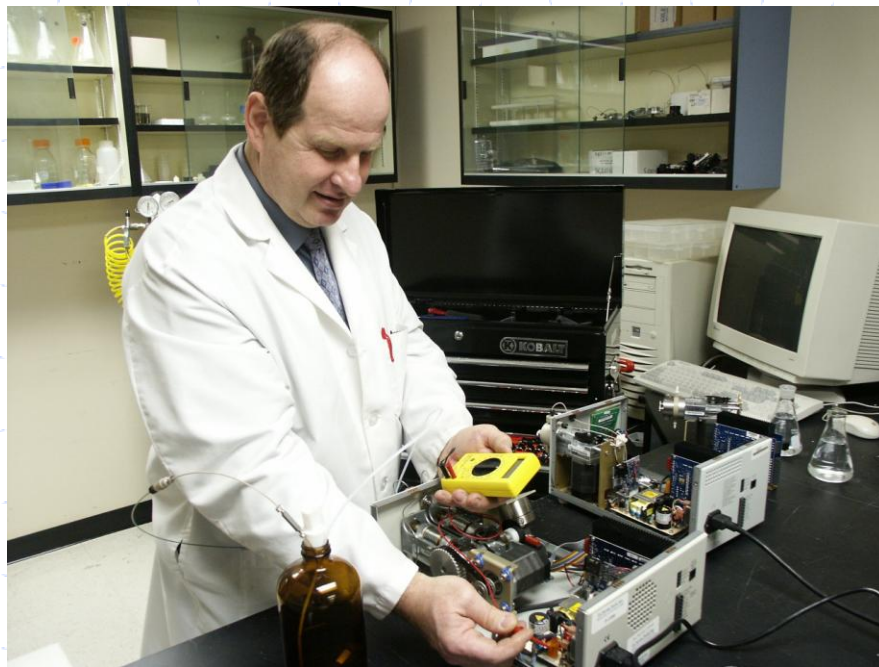
Humidity cycling (new)

Drop test

Shake test



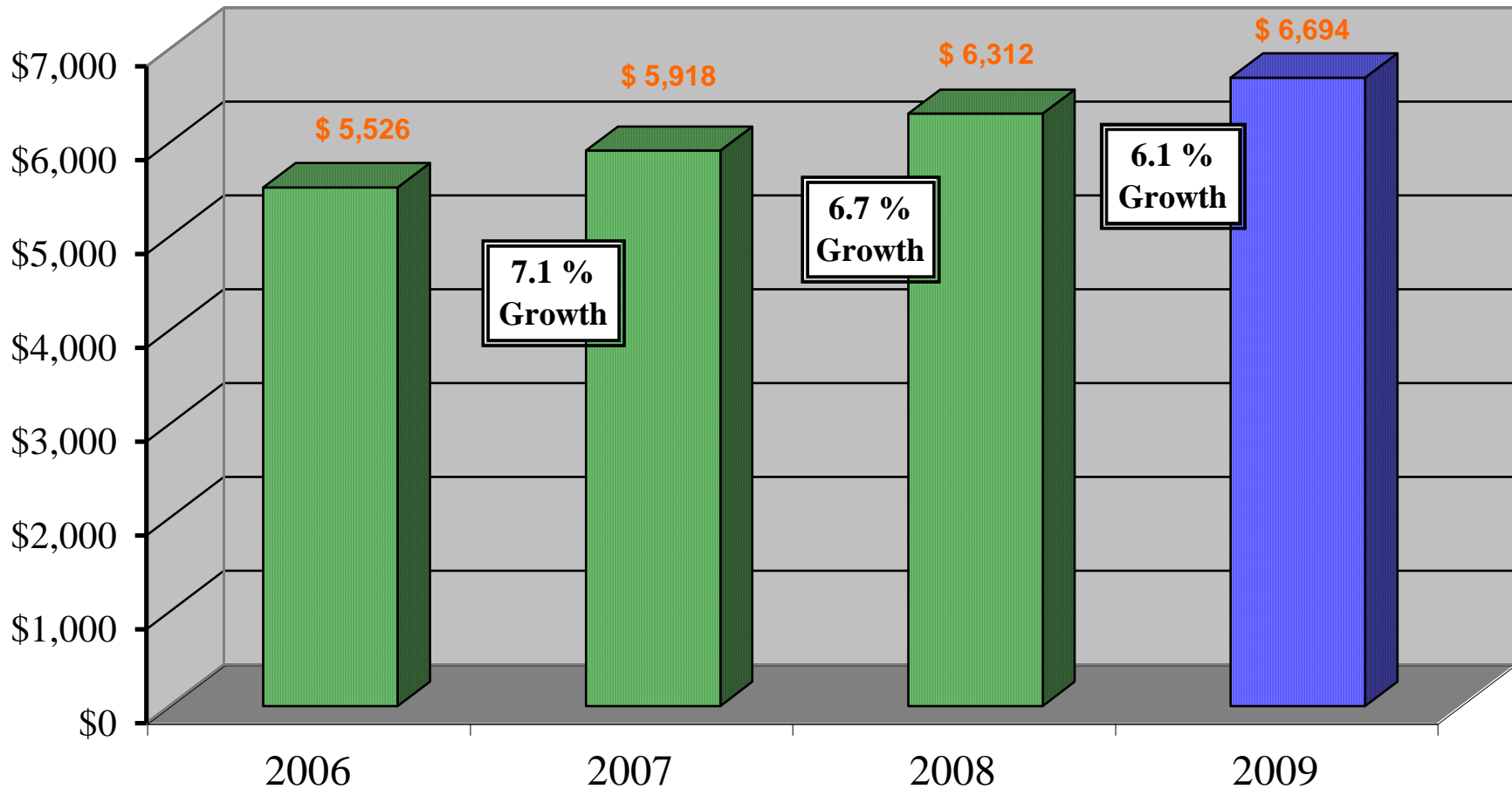
# Scientific Systems, Inc. Service



Scientific Systems, Inc. (SSI) is committed to providing our customers with the highest quality service and support. Our Service Department is dedicated to meeting your service and warranty needs and questions in a prompt, courteous and professional manner. To guarantee your SSI instruments will provide you years of reliable service, we can also offer you professional repair and maintenance for your pumps and components.

