



MODUTEK CORPORATION

SYSTEM INTEGRATION SPECIALISTS

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CORPORATE PROFILE 2018

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History and Highlights

Founded	1980	<ul style="list-style-type: none">• Introduced the first quartz constant temperature bath and dump rinser which eventually emerged as an industry standard.
Product Development	1982-1985	<ul style="list-style-type: none">• Developed the following product lines:• C Series - Condensing bath• CF Series - Chemical dispensing bath• F Series - Filtration of HF acid and BOE• I Series - Automatic chemical injection with a quartz bath• N Series - Temperature control• RC Series - Temperature control circulator
Nitride Etch	1985	<ul style="list-style-type: none">• Introduced Na Series for silicon nitride etching.
Filtration	1988	<ul style="list-style-type: none">• Introduced ultra high temp filter clean/strip system.
Product Introductions	1992	<ul style="list-style-type: none">• Introduced the following products:• Rd Series - New technology for rinse systems• CFa Series - New advances in chemical injection• QFa Series - Quartz filtration to 150°C with reduced particle counts and acid consumption• Apex Series - Stand alone acid recirculation and filtration system• TF Series - Teflon® filter etch bath• RQ - Quartz ultra clean wafer rinse system• SF Series - Stainless steel filter etch bath for solvent based stripping
	1993-1994	<ul style="list-style-type: none">• Introduced the following products:• Nb Series - Silicon Nitride Etch bath with positive purge seal• QFN Series - Quartz Filtration Nitride etch bath• RCd Series - CFC-free temp. control circulator• IR Series - Infrared Quartz In-line Moduheater
	1995	<ul style="list-style-type: none">• Introduced the following products:• IR Series - 3-6 kW Infrared high temperature heaters• QR Series - Quartz infrared heated bath
	1996	<ul style="list-style-type: none">• Introduced the following products:• C4000 - Integrator Series touch screen controller• HS Series Stand-Alone Nitride Etch Bath w/ IR heater and PLC control
	1997	<ul style="list-style-type: none">• Introduced the following product:• MS Series Hi-Megasonic Cleaner with a multitude of configurations including dump rinsers, quartz heated megasonic (up to 130°C) with both direct and indirect methods of operation
	1998	<ul style="list-style-type: none">• Introduced the following product:• RCe Series - Upgraded RCd Series
	1999	<ul style="list-style-type: none">• Subsidiary joins Modutek: Pollution Control Labs (PCL) is now Modutek. We have joined forces to better control our environmental equipment and chemical handling capabilities.
	2000	<ul style="list-style-type: none">• Purchased CNC overhead router for advanced fabrication capacity• Updated engineering software for 3D modeling• QR Series - Quartz infrared heated bath
	2002	<ul style="list-style-type: none">• Purchased Sysmax Inc. for semi-auto capability• C4000 - Integrator Series touch screen controller

- HS Series Stand-Alone Nitride Etch Bath w/ IR heater and PLC control
- 2003**
- Introduced a complete neutralization line
- 2004**
- Started our mechanical contract department with two major contractors
 - Built a neutralization system for a large bioscience corporation
- 2005**
- Manufactured a fully automated process tool
 - Manufactured a semi-automated cleaning tool
 - Concentrated on system integration using our vast manufacturing capability to offer complete one source support
- 2006**
- Upgraded facility to support complete system integration
 - Increased factory to 21,500 sq. ft.
 - Increased factory personal by 30%
- 2007**
- Expanded our Marketing Department
 - Shipped large chemical management system
- 2008**
- Manufactured a fully automated cleaning tool
 - One tool was 33' MAE cleaning tool with linear robot
 - One tool was 24' HF cleaning tool with linear robot
 - Shipped 42,000 gal chemical containment system
 - Shipped semi-auto nitride etch station to IBM
- 2009**
- Introduced solar tool for surface preparation
 - Introduced "DryZone" dryer
 - Designed Dry to Dry fully automated cleaning bench
 - Designed and built Level 3 Bio-Hazard decontamination Sys.
 - Developed chemical polishing and surface preparation process for local solar company
- 2010 – 2011**
- KCN Semi Auto Solar Plating Process
 - Multi panel design
 - 2' x 5' oversized panels
- 2012**
- Tom Gross retires as CEO
- 2012 - 2013**
- Ozone precision cleaning technology. Ozone precision cleaning can now be sold in a new cleaning station or added as a cleaning process to your existing equipment.
- 2013 - 2014**
- Designed pre-diffusion clean station for 450mm wafers. This wafer reclaim process includes osculating Megasonic technology utilizing Kaijo's Quava Generators with logic control.
- 2015**
- Custom cleaning tool to support Linear Accelerator at Michigan State University
- 2016**
- Designed and shipped precision chemical delivery/mix system
- 2017**
- Introduced IPA Vapor Dryer with HF Etch Step

