



HALL DESIGN

INDUSTRIAL DESIGN

PRODUCT ENGINEERING



PRODUCT DESIGN AND DEVELOPMENT

Over 600 products developed for major manufacturing companies including Apple, Motorola, IBM, HP, Medtronic, Philips, Johnson & Johnson.

World's first handheld GPS (Trimble)

World's first laptop computer (Gavilan)

World's first handheld Glucose meter (Lifescan)

Trimble Navigation



World's first handheld GPS locator - Circa 1983

Trimble Navigation – Worlds First GPS Locator



- Antenna parallel to ground plane
- Tracks up to 8 satellites
- Removable battery pack
- Rubberized grip
- Waterproof housing

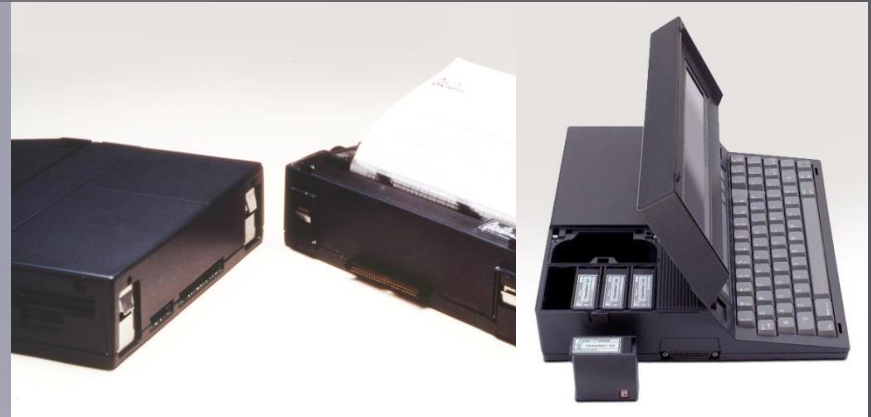
Gavilan — World's First Laptop



- Intel 8088 processor
- 64 kb CMOS ROM

- DOS by Microsoft
- Rechargeable NiCad

Gavilan — World's First Laptop



- Clip on printer
- 4 – 32 kb memory expansion capsules with backup battery
- Monochrome LCD display
- Dashboard touchpad
- \$4000 initial retail price
- \$350 per memory capsule

Circa 1984

Lifescan — World's First Handheld Glucose Meter

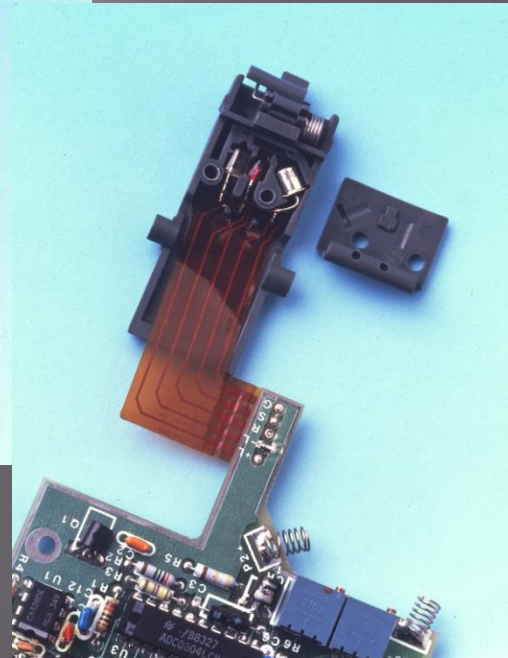


- Battery powered
- Disposable reagent strips
- Disposable sterile lances
- Custom reflectance photometer
- Fits in shirt pocket
- First “Penlet” for lances