# Primary Markets

**Total Separations Instrumentation Market**  
**(in \$ Millions)**



# Total Separations Instrument Market

| Market Segment | Share  | 2007 – 2008 Growth Rate | 2008 Market Size |
|----------------|--------|-------------------------|------------------|
| HPLC           | 59.4 % | + 8.0%                  | \$ 3.75 B        |
| GC             | 22.9 % | + 2.5%                  | \$ 1.45 B        |
| IC             | 5.8 %  | + 9.4%                  | \$ 366 M         |
| LPLC           | 5.1 %  | + 4.7%                  | \$ 322 M         |
| CE             | 3.1 %  | + 8.2%                  | \$ 196 M         |
| Flash          | 1.5 %  | + 7.0%                  | \$ 95 M          |
| Other          | 2.3 %  | + 7.9%                  | \$ 145 M         |



# Scientific Systems, Inc.

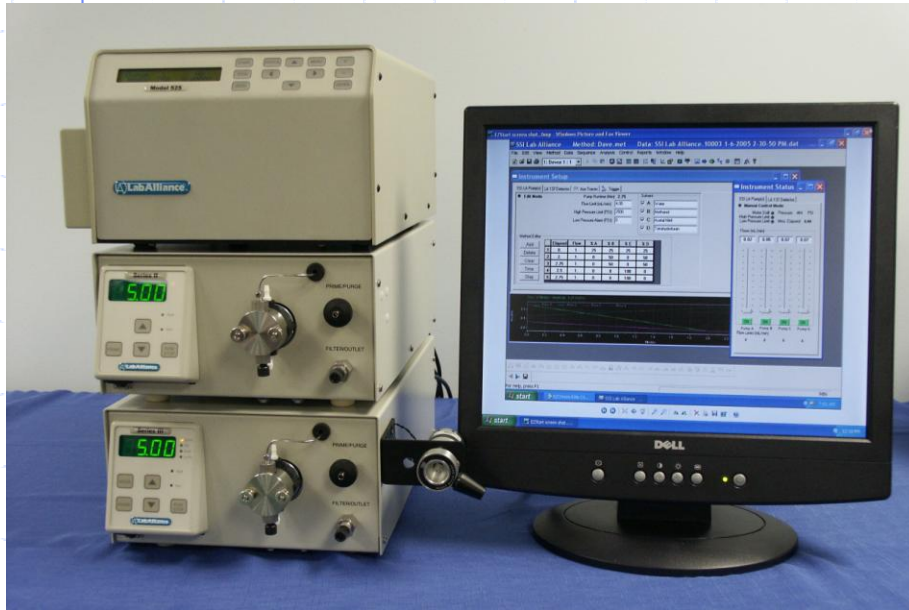
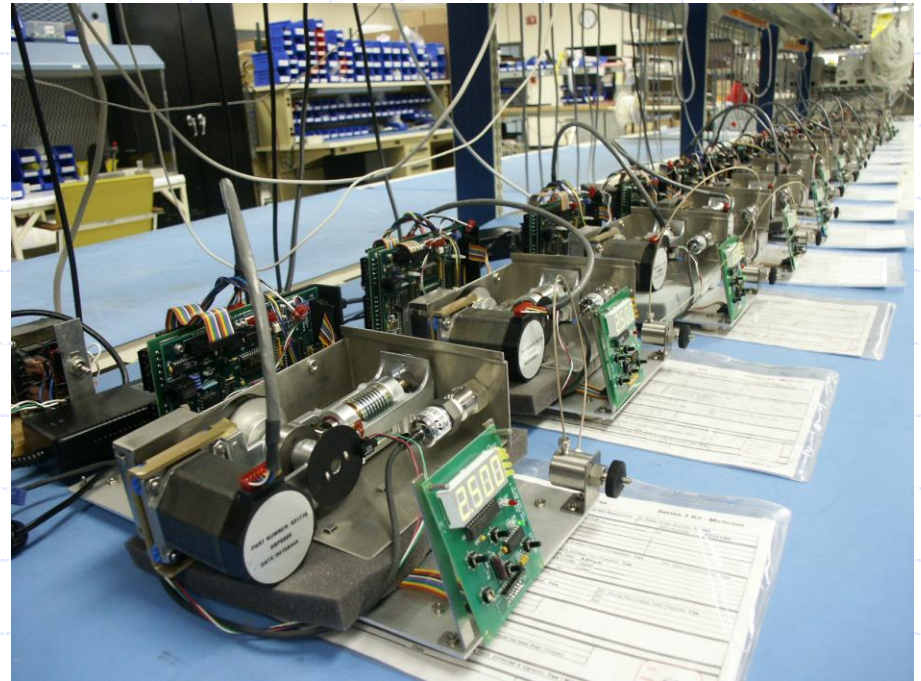
## Primary Markets

Focus: LC Systems and Components

- ▶ OEM
  - Custom Pumps in Stand-Alone or Kit-Form
  - Application Unique Systems & Sub-Systems, Built to Specification
- ▶ Catalog
  - Standard Pumps & Components
  - Simple, Modular LC Systems
- ▶ Independent Distributors (LabAlliance Network)
  - Standard Pumps & Components
  - Simple to Middle-Tier LC Systems, Some Application Specific
- ▶ Shipped Over 2,500 HPLC Pumps Last Year, Making SSI the Largest Independent HPLC Pump Manufacturer Worldwide