Key Products and Services

- Broad-based product line in semiconductor wet process components
- Manufacturing flexibility by offering standard and custom products
- Highest standards in quality and service
- Worldwide sales and service representation

The success of this strategy has enabled Modutek to establish a leadership position in wet processing components and a strong business foundation with little dependence on outside investment or technology.

Broad-based Product Line - Modutek is the one component company that manufactures all wet processing components. Polypropylene, PVDF, quartz, Teflon® and stainless steel are the materials available, either in a static mode or with recirculation.

Process Stations – Manual, Semi-Auto and Fully Automated. Etching, cleaning, plating and solvent stations.

Custom Products - Modutek offers a wide range of standard products with a long list of available options. At Modutek we also pride ourselves on our ability to produce custom components that fit individual process requirements.

Megasonic Technology – Full line of HIGH frequency systems (430kHz, 950kHz and 2.0 MHz). Available in quartz for purity and high temperature applications, PVDF, Stainless Steel and Teflon. Easy installation for existing equipment.

Etch Bath Technology - Operator safety and process control are the two driving forces for the technology of Modutek's line of etch baths.

Neutralization, Air Scrubbers, Waste Water Treatment Systems and Chemical Delivery and Handling Systems – Continuous flow and batch ph neutralizers up to 250 GPM, fluoride treatment systems, solvent acid and heavy metal recovery systems, custom pack bed air scrubbers up to 25,000 CFM and Chemical Management with VMB's and controls

Rinse Bath Technology - Improving on one of our original product lines, Modutek is now able to offer rinse bath technology that produces a virtually contaminant-free environment. We have combined many innovative process features with user friendly and easily serviced components to improve the quality and efficiency of the wafer rinse process.

Filtration - Modutek has introduced many innovations into filtration with the aim of reducing acid consumption and particle counts while improving process yields.

Retrofit Technology - With a continuing need for increased wafer dimensions, Modutek offers over 17 years of expertise in retrofitting existing wet process stations with new components. Our skilled field service personnel work to ensure a smooth process transition.

Worldwide Sales and Service - Modutek covers the globe in sales support and service. (Please refer to the listing of representation on page 6 of this corporate profile). Modutek has been able to produce industry leading products that have attracted a strong customer base among semiconductor manufacturers worldwide. Modutek is committed to producing innovative new products as well as continuous improvement of our existing products.

Key Personnel

Douglas Wagner / CEO & President

- 38 years in the semiconductor industry
- Joined Modutek in 1987

Robert Brody / VP & Director of Operations

- 35 years in semiconductor process equip.
- Associated with Modutek since 1989

Joanne Turley / CFO

- 20 years in banking
- Joined Modutek in 1998

Joel Olvera / Inside Sales

- 25 years in the semiconductor Industry
- Joined Modutek in 1989

Ruben Aguilar / Field Service Manager

- 8 years in semiconductor field support
- Joined Modutek in 2000

Mitch Tojima / Director of Engineering

- 40 years in high technology
- Joined Modutek in 2003
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Anthony Rutland / Controls Engineer

- 7 years in high technology
- Joined Modutek in 2015

Emilio Adriano / CNC Programmer

- 17 years process station design experience
- Joined Modutek in 2017

Nick Nickhou / Consultant

- 14 years in high technology
- Joined Modutek in 2007

John Valdez / Mechanical Design Engineer

- 27 years in high technology
- Joined Modutek in 2006
- Solid Model Design Engineer

Arthur Hammond / Service & HAZMAT Mgr.

- 33 years in high technology
- Joined Modutek in 1995

Jerry Book / Project Support

- 29 years in process equipment
- Joined Modutek in 2003