



One Touch Automated Microwave Sample Reactor
OMC-3000 with PC Controller & Software





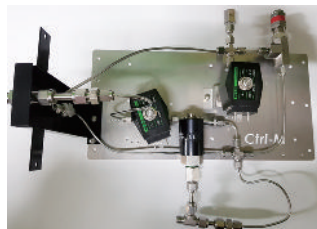
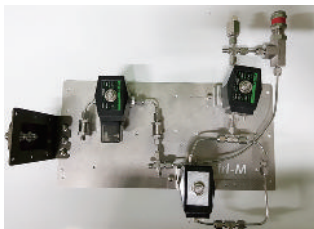
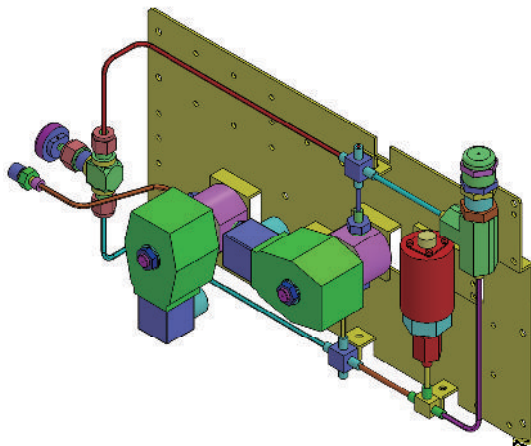
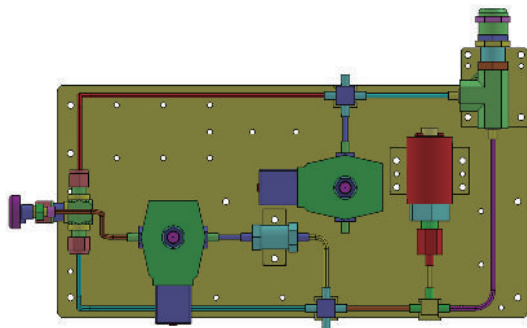


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Mount Samples and Leave!
Day and Night - Reliably, Precisely and Unattended!

OMC-3000 is the first system to utilize automation technology of Super-One Microwave Digestion System. The system rapidly cools to room temperature, expels the digested sample and ready to analyze the sample. Automation permits very high throughput while maintaining total sample integrity for Ultra Trace Analysis.



In conventional experiment apparatus, after the sample is put into the pressure vessel, the clamp should be air-tightly fixed by manually tightening the bolts. After the reaction is completed, the clamp should be released by manually untightening the bolts. Depending on the types of the sample, a harmful gas to a human body may be generated as a reaction product. This poses a problem in that an user may inhale the harmful gas when personally fixing and releasing the clamp. Since the clamp is manually fixed, the applied force for tightening the bolts can vary each time. If the bolt is weakly tightened, the sealing of the pressure vessel may not be properly achieved. In the case where a reaction occurs in such a state that the pressure vessel is not properly sealed, the reaction may not be performed in the right way and a gas may be leaked from the pressure vessel. This circumstance may lead to disaster.

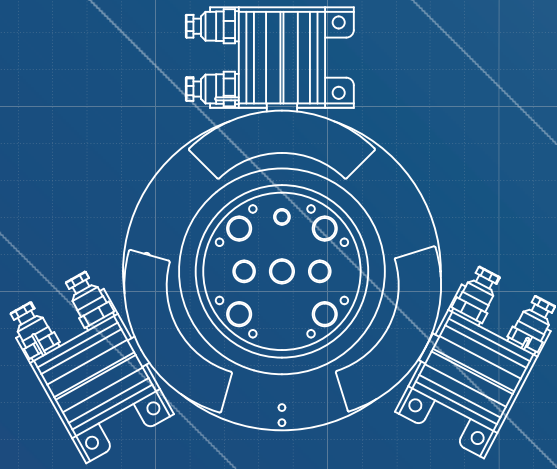
Further, during the reaction, depending on the type of materials used as a reactant, an acid material may be produced as a product. The produced acid material causes corrosion of parts and pipes for transporting gas provided inside the experiment apparatus. If such parts and pipes undergo corrosion, then the affected parts and pipes need to be replaced. However since each parts and pipes are independently arranged inside the experiment apparatus, it would be difficult for an ordinary user to replace the parts and pipes which should be delicately dealt with.



