



# YL INSTRUMENT CO., LTD.





# Overview

## We are..

- Researching,  
Developing,  
Manufacturing  
of  
Analytical  
Instruments and  
Supporting Sales &  
Service

## Mission

- Rapid customer  
support  
around the world  
- Customized  
application  
support by experts in  
analysis  
- Development of the  
state-of-  
the-art analytical  
instruments

## Products

- GC and GC/MS  
- HPLC and LC/MS  
- Chromatography  
Data  
System  
- Water Purification  
System  
- FT-IR spectrometer  
- Gas Generator  
- Concentration  
Evaporator





# Milestone

## 1980's

- 1988. Aquapuri 312 WPS
- 1989. **First HPLC**, Model 9500 HPLC

## 1990's

- 1992. **First GC**, Model 680 Analog GC
- 1995. 2nd Generation 600D Digital GC
- 1996. Development of Autochro-WIN data system
- 1998. Acquired EM (Excellent Machine, Material, Mechanism) Mark for 600D GC  
Development of aquaMAX™ Basic Laboratory Water Purification System

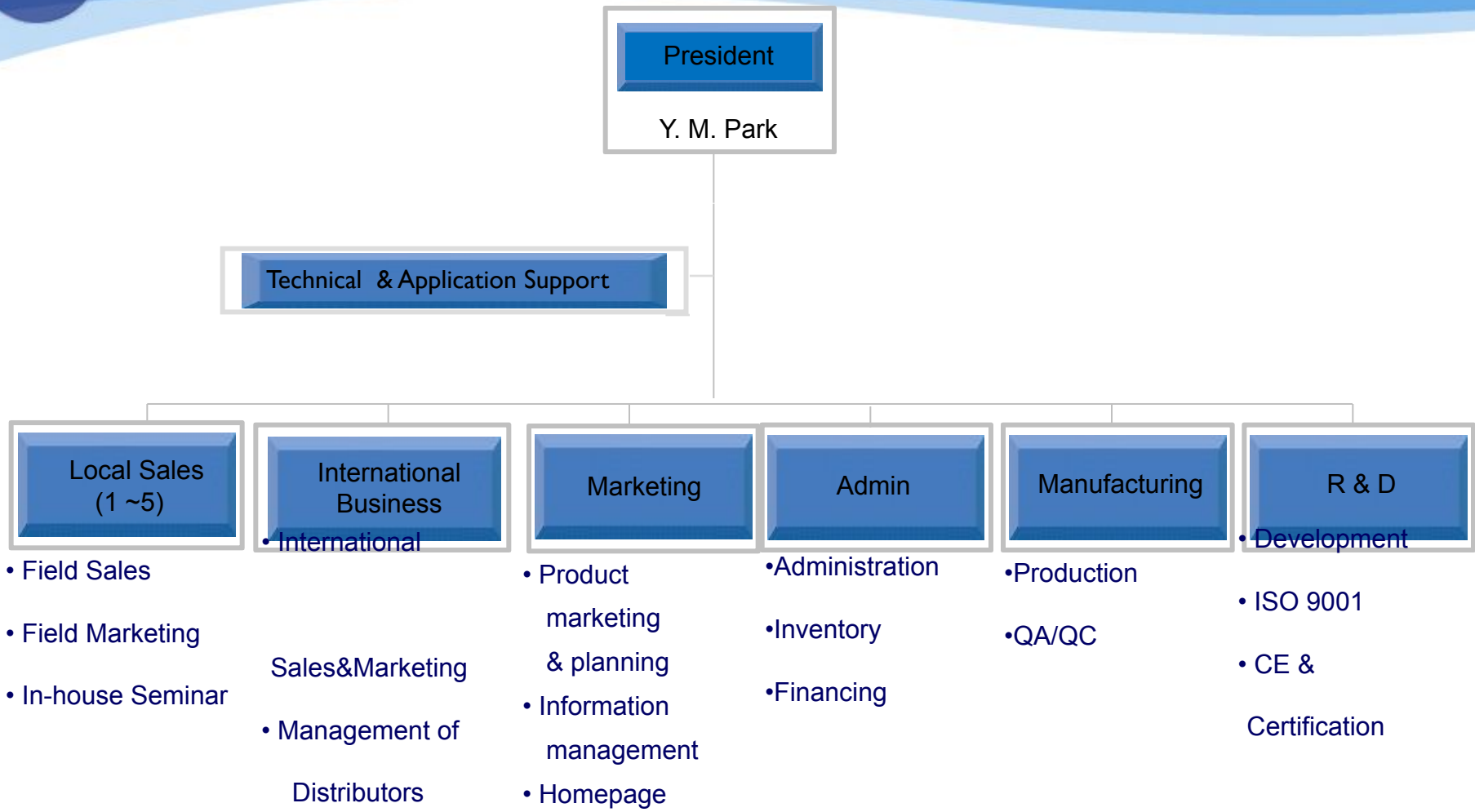
## 2000's

- 2000. Certified for ISO 9001 Quality Assurance System
- 2001. Development of Acme 9000 HPLC  
Development of aquaMAX™ - Ultra  
Development of Acme 6000 GC
- 2006. Development of YL6100 GC
- 2007. Development of New WPS
- 2008. Development of **YL9100 HPLC**
- 2011. Launching of New FT-IR, Gas Generator, Concentration Evaporator  
Development of **YL6500 GC**
- 2012. Development of YL9300 HPLC
- 2013. Launching of **YL9900 LC/MS**
- 2015. Development of **YL6900 GC/MS**





# Organization





# Products... YL9100 HPLC



## Features

- Ultra speed data processing by Network HPLC
- High performance detectors by versatile applications
- Sophisticated system control by YL-Clarity software
- Stylish and compact design for system upgraded

## Modules

- Quaternary Low Pressure Gradient Pump/
- Binary High Pressure Gradient Pump
- Isocratic Pump
- PDA Detector
- UV/Vis Detector
- RI Detector
- ELSD
- Vacuum degasser
- Temperature programmable Column Oven(cooling-standard)
- AT-3000/YL-Clarity software in compliance with 21 CFR standard
- Fully Automated system





# Products... YL9300 HPLC



## Features

- Compact Design
  - Integrated LPG HPLC system
    - : Vacuum Degasser + Quaternary Pump + UV Detector
  - Easily upgraded parts
  - Simple Maintenance