**OEM:** About 50%  
of SSI Business

**Catalog:** About  
15% of SSI Business



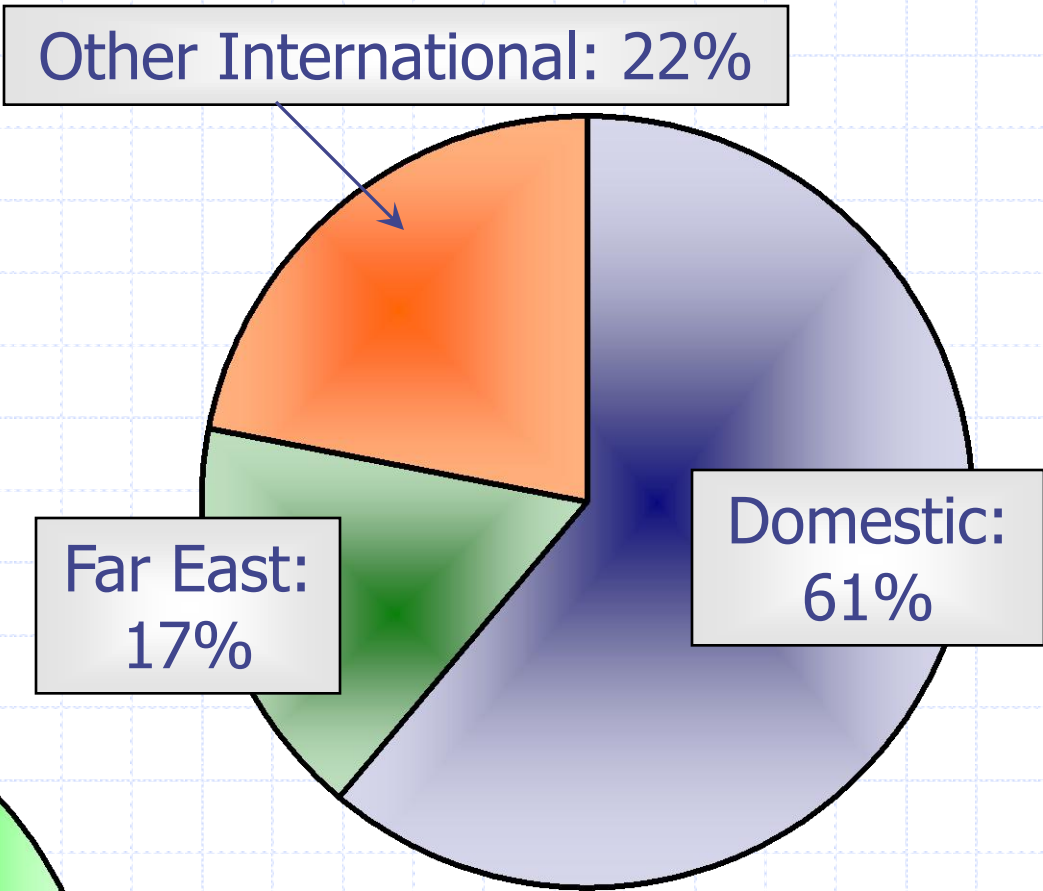
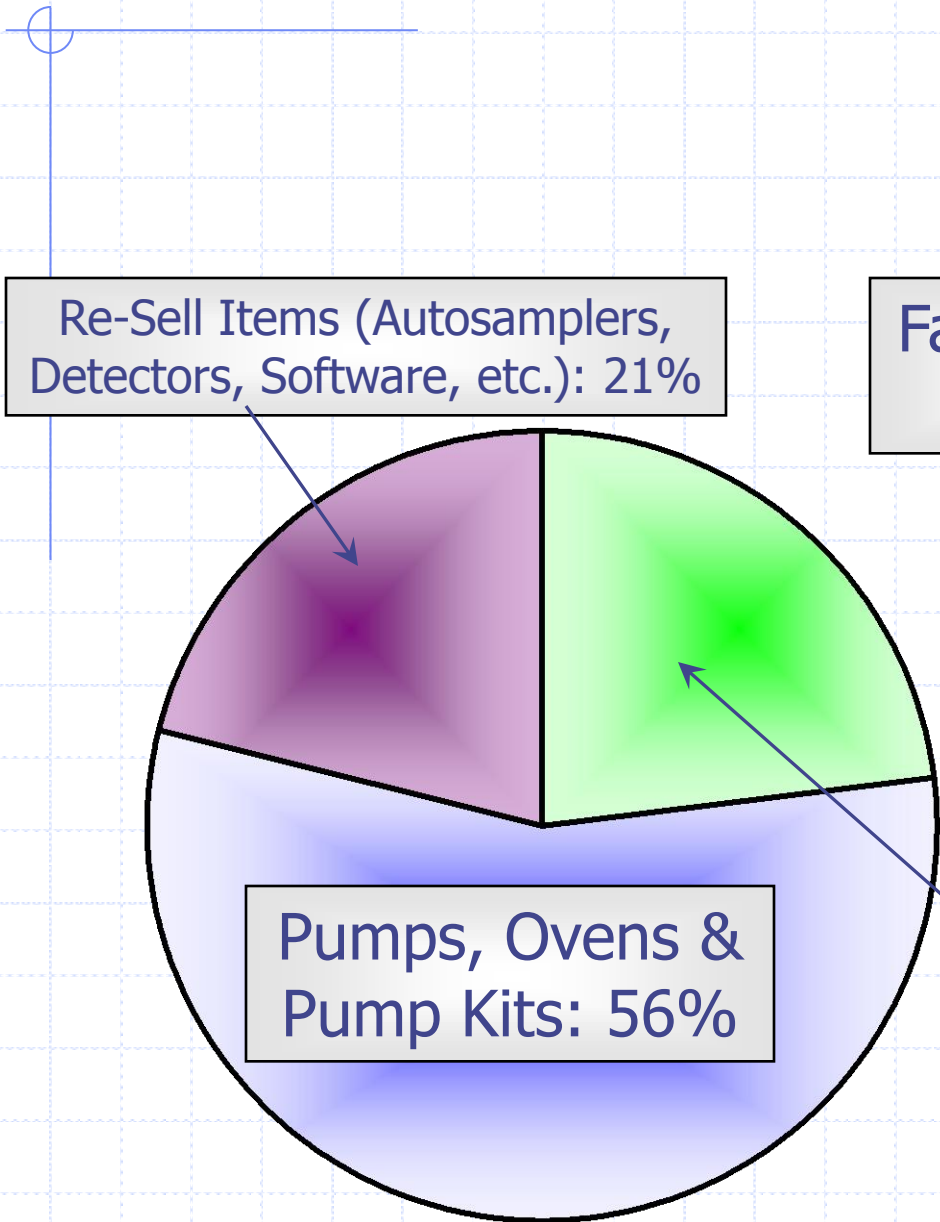
**Distribution** (primarily  
international): About  
35% of SSI Business