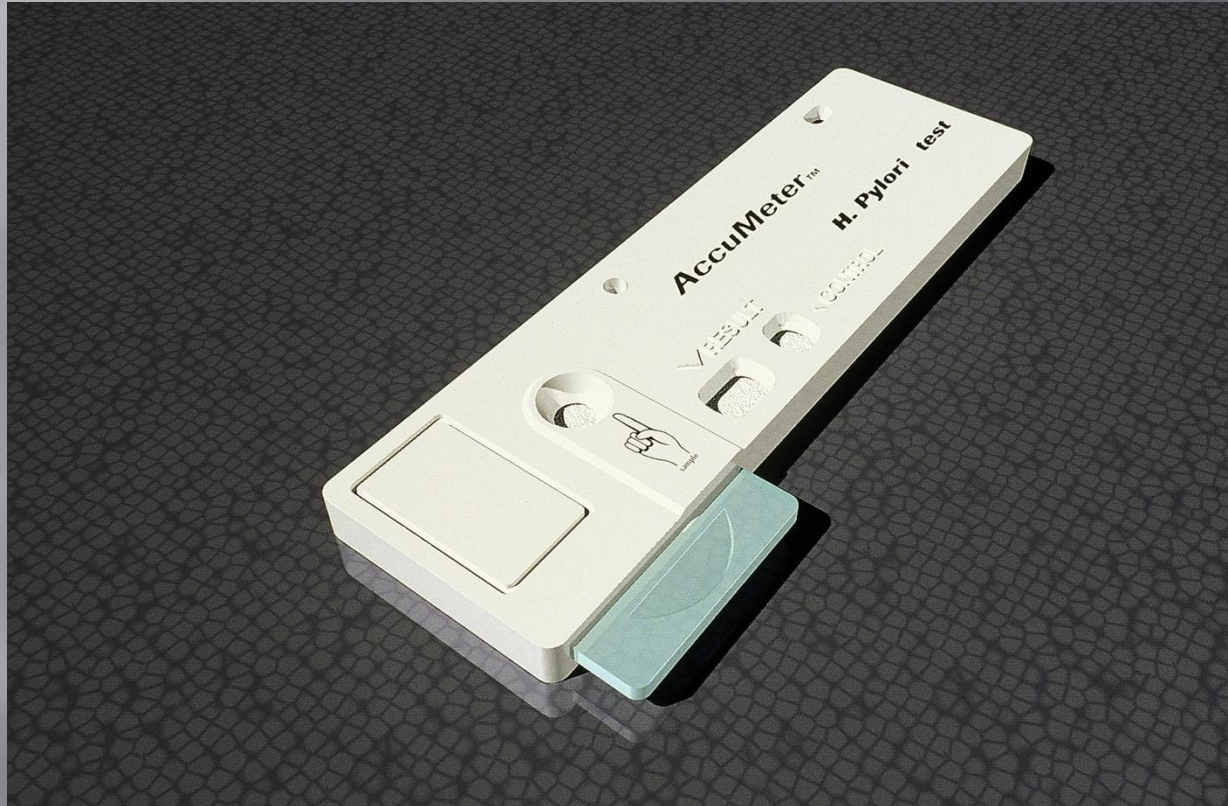


- Reflectance photometer
- Flex circuit
- Easy to clean
- Single PCB construction
- Battery saver mode

Acquired by Johnson & Johnson
Circa 1991

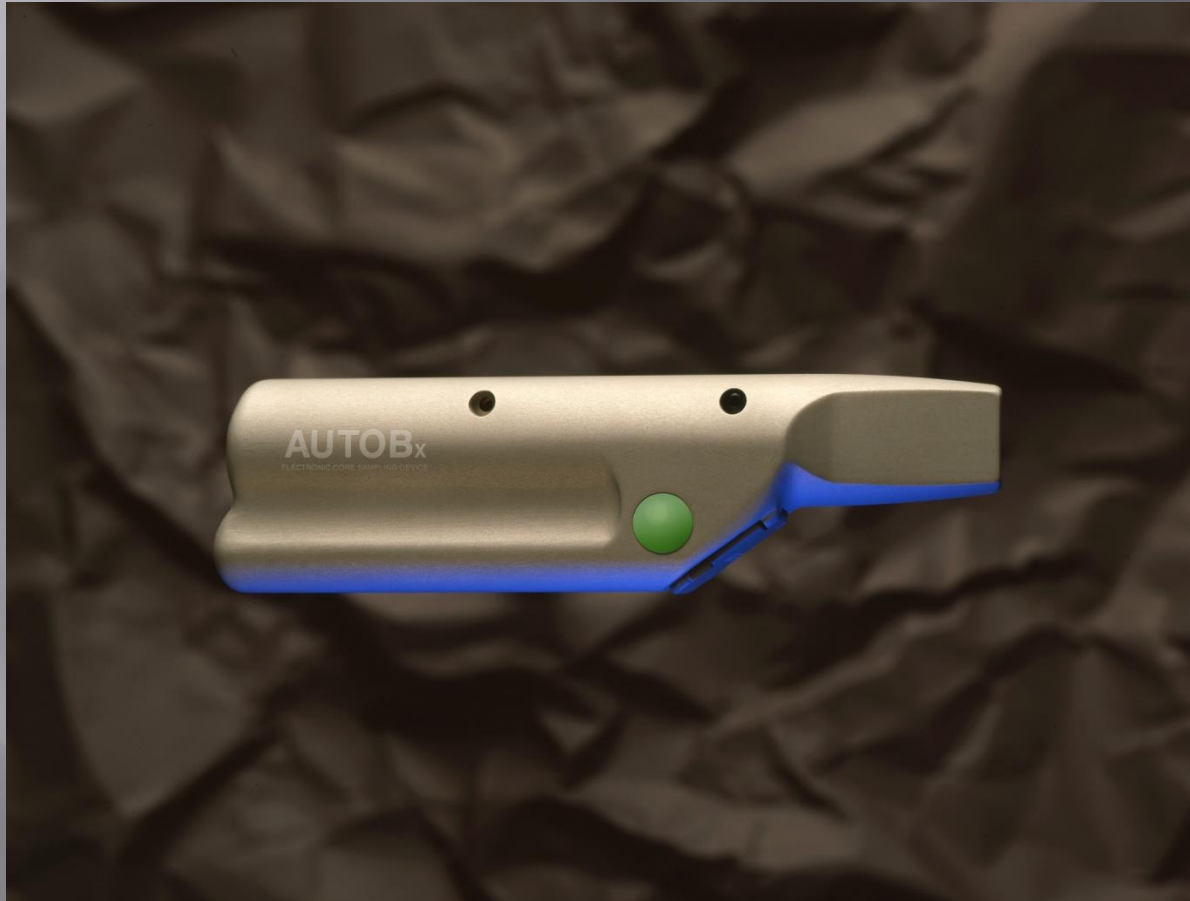


Chemtrak – Disposable Test Kit



- Sample port
- Internal reagent reservoir
- Pull tab releases fluid
- Control indicator
- Ultra low cost
- Million+ production volume