- Increased mobile phase composition efficiency
- Decreased solvent peak influence
- Greatly stabilized baseline with substantially minimized noise level
- Competitive or even lower price than others
- High speed data process by network (LAN) communication
- Low maintenance cost

## Modules

- Quaternary Gradient Pump
- UV/Vis Detector
- Vacuum degasser
- YL-Clarity software in compliance with 21 CFR standard
- Fully Automated system available with autosampler





# Products... YL9900 LC/MS



## Features

- Developed by small molecule, peptide and natural product MS experts & chemists for chemists
- A fresh new perspective to traditional MS products
- Analytical HPLC/MS and semi-prep HPLC/MS
- Fast warming up time to start analysis within 30 minutes
- No vacuum broken during cleaning and replacement of capillary

## Specifications

- Mass range: S model: upto 1,200 u (L model: 2,000 u)
- Scan Speed: 10,000 amu/s
- Ion source: ESI / APCI (option) / ASAP (option)
- Automatic polarity change: Positive / Negative
- Accuracy:  $\pm 0.1$  m/z
- Sensitivity: 10 pg reserpine  
(FIA - 5  $\mu$ L injection at 100  $\mu$ L/min)  
100:1 S/N(RMS) with SIM of m/z 609.3
- Software: YL-Clarity, Mass Express / Data Express





# Products... YL6500 GC



## Features

- High speed data process by network (LAN) communication
- Enlarged haptic color LCD(5.7") showing all factors at a glance
- Increased precision in pressure and flow rate of gas
- Various inlets and detectors installable up to three per each
- Ten heated zone
- Fully Automated GC with the Autosampler

## Various Detectors and Inlets available

- Inlet :Capillary/Packed /On-column Inlet
- Detector
  - Flame Ionization Detector(FID)
  - Thermal Conductivity Detector(TCD)
  - Micro-Thermal Conductivity Detector(u-TCD):
  - Nitrogen Phosphorous Detector(NPD)
  - Flame Photometric Detector(FPD)
  - Pulsed Discharge Detector(PDD)
  - Electron Capture Detector(ECD)
  - Pulsed Flame Photometric Detector(PFPD)
  - 6900 MSD (Mass Selective Detector)







# Products... YL6900 GC/MS



## Features

- High Efficiency Ion Source
- High Capacity Vacuum Pump
- High Performance Quadrupole Mass Analyzer
- High Sensitivity Detector
- Innovative designed MS hardware and software
- Easy Column Change