# Primary Markets



# Shipment Breakdown

# Scientific Systems, Inc.

## Primary Markets

Focus: LC Systems and Components

- ▶ OEM
  - Custom Pumps in Stand-Alone or Kit-Form
  - Application Unique Systems & Sub-Systems, Built to Specification
- ▶ Catalog
  - Standard Pumps & Components
  - Simple, Modular LC Systems
- ▶ Independent Distributors (LabAlliance Network)
  - Standard Pumps & Components
  - Simple to Middle-Tier LC Systems, Some Application Specific
- ▶ Shipped Over 2,500 HPLC Pumps Last Year, Making SSI the Largest Independent HPLC Pump Manufacturer Worldwide

# Three Areas for SSI Growth

## Ultra High Pressure and Ultra Fast Flow Chromatography

18,000 p.s.i. and 5 ml/min

Pump Kits for OEM Customers

Complete Systems for Distribution

## Demand Driven By

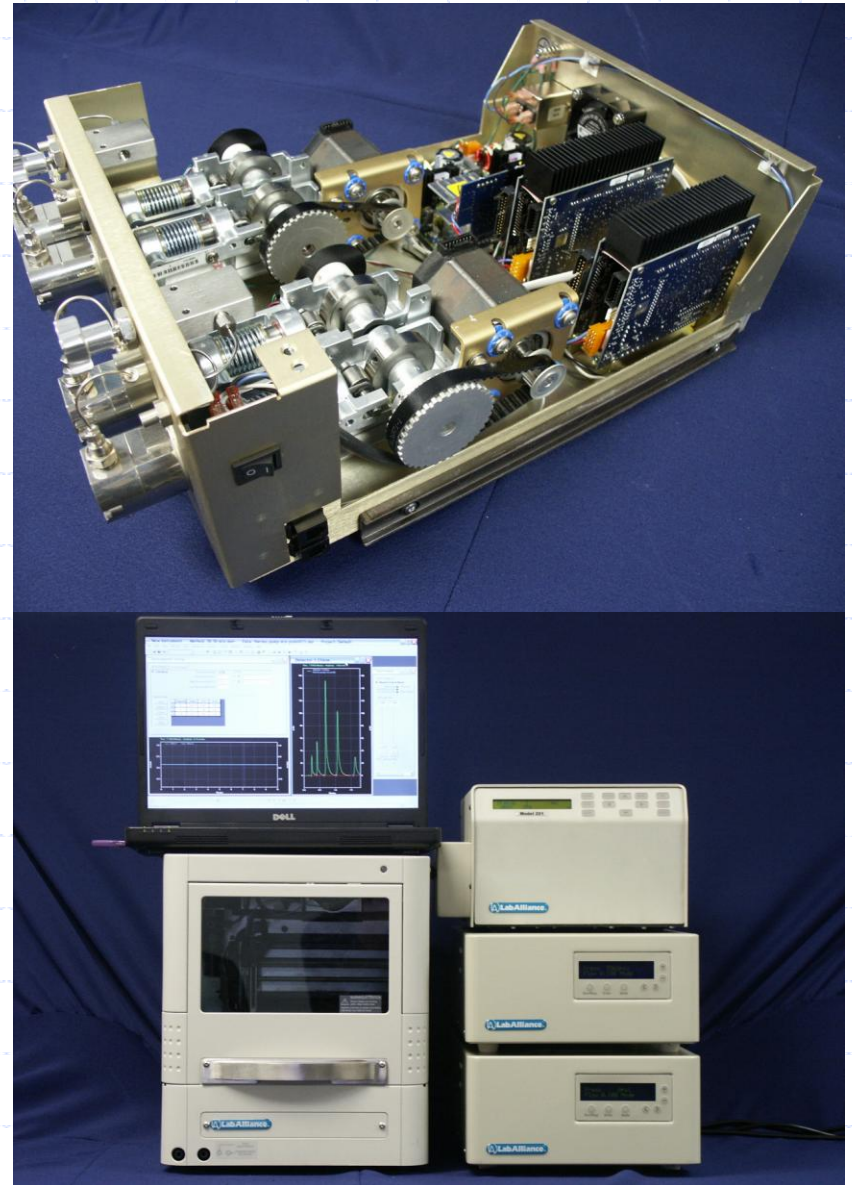
Cost Reductions due to Fast Analysis

Green Chemistry (lower solvent use)

Innovative Separations (proteins, etc.)

## Future

25,000 – 30,000 p.s.i.



Scientific Systems, Inc.  
349 N. Science Park Road  
State College, PA 16803

# Three Areas for SSI Growth (continued)

## **Pumps for Hemoglobin Analyzers**

Simple PEEK binary pumping system

Conventional pressures initially (3,000 p.s.i.)

Able to upgrade to higher pressures

## **Demand Driven By**

Higher pressures needed for Fast Analysis

Increasing demand for blood testing in  
developing nations and aging population

Outsourcing by instrument makers



Scientific Systems, Inc.  
349 N. Science Park Road  
State College, PA 16803

# Three Areas for SSI Growth (continued)

## Specialty Pumps (only from SSI)

Thermoelectrically Cooled CO<sub>2</sub> Pumps

High Performance Flash Chromatography Pumps (200 ml/min; 200 p.s.i.)