Ingress — Biopsy Instrument



Motor driven biopsy with reciprocating cannula disposables

Ingress — Biopsy Instrument



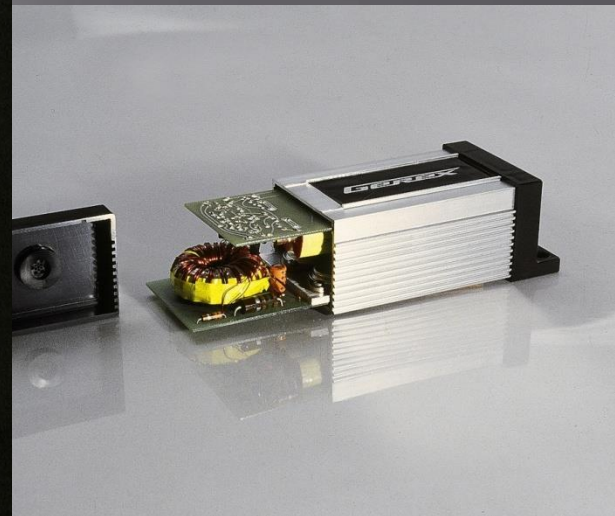
- Machined alum housing
- Sealed for autoclave
- NiCad Charger base
- Disposable needle sets

Acquired by Cook Medical

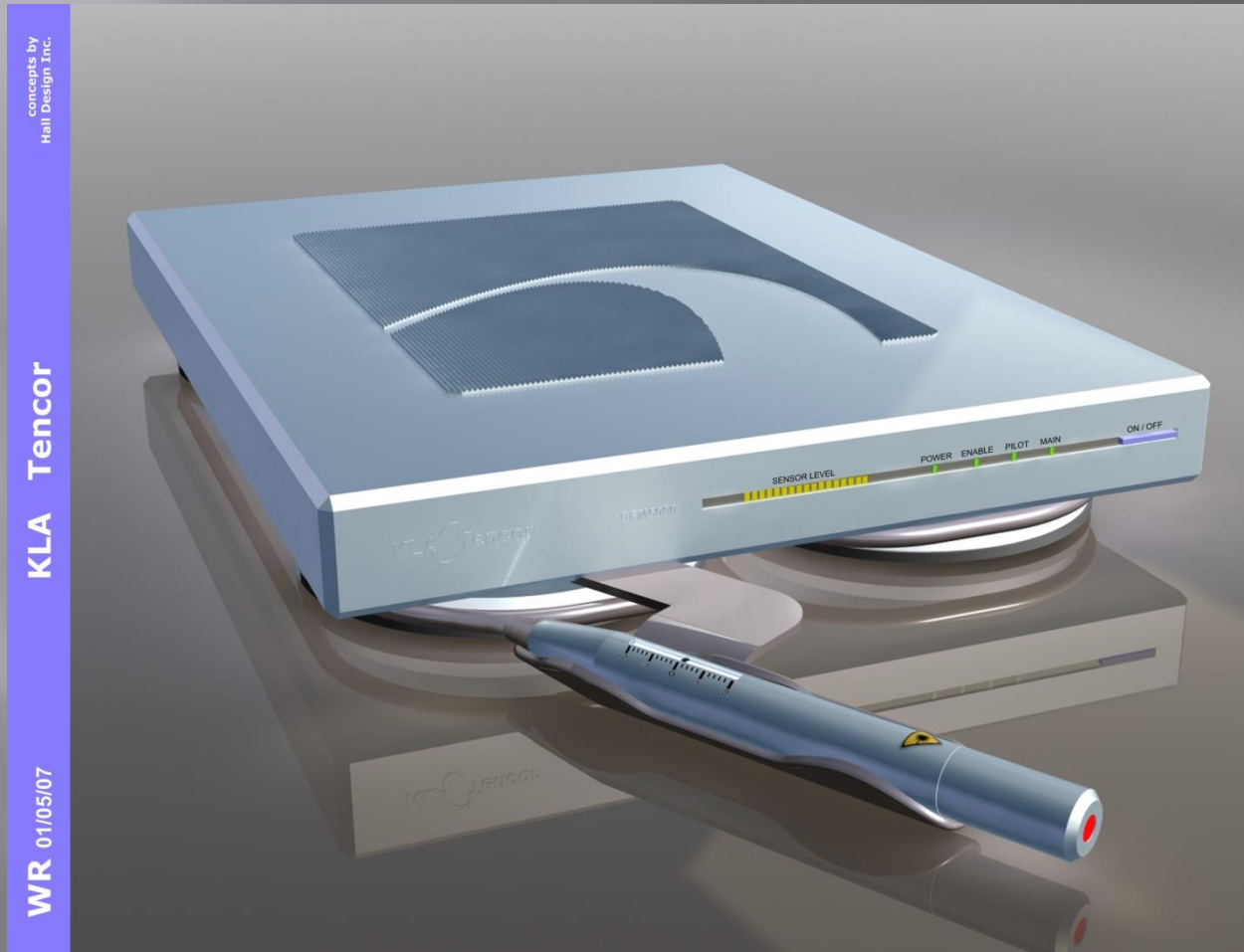
Gerex — Ignition System



- Motorcycle ignition
- Power coil
- Works-in-a-drawer design
- Low cost alum extrusion
- Water proof end caps