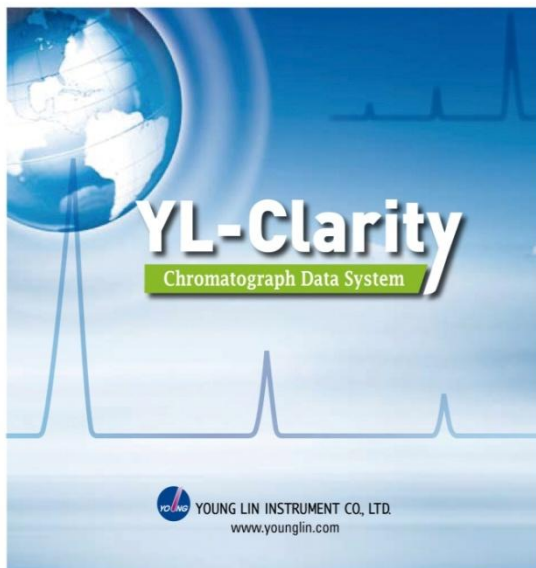
## Specifications

- Ion Source: EI (CI – option)
- Mass Range: 1–1200 u
- Resolution: 0.7 amu
- Max Scan Rate: 20000 amu./s
- Mass Stability:  $\pm 0.1$  amu /48 h
- Scan mode: Full, Segment, Selected Ions Mode, C
- Turbo pump: 240 L/sec (66 or 300 L/sec as option)
- Sensitivity (EI): Signal-to-Noise ratio  
1500:1 and more (1uL of 1pg/uL OFN, SIM)
- Instrument Detection Limit (IDL): < 10fg (100fg OFN, m/z 272)





# Products... YL-Clarity



## Features

- Complied with the 21 CFR Part 11 directive of the FDA.
- Direct control of YL9100 HPLC , 9300 HPLC, 6500 GC, YL9900 LC/MS, YL6900 GC/MS
- Control of 4 instruments/12 detectors
- Versatile functions: Integration, Overlay, Calibration, Post run, Export, Import, Method and calibration history, Column performance, etc.
- Control of All autosamplers
- Compatible with MS Window XP and Vista (32 bit), Window 7 and Window 8

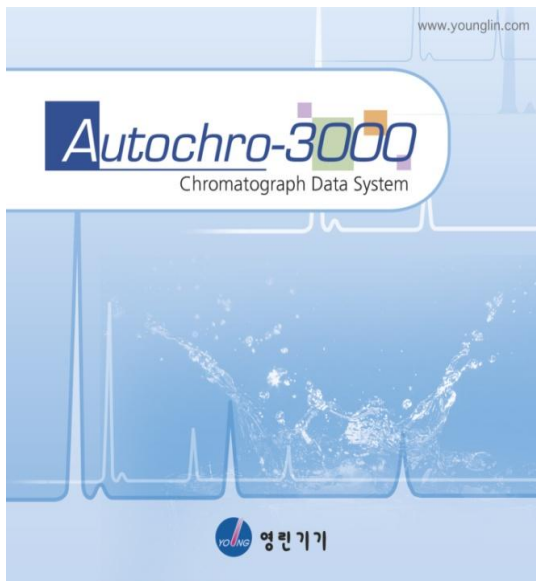
## Optional Modules

- 3D PDA simultaneous data collection
- GPC, SST, NGA & Validation kit(OQ) available
- MS extension module and Library research





# Products... Autochro-3000



## Features

- Up to 4 channel and multi tasking
- Data visualization and Chromatogram overlay
- Data acquisition from all chromatograph equipments such as GC, HPLC and GPC
- GLP, GMP Feature
- Data management and Transfer results to other S/W, Excel, Word, etc.
- Full control of YL9100 HPLC and YL6100 GC
- Korean, English, Chinese
- Alias Autosampler control
- 6000 series/Headspace Autosampler control



# Products... Dedicated Analyzers



## Based on GC

- GC-Valve System for ASTM methods
- Residual Solvents Analyzer
- Blood Alcohol Concentration Analyzer
- Permanent Gas Analyzer/TOGA system
- Pyrolysis-GC Analyzer
- Others



## Based on HPLC

- Formaldehyde Analyzer
- Vitamin Analyzer
- Amino acid Analyzer
- Carbamate Analyzer
- Catecholamine Analyzer
- Sugar Analyzer
- Melamine Analyzer
- Others