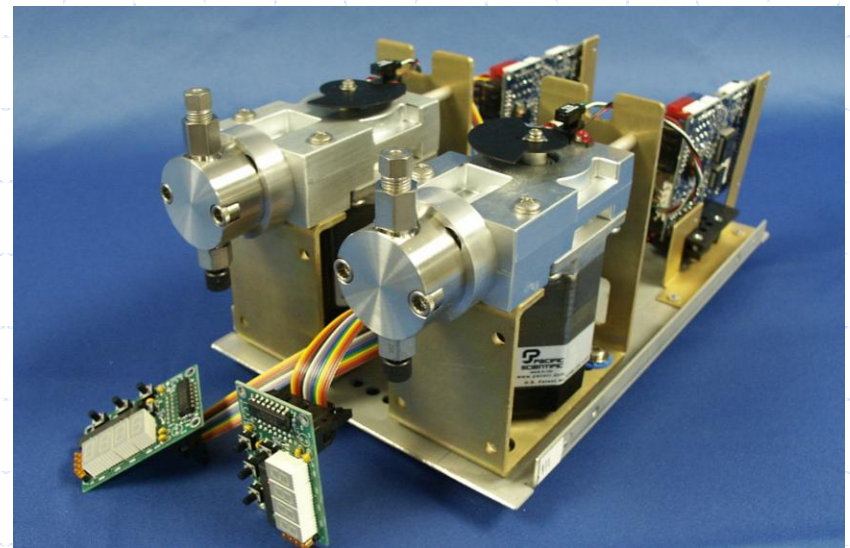
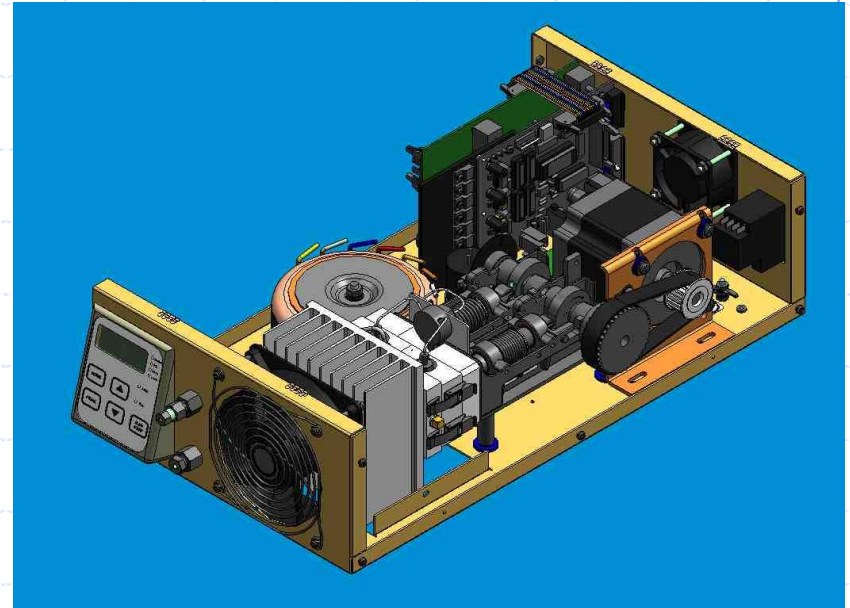
250 ml/min +, High Pressure Pumps

## Demand Driven By:

Green Chemistry (CO<sub>2</sub> used as solvent)

