



# AutoLAB

## Bench & Kilo Scale Reactor Systems



# WHY CHOOSE AUTOLAB?

## Flexible Platform for Any Chemistry

The AutoLAB is a modular, flexible reactor platform backed up by over 25 years in reactor design.

Innovative design features mean that AutoLAB meets every research need from simple daily use to more complex processes. Each AutoLAB is designed and built to match your chemistry.



## Complete Control for Increased Efficiency

The AutoLAB is designed to enhance productivity in the laboratory and that is why the AutoLAB comes with control and data capture software is offered as standard.

Benefit from better reproducibility and 24/7 operation through:

- | Full automated control and data logging
- | Real time monitoring
- | Built in safety controls with automated emergency shut-down procedures

The AutoLAB software control enables you to get the most from your reactor investment.

## APPLICATIONS

- | Hydrogenation
- | Polymerisation
- | Catalyst testing
- | Crystallisation
- | Synthesis

## Evolves with your Chemistry

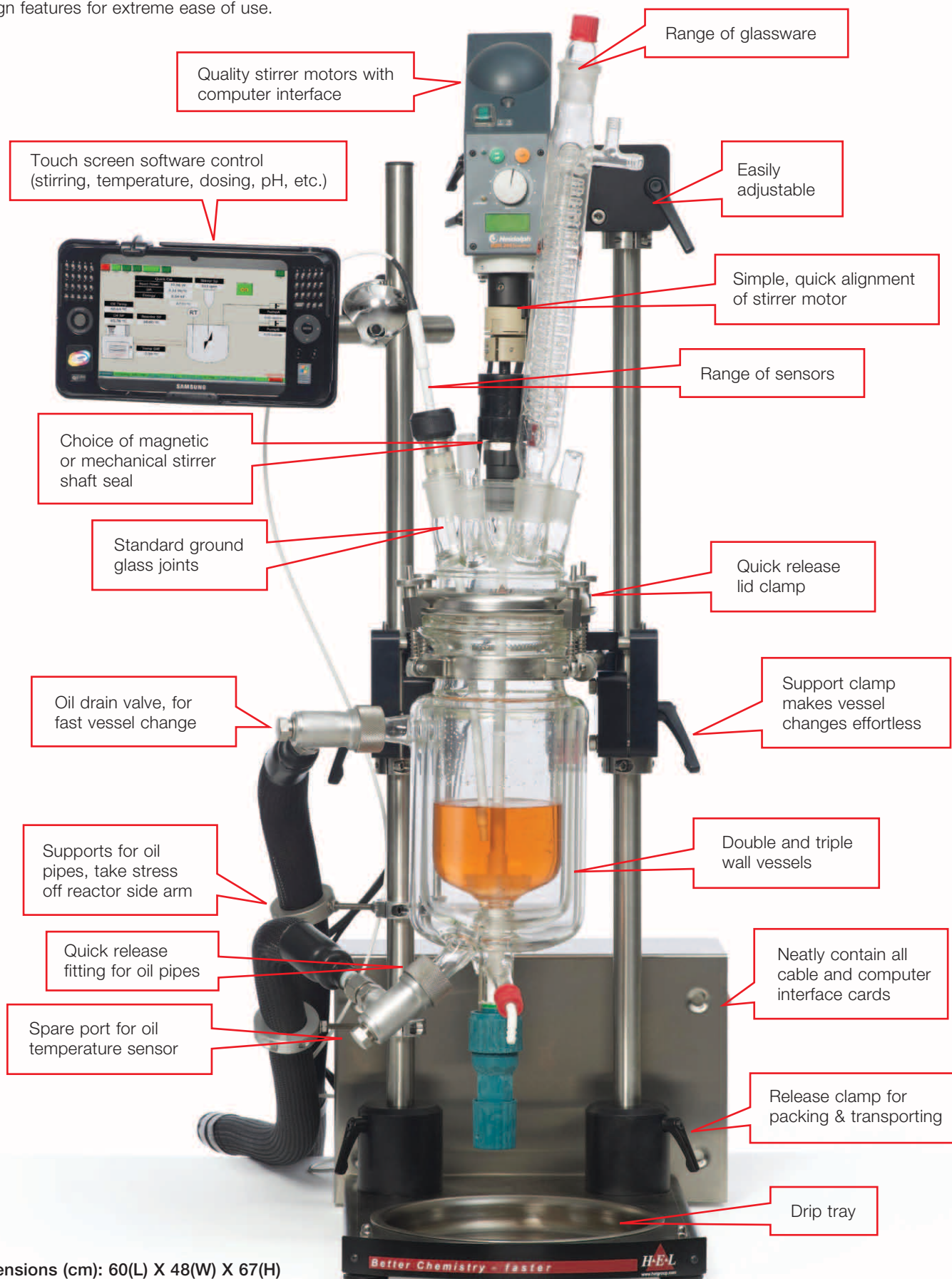
The AutoLAB can adapt over time to follow the evolving needs of Research and Development. Future proof designs allow effortless integration of new hardware and control features.