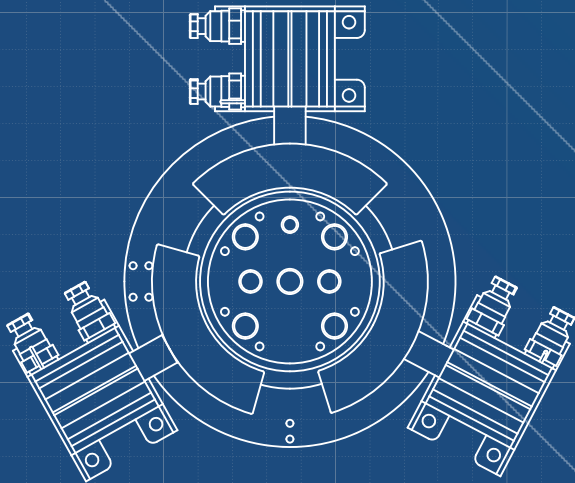
In view of the aforementioned problems inherent in the related art, the Ctrl-M Scientific. Model OMC-3000 provide an automated experiment apparatus and an automated experiment method which are capable of automatically performing an experiment from beginning to end without a manual operation.

As a result, it is possible to prevent a risk of gas leakage and human exposure to a harmful gas due to a manual operation.

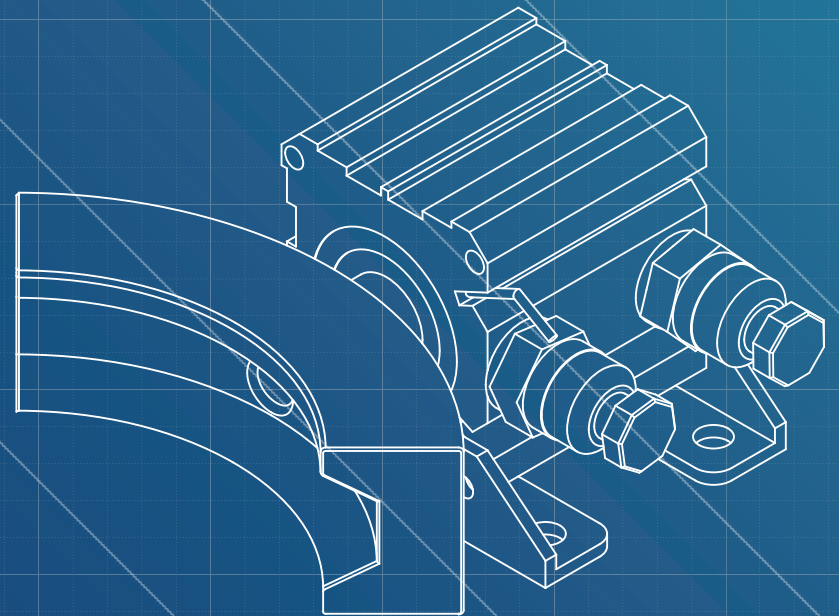
The system comprises a controller which is configured to automatically perform a reaction process under a predetermined temperature and pressure in a state in which a sample holding member is air-tightly fixed to a pressure vessel and sample is accommodated in a sample receiving chamber of the pressure vessel. Furthermore, according to the embodiments, the parts and pipes for transporting gas can be easily replaced.