Fast Screening of Drug Candidates

Various High Flow Applications, i.e. large column packing, Prep LC and biofuels



Scientific Systems, Inc.  
349 N. Science Park Road  
State College, PA 16803

# Scientific Systems, Inc.

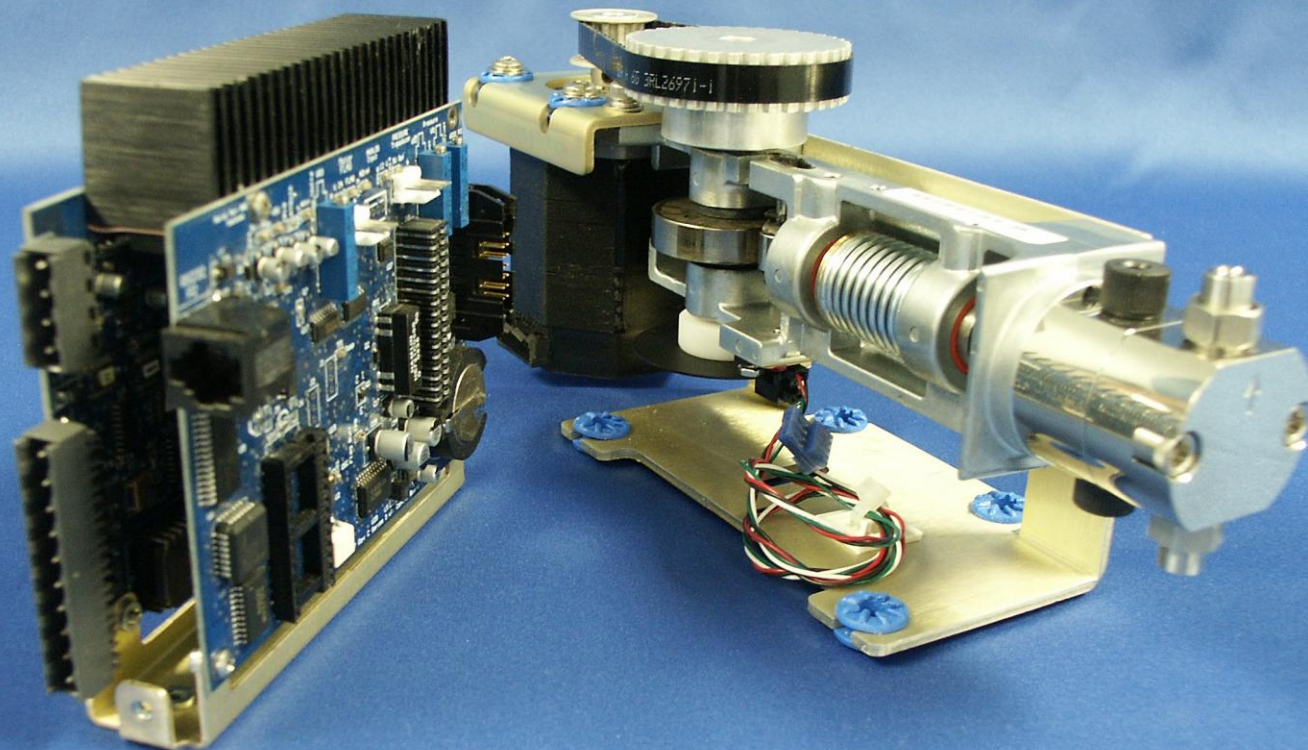
## Post Column Reactor



Scientific Systems, Inc.  
349 N. Science Park Road  
State College, PA 16803

# Scientific Systems, Inc.

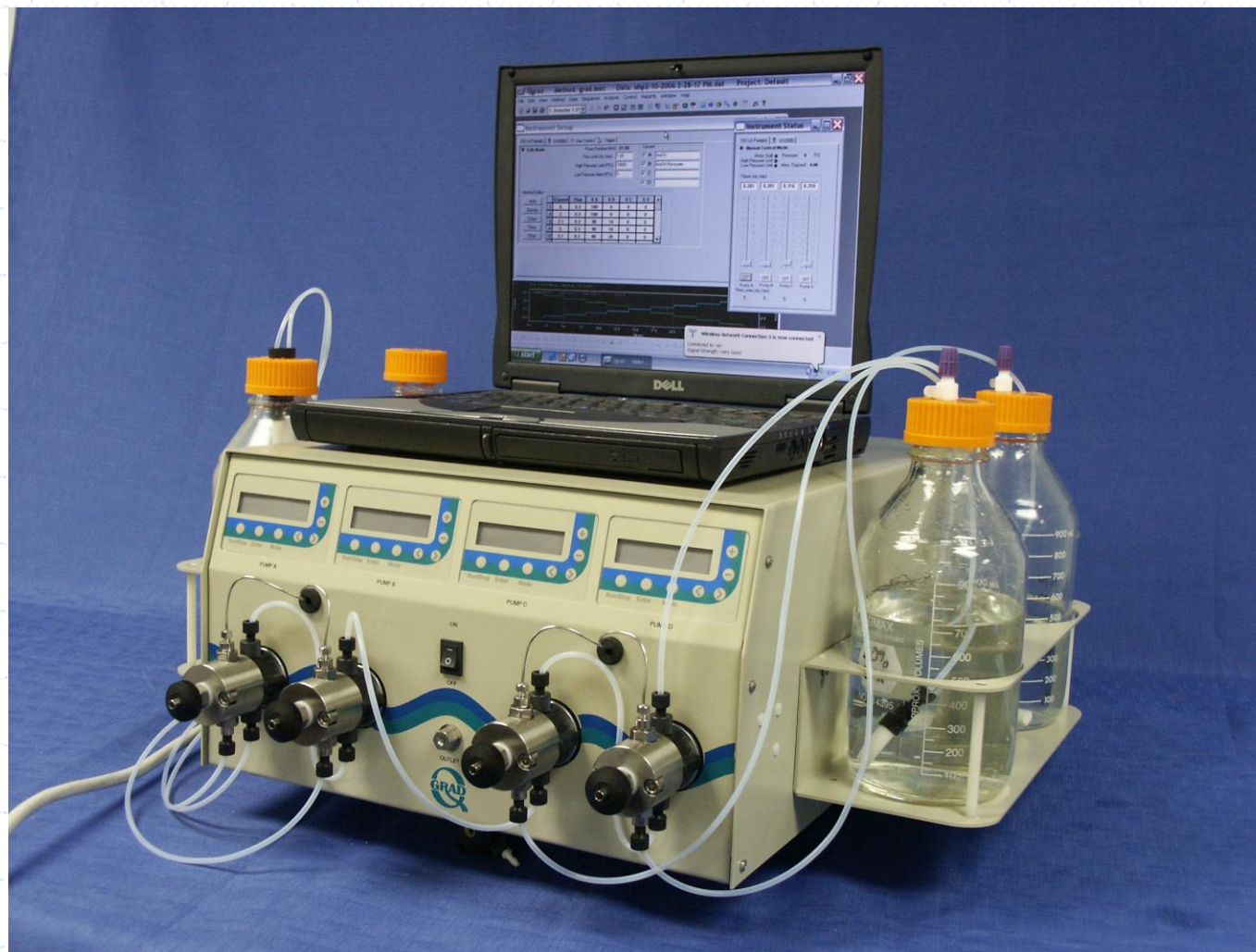
12,000 p.s.i.  
Single-head  
Pump Kits  
(available in  
Titanium)



Scientific Systems, Inc.  
349 N. Science Park Road  
State College, PA 16803

# Scientific Systems, Inc.

Upgraded  
Q-Grad



Scientific Systems, Inc.  
349 N. Science Park Road  
State College, PA 16803



# Scientific Systems, Inc.

**Binary  
Gradient  
Module  
(with Detector)**



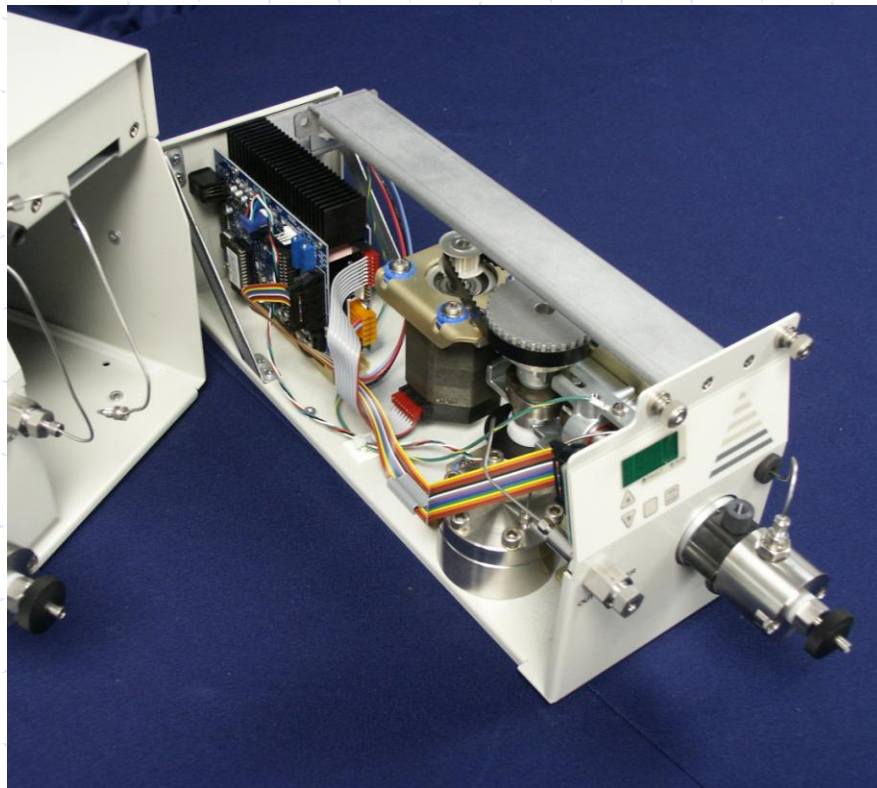
Scientific Systems, Inc.  
349 N. Science Park Road  
State College, PA 16803