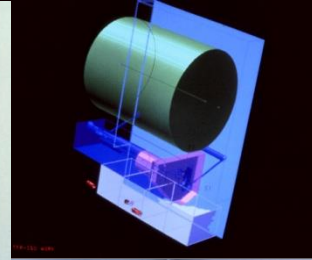


KLA / Tencor – Interferometer



- Alum housing / heat sink
- Swing out sensor storage tray

Scott Paper — Infrared Dispensers



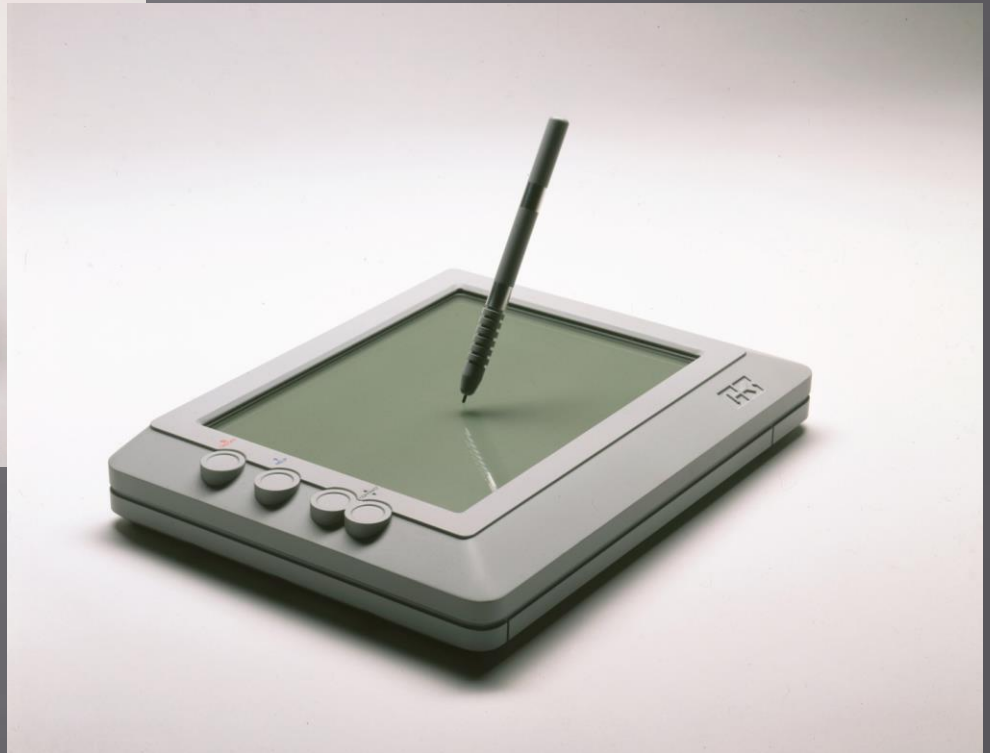
- Soap and paper towel
- Proximity sensor actuation
- Supply indicator
- Lockable
- Sheet metal and injection molded housing

C3 — Work Slate

Ruggedized for outdoor use by utility companies



- Environmentally indifferent
- Submersible to 3' under water
- Immune to dirt and sand storm
- Shock proof
(drop tested 6' onto concrete)



C3 — Work Slate



- Battery driven
- External add-on modules for GPS and Telecom
- Onboard mapping system



VitaMed – RF Surgical Generator



- Used for T.U.N.A. procedure (Trans Urethral Needle Ablation)
- Spill proof control deck
- Tempest level RF containment

Acquired by Medtronic

VitaMed — RF Surgical Generator



- Portable
- Retractable handle
- Sleek and easy to clean



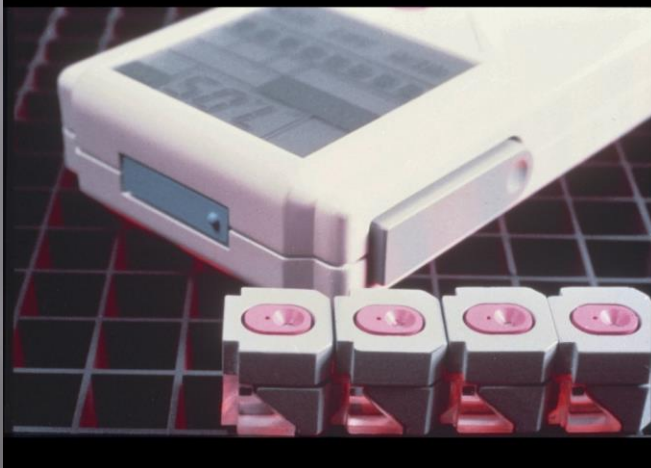
Biologix – Blood pH Meter



- Used by Paramedics and ER personnels
- Handheld unit with disposable test cartridges

Initial form factor study models

Biologix — Blood pH Meter



- Auto eject mechanism for disposable test cartridges
- Semi-permeable membrane separating sample from reagent
- Venous or arterial blood sample
- Stainless needle guard
- Cartridge ejection door