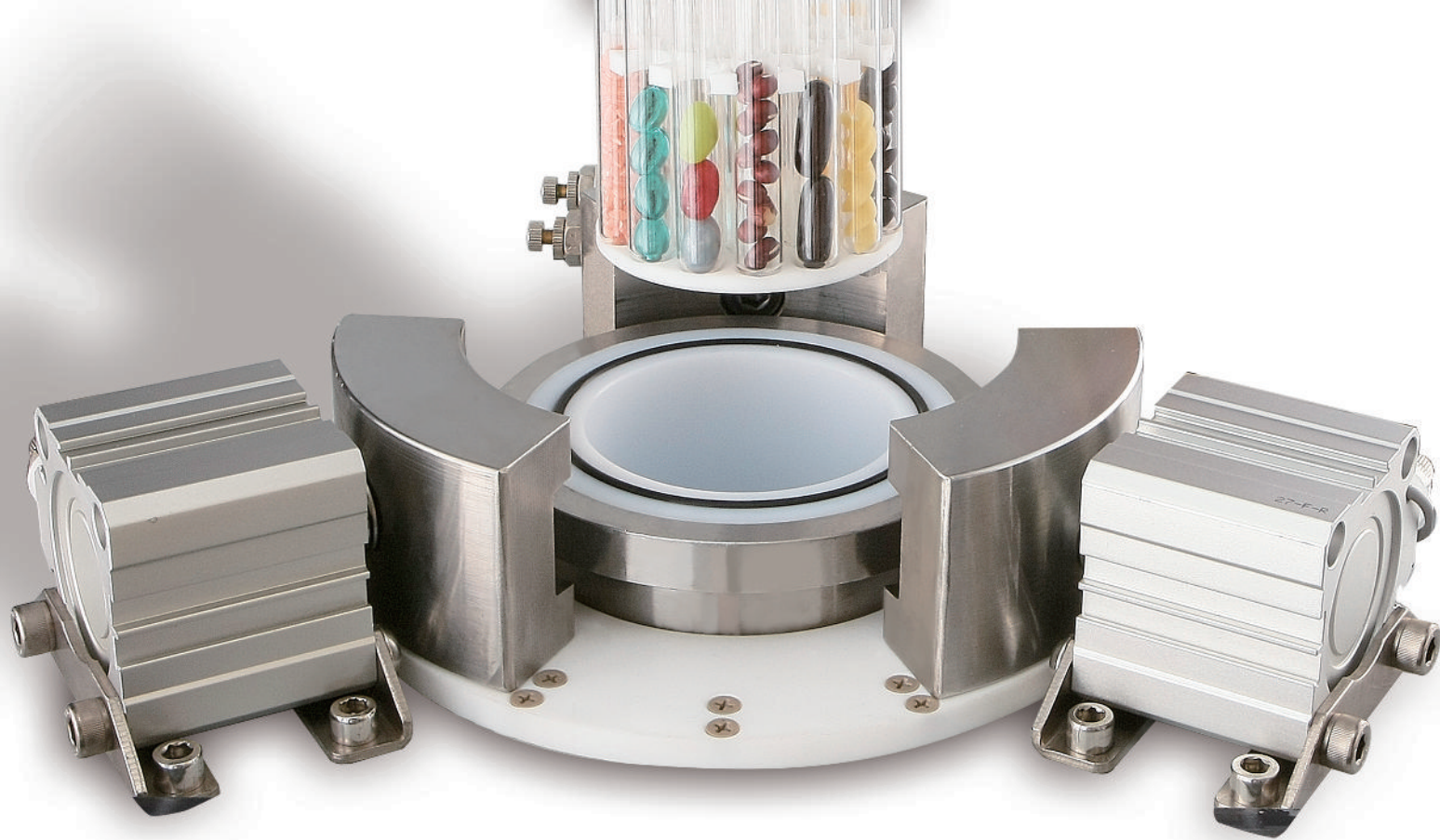
Automatic Clamp Lock



Automatic Clamp Unlock



Automated Clamp

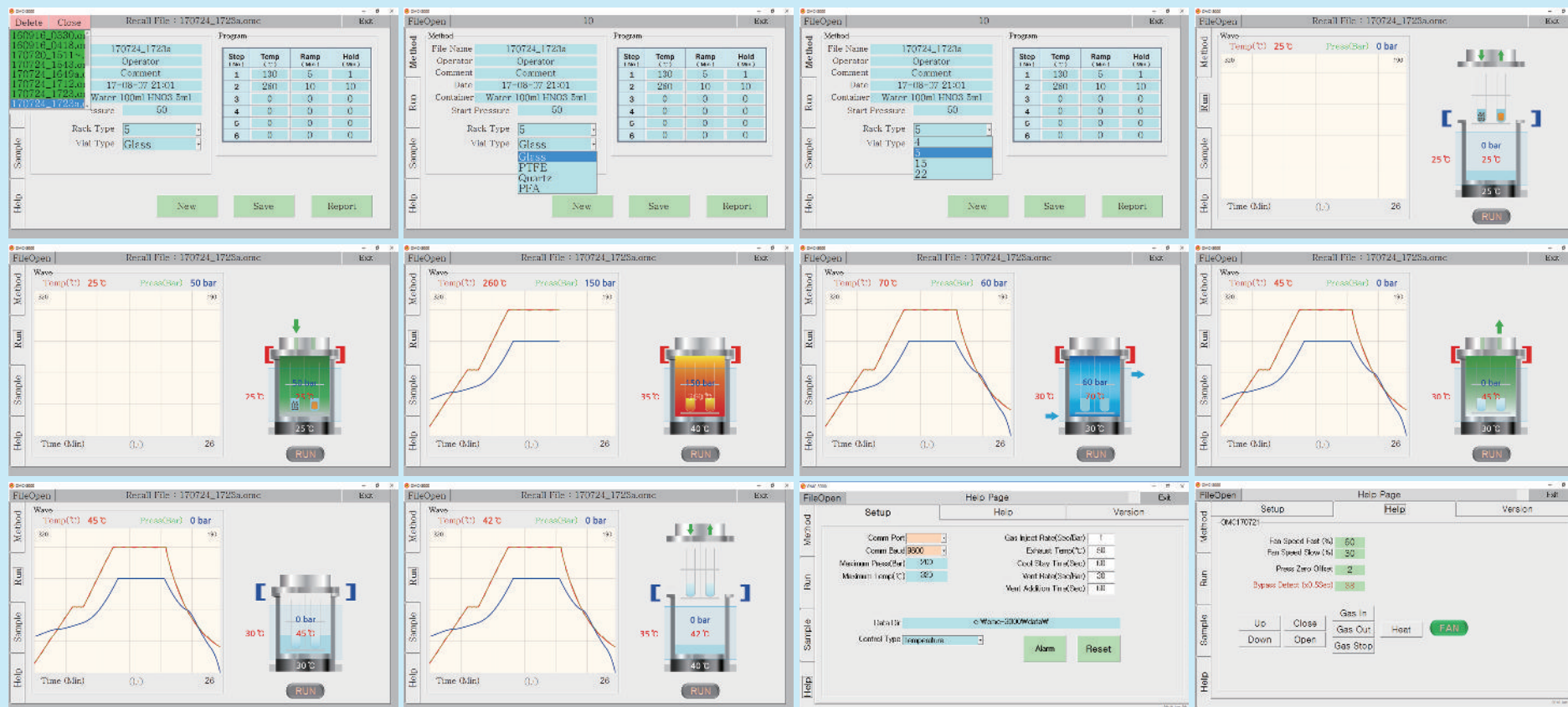


Three clamps configured to air-tightly engage the chamber cap flange and chamber container flange wherein each of three clamps includes a clamp head having a groove configured to engage with the chamber cap flange and chamber container flange and actuator connected to the clamp head; A sensing unit configured to sense at least one of an upper position and a lower position of chamber cap and to generate a sensing signal
; A user interface configured to receive an input from an user
; And a controller configured to receive the input signal from the user interface and the sensing signal from the sensing unit to control the actuator of each of the clamps in response to the input and the sensing signal, wherein the actuators are controlled by controller to cause the clamp heads to make a transverse movement in a radial direction of the vessel flange to engage or disengage the cap flange and the container flange.



A transparent replaceable window is configured to cover an upper portion of the main-body. The window functions as a safety shield curtain capable of preventing leakage of a gas to the outside. It is also made of 10mm thick Polycarbonate including door with lock.

As a result, it is possible to prevent a risk of gas leakage and human exposure to a harmful gas due to a manual operation. The system comprises a controller which is configured to automatically perform a reaction process under a predetermined temperature and pressure in a state in which a sample holding member is air-tightly fixed to a pressure vessel and sample is accommodated in a sample receiving chamber of the pressure vessel. Furthermore, according to the embodiments, the parts and pipes for transporting gas can be easily replaced.