# Products... aquaMAX™-Basic 360 Series



## Features

- Produces type III or type II grade water
- Meets or exceeds ASTM, CAP, ACS and NCCLS standards for purity
- Three purification stages in one compact system (RO Pre Pack, RO Post Pack, RO membrane)
- Low energy consumption, water consumption
- Noiseless system

## Applications

- Final rinsing of laboratory apparatus
- Microbiological media preparation
- Hydrogen generator / Humidifiers /
- Autoclaves / Stability testing chamber





# Products... aquaMAX™-Ultra 370 Series



## Features

- Produces **Type I** reagent grade pure water
- Meets or exceeds ASTM, CAP, ACS and NCCLS standards for purity
- Ultra-Pack Cartridge, UV filter (option), UF filter (option)
- 0.22  $\mu\text{m}$  filter for final production
- 0.5 ~ 1.5 L/min for flow rate
- TOC level : 1~5 ppb / 5 ~ 10 ppb
- Low level of heavy metal, pyrogen, particles and silicates
- Low energy consumption, water consumption
- Noiseless system
- Resistivity up to 18.2  $\text{M}\Omega\cdot\text{cm}$

## Applications

- Reagent and standards preparation  
for HPLC, IC, AA, ICP and ICP-MS





# Products...YL Gas Generators

## Features

- Improved Safety
  - Cost Saving
  - Simple Installation
  - Excellent Lab Efficiency
  - A lot of capacities
- 
- **Nitrogen Generator**
  - **Hydrogen Generator**
  - **Ultra Zero Air / Zero Air Generator**





# Products... YL FT-IR Series



## Features

- Reliable and Reproducible Data
  - No interference of humidity by desiccated and sealed interferometer
  - Stable wavelength emission by air cooled infrared sources
  - Shock-resistant by interferometer lock when transporting
- High Performance
  - Self compensated alignment at an optical system
  - DLATGS Detector with high sensitivity ,excellent linearity and broad spectral response
  - \*MCT detector is also available.
  - Fully controlled by PC
- Easy of Use
  - Data Acquisition by a software at a glance
  - Simple to control FT-IR and manage data at your fingertip
  - Library Search (Optional)

## Applications

Polymer analysis, Food research, Pharmaceutical research, Lubricant formulation and fuel additives, Environmental and water quality analysis, Biochemical and biomedical research, etc.





# Products...Hurricane Series

## Concentration Evaporator



### Features

- Microprocessor-controlled evaporation system for simultaneous
- Automated concentration of multiple samples with unattended operation
- Convenience, high speed and economical cost
  
- Heat-Treat Tempered Glass
  - Improvement of the corrosion resistance against strong Alkali and Acid
- Evaporated Solvent Exhaust System
  - Removal of noxious solvent by internal blower
- Microprocessor Control System
  - Perfect concentration condition and feedback control by digital micro controller.
- Precise Regulator
  - Easy to control pressure precisely by a high performance regulator.
- Optimal Temperature Control
  - Constant temperature in stable by a digital sensor & feedback relay.



# Customer Support

## Support Network

- Head office and 3 local offices
- Rent during repair at the factory

## User Workshop

- 2 days Operation workshop for HPLC and GC
- 1 day maintenance workshop for HPLC and GC

## Customer Support

## Direct Mailing

- Application Note
- Troubleshooting guide- FAQ

## Response Center

- Within 30 min Response
- Within 24 hours problem solving

## Application Support

- Method developing support
- Counseling
  - Analysis method
  - Troubleshooting
  - Application

## On-Line Customer Support

<http://www.ylinstrument.com>





# YL to the World

## Distributors List – 55 countries, 70 partners

### China and Japan

**India** : 5 distributors, Pakistan

### South East Asia

: Malaysia, Singapore, Taiwan, Thailand, Indonesia, Vietnam, etc.

### Middle East Asia

: Iran, U.A.E, Oman, Saudi, etc.

### Europe

:UK, Germany, Italy, Switzerland, France, Portugal, Spain, Turkey, Romania, Hungary, Latvia, Sweden, Russia, Hungary, Israel, etc.

**Central Asia** : Kazakhstan, Uzbekistan, etc.

**Africa** : Morocco, Tunisia, Algeria, Egypt, South Africa, Ethiopia, Nigeria, etc.

**South America** : Brazil, Chile, Colombia, Mexico, Argentina, Ecuador, Bolivia, Panama & Cuba, etc.