Iridex – Ophthalmic Laser

- Injection molded housing over metal chassis

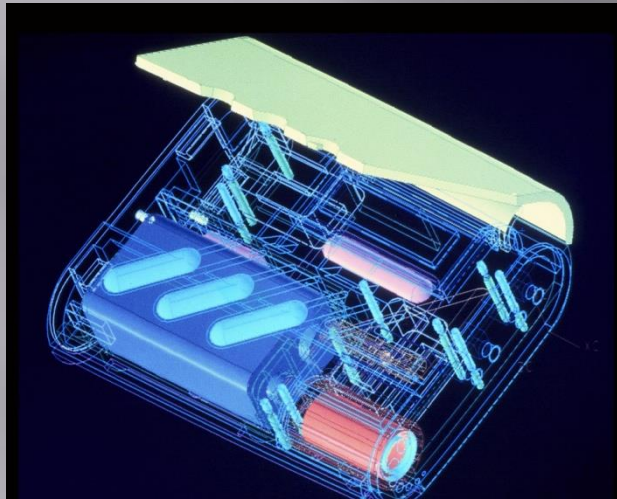
Spill proof

- Modular tool design for assembly of product line extensions



Ntron – T.E.N.S. Unit

Transdermal Electronic Nerve Stimulator



- Compact 3.0" x 2.3"
- Programmable
- 9V battery
- Belt clip
- 4 electrode ports
- Injection molded



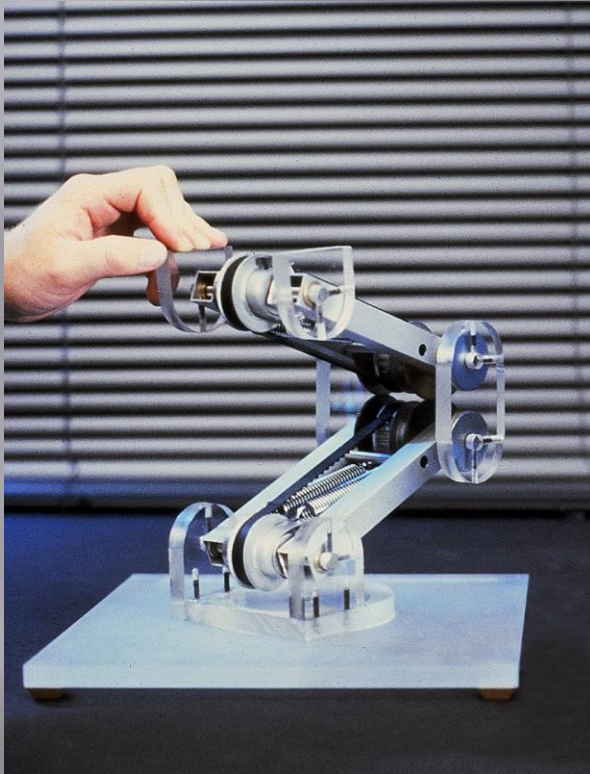
Starkey — Acoustic Array



- For the profoundly deaf
- T coil neck loop antenna
- 6 microphones
- Noise cancelling
- Splash proof
- Injection molded



Link – Computer Monitor



- Monitor with lift arm
- Injection molded housings



Harris — Front Desk Terminal



- Soft keyed menu screen
- Call management keys
- Pull out keyboard
- Injection molded



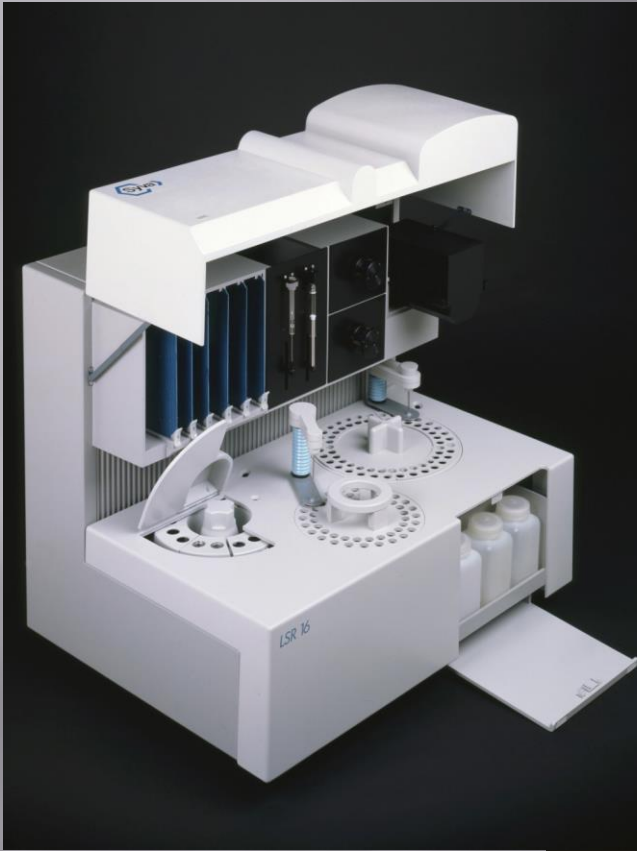
Weigh-Tronix — Commercial Scales



Product family using modular housing design for reduced tooling cost

Syva — Blood Assay Instrument

- Slide out components
- Refrigerated reagents
- Sample, reagent and mixing carousels