Portable Acid Protection Box

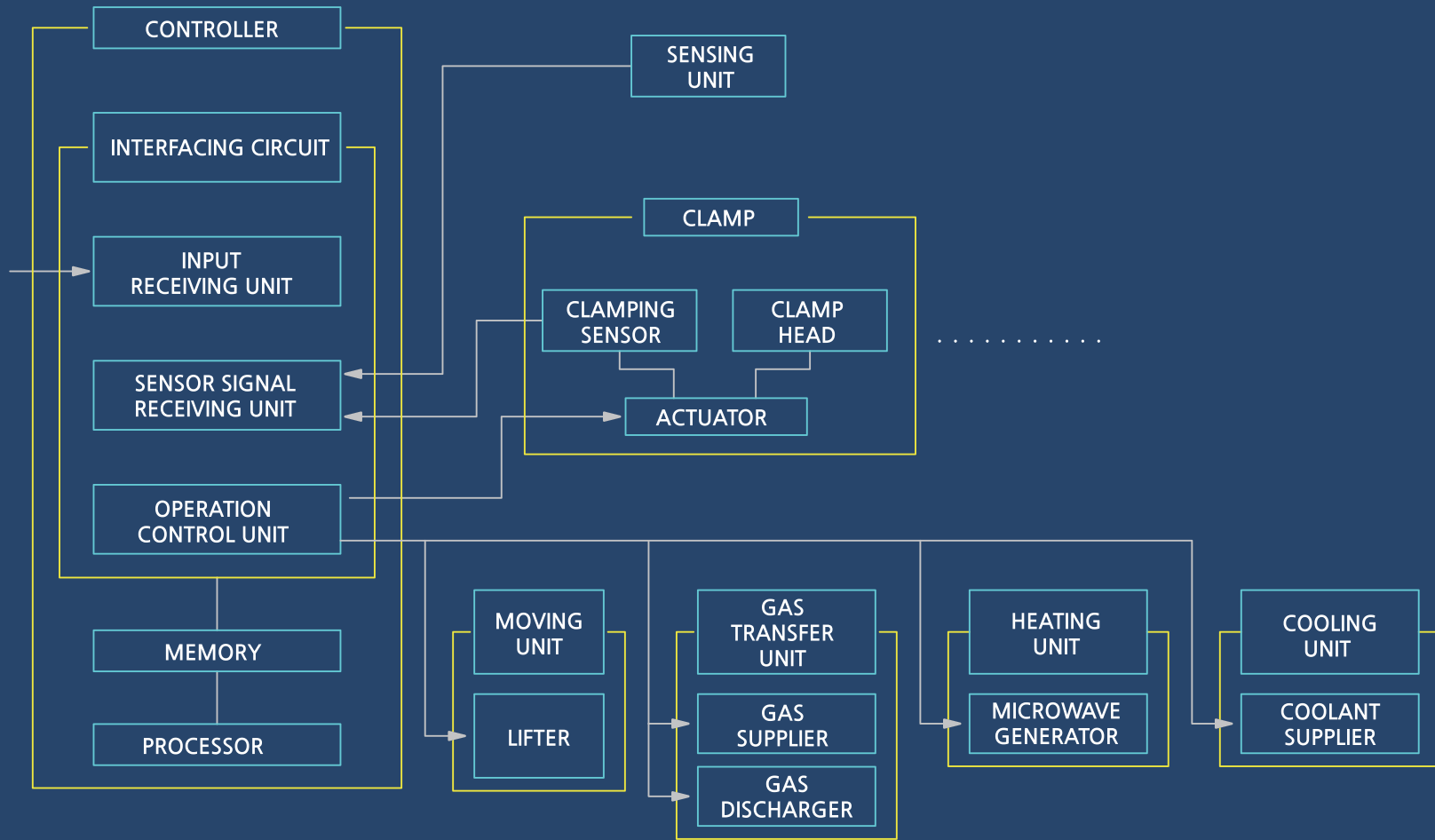
Before and after the digestion when you move the sample rack from the fume hood to the chamber of OMC and vice versa, the significant acid gas causes considerable contamination of the clean laboratory. The "Acid Protection Box" is a very useful device.