We supply the complete Turnkey Package!

# REACTORS MADE EASY

AutoLAB systems incorporate a number of design features for extreme ease of use.



Dimensions (cm): 60(L) X 48(W) X 67(H)

# AUTOLAB GLASS REACTORS

The AutoLAB offers a complete solution, configured to volume, control and process requirements. From simple benchtop to customised pilot reactors, systems are designed and engineered to meet any demand and all come with HEL signature control as standard. Glass reactors are available in standard atmospheric or medium pressure (up to 12bar) options.

## Bench Scale Systems (up to 5 litres)

Simple Jacketed bench reactor set-up within minutes and with intuitive touch-screen control.

Design Simplicity ensures **Ease of Use and Flexibility.**

- | Flexible stand design accommodates entire system in a compact footprint (L 60cm X W 48cm X H 67cm)
- | Quick connect features facilitating easy vessel exchange in minutes
- | One system - different volumes with the reactor lid fixed different volume vessels can be interchanged quickly



Combine high and low pressure reactors on **dual stand** with full control and data logging



Pressure glass reactor double jacket (up to 12bar)



# AUTOLAB HIGH PRESSURE REACTORS

## AutoLAB Multi purpose high pressure reactor features

- | Available in a range of sizes and materials - stainless steel, hastelloy, titanium, etc
- | Pressure option to 100, 200 or 350bar and temperature to 250°C, 350°C and 500°C
- | Electrical or oil jackets for temperature control
- | Bench or trolley stands with compact designs
- | Customisable cover plates with a range of accessories
- | Simple vessel exchange
- | Combine with other reactors on a multi reactor stand



Bench standing design



Viewing window allows visualisation of the reaction

**Special and customised systems are a speciality and are designed to order**



Floor standing design



Parallel high pressure reactors, independently controlled, for hydrogenation

# TAKE CONTROL

When it comes to reactors we believe in taking control. That is why each AutoLAB comes with our proprietary state of the art software. In keeping with the flexibility of hardware design a number of control and data management options are possible.

The simple MicroNOTE touchscreen interface allows immediate, intuitive access to the complete system. ▶



For more involved processes and advanced data management, upgrade to our WinISO software which allows complex recipe construction, full downstream data analysis and gives comprehensive custom safety controls.

Mimic screen gives interactive graphic of entire system

Tabular and graphical displays of real time data

Unlimited step recipe planning which allows online editing at anytime without process interruption

Decide on how the system should respond to process conditions

Parameter	Value
Hardware OK:	TRUE
Reactor Temp (°C):	49.562
Circulator Temp (°C):	39.969
Speed (rpm):	133.85
Oil In Temp (°C):	0.0000
pH:	0.0000
Harvard Flow Rate (ml/min):	0.0000
Pump 1 Total Amount Fed (g):	0.0000
Pump 2 Total Amount Fed (g):	0.0000
Harvard Vol Total Amount Fed (ml):	0.0000