- Automated pipettes
- Inner spill catch tray
- Tilt forward service deck



Houston Instrument — Pen Plotter

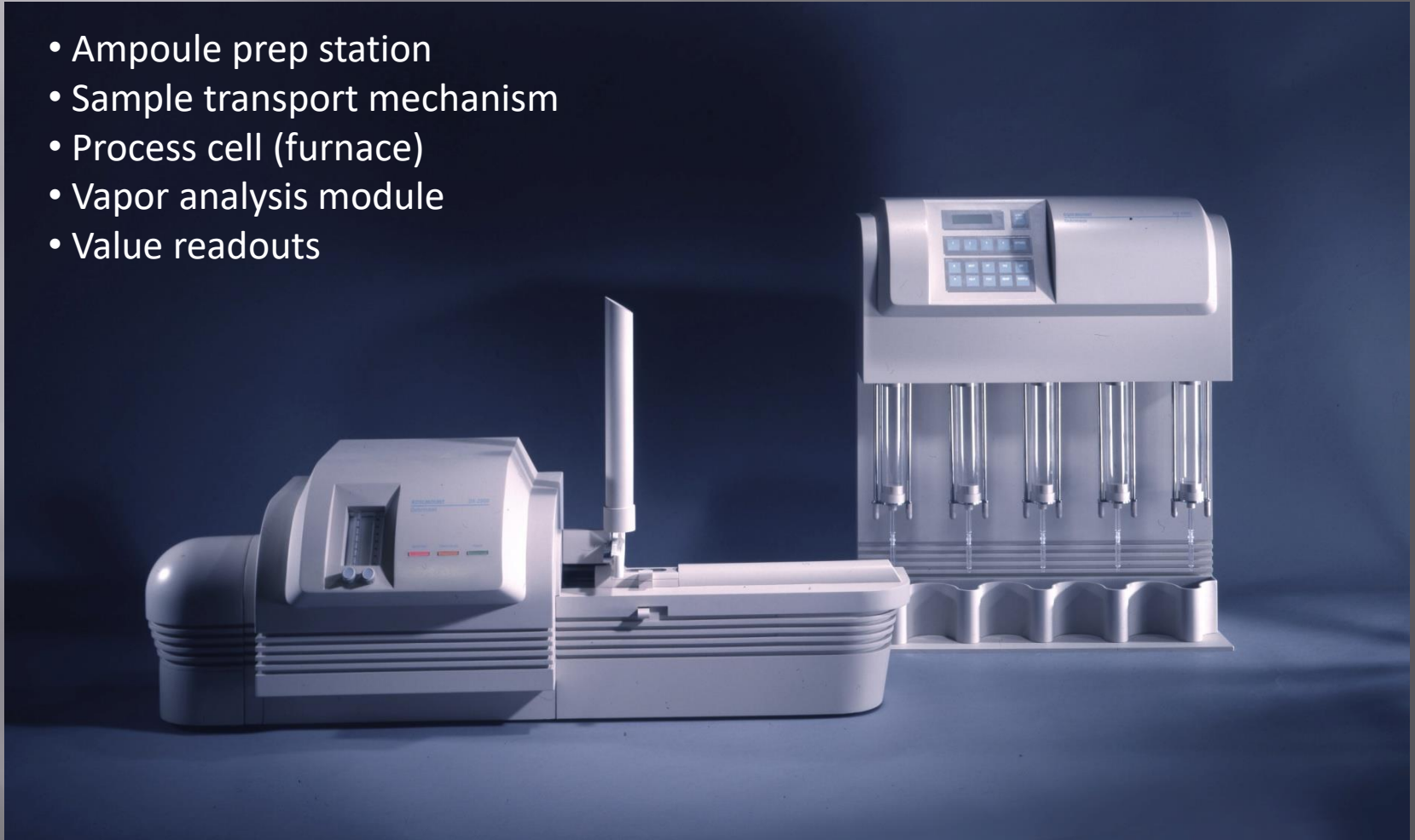


- KD assembly
- Quick change pen carousel
- Ergonomic Keypad
- SMC and sheet metal structure



Rosemont — Water Analysis System

- Ampoule prep station
- Sample transport mechanism
- Process cell (furnace)
- Vapor analysis module
- Value readouts