Fume Protection Lid

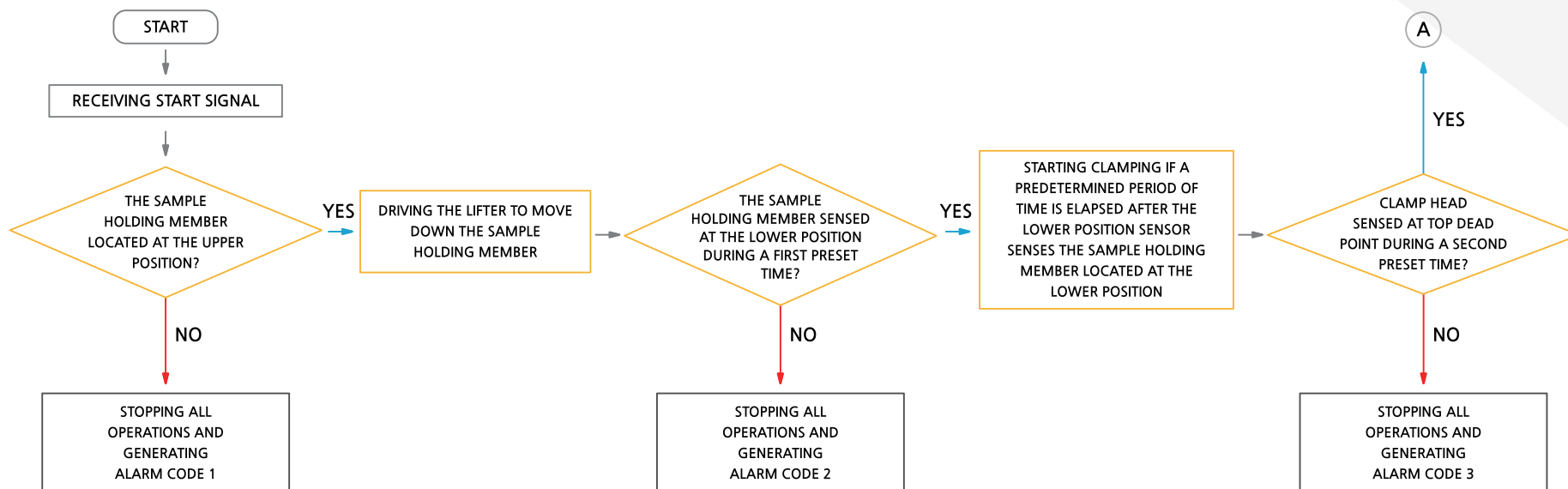
When you move the Teflon container, it is used to prevent the acid fume contamination of the clean room.



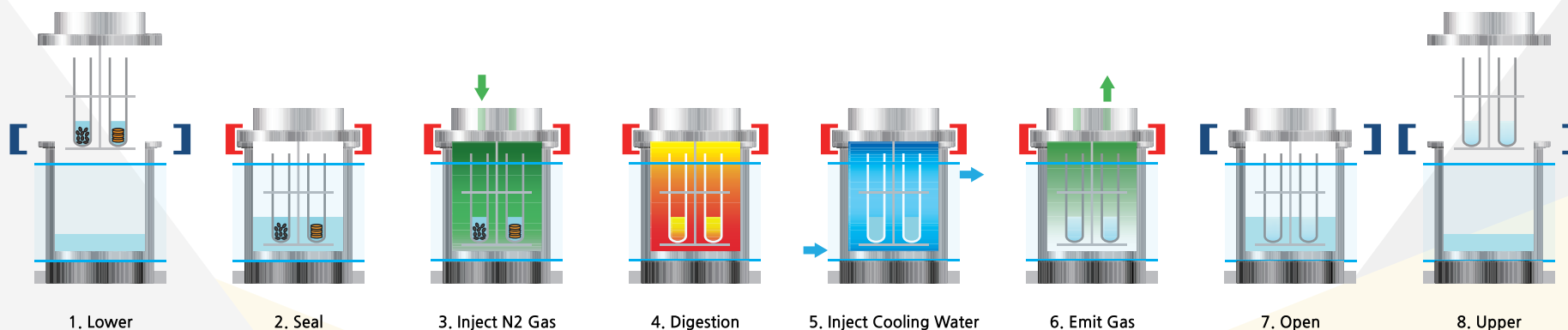
Control Block Diagram



Flow Charts for explaining the automated experiment method



Automation Sequence



04 System Specifications

System Specifications

※ Subject to change without notice

Automation	Fully Automatic (From Beginning To End)	Vial Stopper	PTFE
Certification	CE for the safety of pressure and temperature	Weighing Holder	Poly-Propylene for weighing sample
Operating	Up to 200 bar, 300°C	Microwave power output	Up to 1500 Watts
Pressure sensor	Direct reading the sample pressure	Magnetron frequency	2450 MHz
Temperature sensors	RTDs, for Sample, Outer chamber, Magnetron, Waveguide	Gas Control Module	Attached detachably, making it easy for an unskilled operator to replace
Volume of Chamber / Container	Stainless Steel, 1,000ml TFM	Safety Shield	Fixed on main body, 10mm thick Poly-Carbonate with extra blower opening
Available Rack Position	4, 5, 15, 22	Exhaust	Max. 160 CFM, Automatic PC control, Variable speed
Vial material	Disposable Glass, Teflon, Quartz etc.	Clamps	Automated, Pneumatic 3-Blades Cylinders
Available Rack	4, 5, 15, 22 positions	Lift	Automated Pneumatic 2-Pistons Cylinders
Vial materials	Disposable Glass, Teflon, Quartz etc.	Software	
Max. Sample weight (dry)	20g = 4g/ea X 5 positions	E-Stop	Emergency Stop when malfunction during digestion runs