CONTROL	METHOD	Set Value	Exha Value
Reactor Temp	Constant	50.000	
Temperature controls	Not Available		
Heater	Not Available		
Stirrer	Speed	500.00	
pH	Off		
Harvard	Off		
Precipitant Pump Feed	Off		

Termination	Value
Stop Time (mins)	> 300.00
Step Time (mins)	> 300.00

The following standard signals can be monitored/controlled:

- | Temperature
- | pH
- | Stirrer speed
- | Torque (for viscosity indication)
- | Pressure
- | Feed rates - solid or liquid feeds
- | Solubility and super-solubility
- | Automated sampling
- | Other 3rd party segments
- | And many more...

**Export data functions and support for integration with in-house electronic and record keeping systems**

# CONTROL AND LOG ANY DEVICE!

Control and log any device. With 25 years in the business there is little we haven't integrated into the AutoLAB platform.



Circulators



Automated Sampling



Reflux/Distillation



Process Monitoring Probes



On line Calorimetry



Liquid dosing



Gas consumption or evolution measurement

And many more - just ask!

## BEYOND THE BENCH

**Kilo Lab Reactors and Larger Customised systems.** Take advantage of our wide ranging experience and knowledge and we can design a system ideally suited to your needs.



▲ Floor standing reactors available to 50 litres. Ergonomic design with fully portable infrastructure

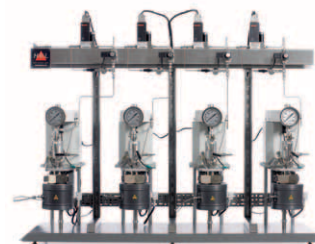
▼ Low and high pressure reactors with Reflux control, liquid addition and coupled with HEL PolyBLOCK



▼ Parallel high pressure reactors, independently controlled, for hydrogenation



▲ Multi Reactor systems designed for parallel process from a single software setup





## ABOUT HEL

HEL is an international company that specialises in research and pilot scale chemical reactors and related data logging/automation tools for process R&D in the pharmaceutical, fine chemical and petrochemical industries. Established in 1987 and with clients worldwide our key strengths are:

**Knowledgeable staff** - highly qualified and experienced chemical engineers and chemists

**Quality** - underpinned by ISO9001 certification for over 20 years

**Service** - choice of service contracts backed by established culture of unmatched client support

**Range of products** - both off-the-shelf and custom designs, manual and fully automated controls, low and high pressure/temperature applications, single and parallel/multi-vessel products

## CONSULTANCY & TESTING SERVICES

Over the past 25 years we have developed expertise and become industry leaders in:

- | Reaction hazards, calorimetry, vent sizing
- | Process development and optimisation
- | Dust and powder flammability
- | Other hazard consultancy services, including expert opinion, HAZOPS, DIERS, incident and accident investigation and professional training



better chemistry – faster

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e: [info@helchina.com](mailto:info@helchina.com)  
e: [dach@helgroup.com](mailto:dach@helgroup.com)  
e: [info@helindia.com](mailto:info@helindia.com)  
e: [helitalia@helgroup.com](mailto:helitalia@helgroup.com)  
e: [marketing@helgroup.com](mailto:marketing@helgroup.com)

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HEL Ltd // UK HEADQUARTERS // 9-10 Capital Business Park //  
Manor Way // Borehamwood // Hertfordshire //  
WD6 1GW // UK  
t: +44 (0) 20 8736 0640 f: +44 (0) 20 8736 0641  
e: [info@helgroup.com](mailto:info@helgroup.com)

HEL Inc // US HEADQUARTERS //  
4 Princess Road // Suite 208 //  
Lawrenceville // New Jersey // 08648 USA  
t: +1 609 912 1551 f: +1 609 912 1552  
e: [info@hel-inc.com](mailto:info@hel-inc.com)

[www.hazards.co](http://www.hazards.co)  
[www.helgroup.com](http://www.helgroup.com)