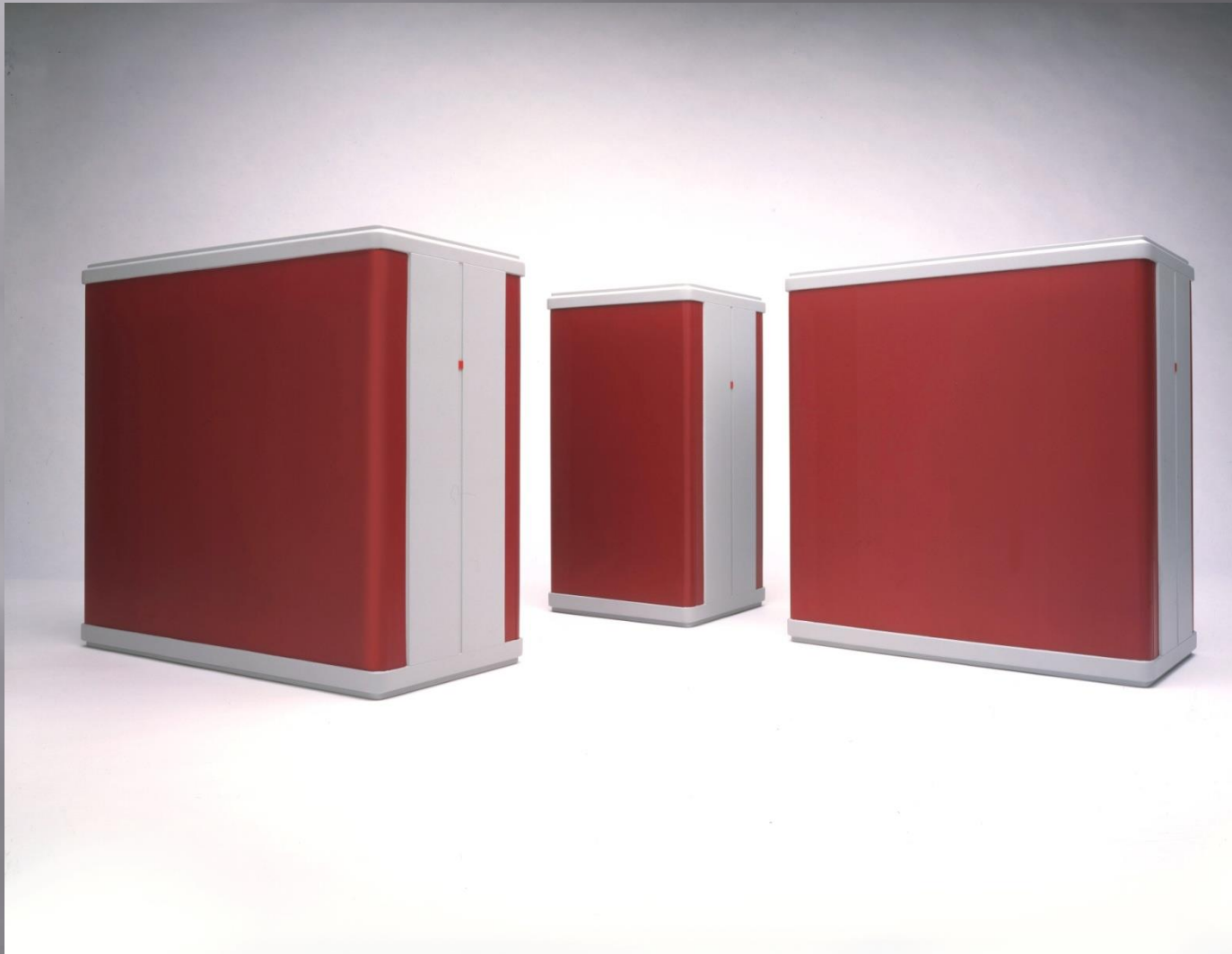
Used by municipal water districts — tests for organic halides