Additional Facility

▶ Controller : PC (Tablet, Notebook, Desktop)

Operating System : Window 10

USB Port : For data communications and battery charging



▶ Air compressor

More than 1 HP



▶ Coolant circulator (Chiller)

5°C to 25°C

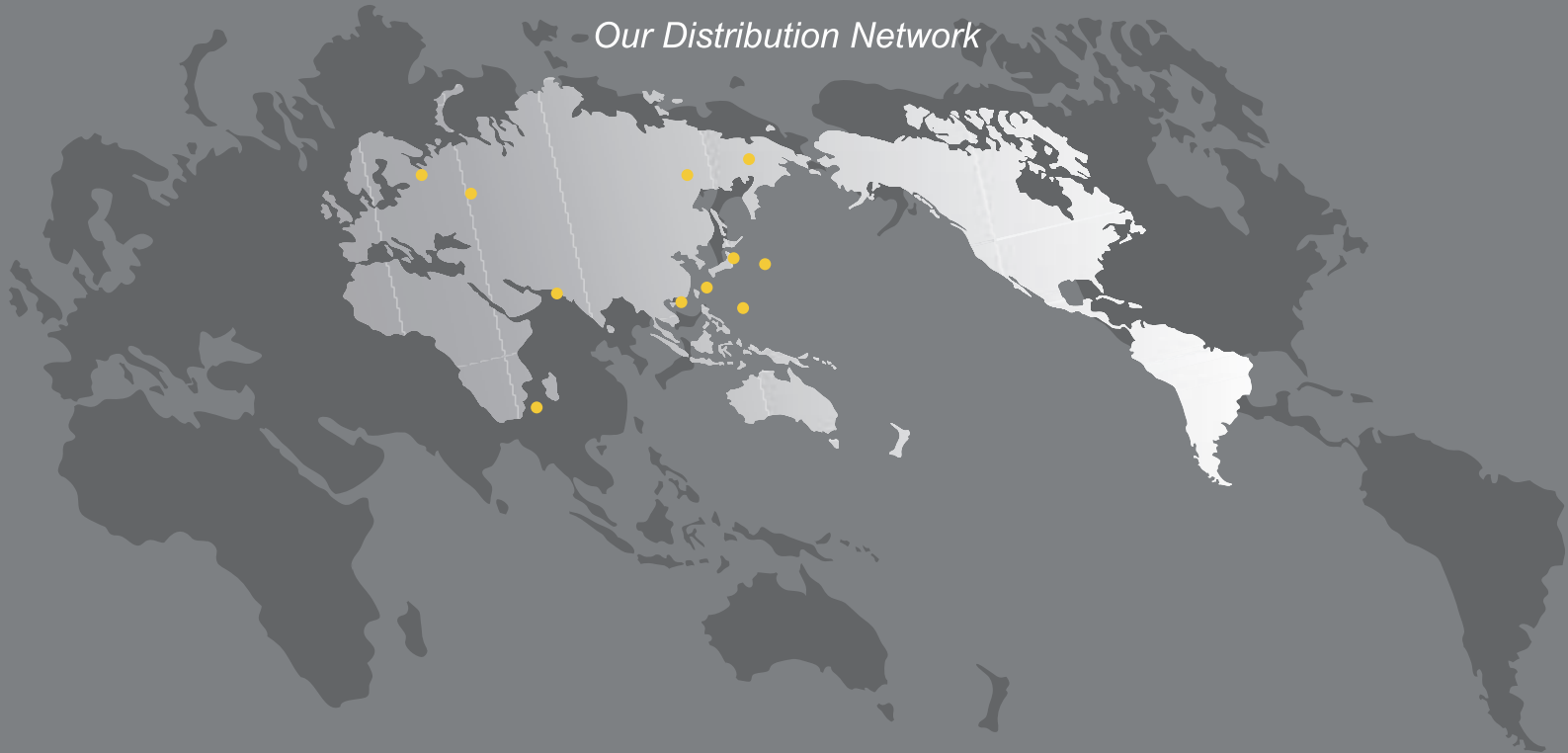


▶ Gas (N2) Supply

Over 100bar



- Our Distribution Network



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CE Certification





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