## Drawer Concept

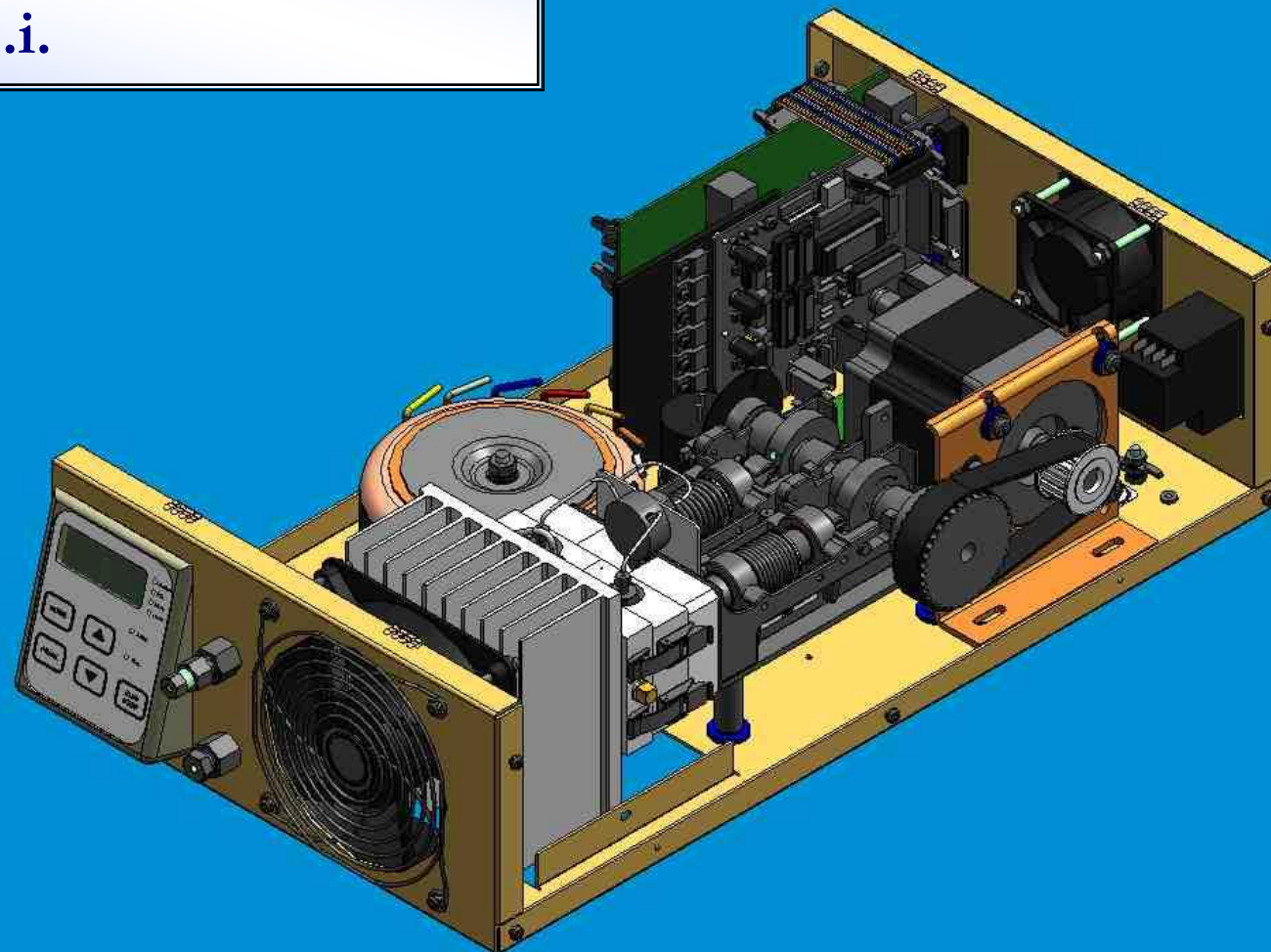
Allows easy access for maintenance and repair.

Can keep spare drawer on the shelf.

Currently used in Binary, PCR and custom systems.



**SC-24 Pump for Liquid CO<sub>2</sub>**  
24 ml/min  
10,000 p.s.i.



Scientific Systems, Inc.  
349 N. Science Park Road  
State College, PA 16803

# Scientific Systems, Inc.

New  
Flash-300  
Pump



Scientific Systems, Inc.  
349 N. Science Park Road  
State College, PA 16803

# Scientific Systems, Inc.

**Prep-250 Pump**  
10,000 p.s.i.



# Scientific Systems, Inc.

**Mighty-Mini  
Metering Pump  
0.00 – 5.00 ml/min**



Scientific Systems, Inc.  
349 N. Science Park Road  
State College, PA 16803

**Pickering Vector  
PCR with SSI  
Pumps and  
Components**



# Scientific Systems, Inc.

Custom  
Enclosures



Scientific Systems, Inc.  
349 N. Science Park Road  
State College, PA 16803



# Scientific Systems, Inc.



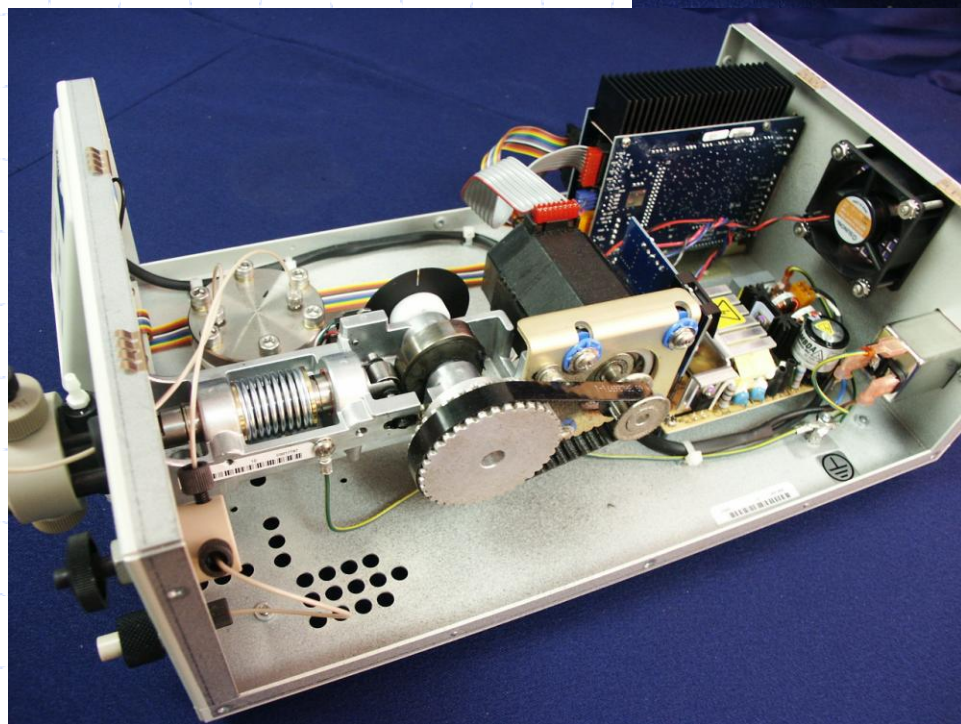
**Flash-150**  
Binary High Pressure Gradient  
Flash Chromatography System