Amdahl — Triad Mainframe Computer



Faraday cage using rolling way cover with copper contact strip

Amdahl — Liquid Cooled Mainframe



CPU rack

Chilled liquid pumping module

Power module

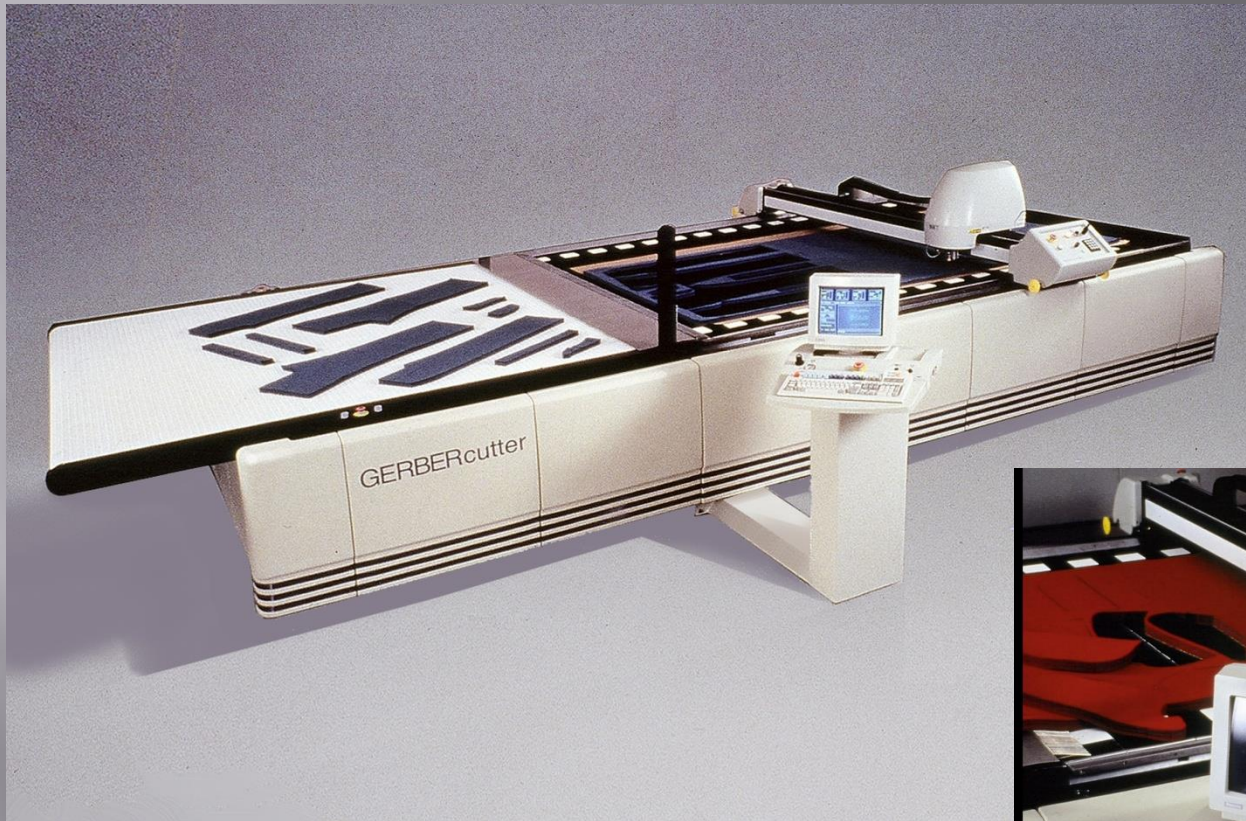
Varian — Semiconductor Fab



- Wafer load station
- Foot pedal and touch panel control



Gerber Scientific — Fabric Cutter



- Multi-ply production cutter
- Conveyor and XY motion control
- Workstation
- Sound damping side covers

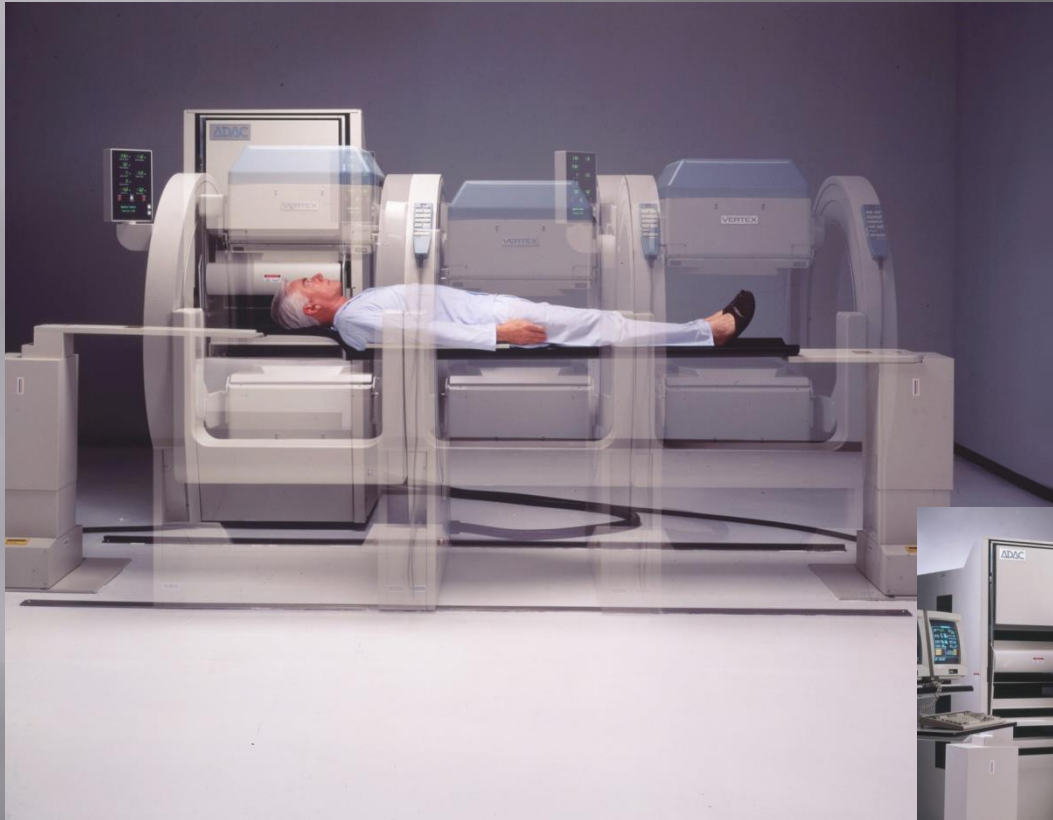


Gerber Scientific — Ultra Laser cutter



- 16' tall tower
- Mirror directed laser
- Cuts at 1400" per sec.
- Fume hood
- Safety lockouts
- GE/Fanuc laser
- Conveyor table
- Used for heavy single ply such as auto / airplane carpets

ADAC Philips — Genesys Camera



- Total body and SPECT scans
- Collimator loading station
- Operator interface
- Sheet metal and molded housings



ADAC Philips — Skylight Nuclear Camera

SPECT (Single photon emission computed tomography)



- Dual head system
- Overhead gantry
- Collimator exchanger at back wall
- Collision detection sensors beneath covers



ADAC — Skylight Nuclear Camera



In position for cardio scan

ADAC — Skylight Nuclear Camera



Horizontal body scan



Standing body scan

ADAC — Skylight Nuclear Camera



Dual patient scan