Scientific Systems, Inc.  
349 N. Science Park Road  
State College, PA 16803

# Scientific Systems, Inc.

## Standard Series-III PEEK Pump



Scientific Systems, Inc.  
349 N. Science Park Road  
State College, PA 16803

# Scientific Systems, Inc.

## Improved Packaging for Single-Piston Pumps

LCD Displays  
Added Control Features  
New Pump Heads



Scientific Systems, Inc.  
349 N. Science Park Road  
State College, PA 16803

# Scientific Systems, Inc.

**Column Packing System:  
Pump, Reservoir and  
Column Hardware,  
10,000 p.s.i  
Constant Pressure**



Scientific Systems, Inc.  
349 N. Science Park Road  
State College, PA 16803

# Scientific Systems, Inc.

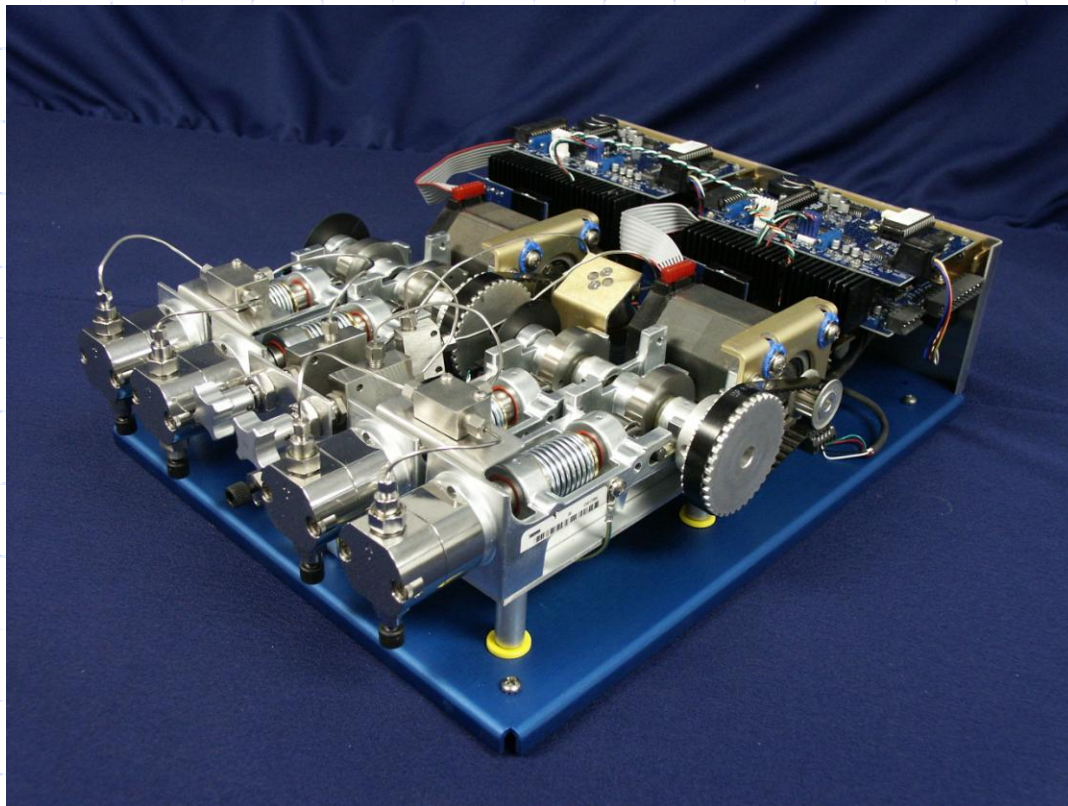
Ultra High  
Pressure Binary  
Gradient System  
- with Detector,  
Autosampler, Data  
Acquisition &  
Control



Scientific Systems, Inc.  
349 N. Science Park Road  
State College, PA 16803

# Scientific Systems, Inc.

New Ultra High Pressure Pump  
(18,000 p.s.i.)



Binary High Pressure Gradient Kit – Above  
Stand-Alone Ultra-HP Pump – Right



Scientific Systems, Inc.  
349 N. Science Park Road  
State College, PA 16803

# Scientific Systems, Inc.



Custom Post  
Column Reactor



# Scientific Systems, Inc.

## WHAT WE OFFER OUR CUSTOMERS: Strategic Partnership

- ▶ Skilled/Educated Workforce (very low turnover)
- ▶ Broad-Based Manufacturing, Engineering and HPLC Applications Expertise
- ▶ Documented / Controlled Processes and Systems
- ▶ Engineered Designs, including Custom Pumps, Applications-Specific Subassemblies and Accessories
- ▶ Quality / Responsiveness / Customer Service



Scientific Systems, Inc.  
349 N. Science Park Road  
State College, PA 16803



# Scientific Systems, Inc.

## Planning For the Future

- ▶ Continued Investment into Facility and Production Equipment
  - 5,000 sq. ft. Building Expansion Planned
  - New Machining Systems
  - Other items such as Laser Marker, 3-D Fast Prototype System, etc.
- ▶ Personnel Additions
  - Electrical & Mechanical Engineer
  - Applications Chemist/Marketing
  - Various Production Personnel
- ▶ Keep the Product Development Pipeline Full



# We Hope You Enjoyed Your Tour !

