

# WASHING & DRYING

cGLP Process Equipment for Research  
and Microbiological Laboratories



LAB DIVISION



ADVANCED SOLUTIONS FOR INFECTION PREVENTION





## Company

**LAST Technology** is the worldwide provider for cleaning, decontamination, disinfection and sterilization equipment for the life science & healthcare sectors. **LAST** takes its name from the Italian words “**LA**vaggio” (washing) and “**ST**erilizzazione” (sterilization) combined together with the concept of “**latest**” as the most innovative and newest, and “**lasting**” to describe durability and reliability of its products.

A group of experienced managers incorporated the company in Prata di Pordenone, a town near Venice (Italy). Starting with the idea of a business center of excellence, this young and innovative company is, thanks to the continuous investments in high standards and research, a leader in engineering and manufacturing, designing and developing the most innovative and effective technologies for the improvement of the quality of life of everyone.



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## LAB division

**LAST Technology's** LAB Division was developed to provide research and development laboratories of Life Sciences with the highest quality washing, decontamination, disinfection and sterilization equipment. The devices are developed to ensure the safe treatment of contaminated and dirty material to prevent from infections in laboratory environments. Higher performances with lower consumptions and reduced footprint dimensions to fit in every research department. Innovative design and process reliability, user-friendly solutions and many available accessories is what makes the difference in LAST Technology's products.

**AQUA** is the Series of LAB washers developed by LAST technology. The state of the art of the washing machineries is guaranteed by their modular design, high efficiency, high-ended finishing, reduced consumption and tailored-made loading accessories for every kind of lab material.



LAB division



**The perfect washing  
and drying process**





## Designed for

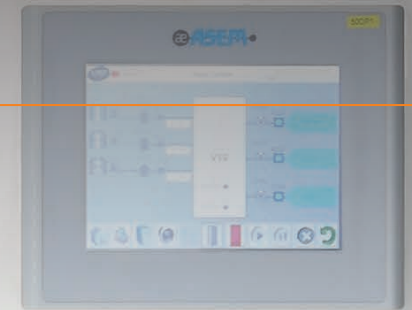
The Washer type **AQUA** is particularly designed for process cleaning, disinfection and decontamination of materials used in research laboratories such as glassware, metal parts, plastic and rubber components, etc.

## Comply to

- Quality Management (**ISO 9001:2015**)
- Current Good Laboratory Practice (**cGLP**)
- US Food and drug Administration (**FDA**)
- Code of Federal Regulation Title 21 (**FDA 21 CFR part 211 and 212**)
- Code of Federal Regulation Title 21 (**FDA 21 CFR part 11**)
- Washer-disinfectors-general requirements, terms and definition (**ISO 15883-1:2014 and BS EN ISO 15883-2:2009**)
- Safety Requirements for Electrical Equipment (**IEC 61010-1:2010**)
- Safety Requirements for Electrical Equipment (**IEC 61010-2-040:2015**)
- EMC Directive (**IEC 61326-1:2012**)
- Governing directives for affixing the **CE** mark – machinery directive (**2006/42/EC**)
- Underwriters Laboratories (**UL**)
- Canadian Standards Association (**CSA**)
- Occupational Health and Safety management systems (**UNI ISO 45001:2018**)



LAB division

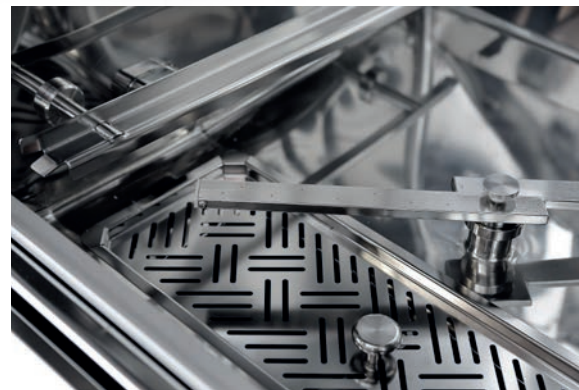


**Heavy-duty  
modular design**



## Solid Construction

- Square or rectangular cross section chambers of single-wall type made of 316L or 316Ti stainless steel
- Innovative centrally located sump made of 316L or 316Ti stainless steel
- Piping completely made in flexible silicone tubing and air ducts completely made in 316L stainless steel with sanitary fittings (tri-clamp ferrules and hygienic flanges)
- 3 degree piping slopping to the floor drain
- Product contact surfaces mechanically polished to a degree of roughness below 1 micron (40 micro inches)
- All internal corners of the chamber are rounded to guarantee a perfect cleaning
- Chamber doors of manual hinged or automatic vertical/side sliding type (door frame made of 316L or 316Ti stainless steel with HST tempered glass window for an internal visual inspection)
- Chamber-door sealing by unique design of silicone gasket
- Components and instruments made of 316L/316Ti stainless steel and FDA approved elastomer (21 CFR part 177)
- Chamber, doors, piping, components and instruments are properly insulated by an advanced type material
- Areas separation by means of bio-seal frame made of 304 or 316L/316Ti stainless steel
- Brand new design of cart connection with self-ducting and self-disconnection system (100% guarantee of no leak)
- Ergonomic product loading of manual or automatic type
- Floor or above the floor loading solution







LAB divisjon

**Interactive technology**





## Process Features

Pre-selected and custom-made programs for any need. The machine process is developed by our Automation Department following the current codes/standards and type of product to be processed. From dirty to product ready to be sterilized; passing through a pre-washing, washing with chemicals, rinsing and final hot air drying (HEPA 13 filtered). Keeping under control the water T.O.C. level, the conductivity and the PH. During the phase of product washing, chemicals may be injected through an accurate and reliable system to improve the cleaning action of the machine.

## Supervision, Traceability and Control System

Machines automated by a Programmable Logic Controllers (PLC) which guarantee high level reliability. The Human Machine Interface (HMI) is guaranteed by a touch screen Operating panel (OP). A PID based control manage all machine parameters, recipes, settings, sequence of operations, and their storage. The brand commonly used for hardware and software are Siemens, Allen Bradley and Asem.

## Remote Control

All machines are equipped with a software for the remote control. The application can be installed in any iOS and Android devices. The system allows the remote control of the machines via wireless connection. Operators do not need any longer to be in the same room of the machine to control the progress of the cycle and get a notification for any problem with the machine. Multiple number of machines can be controlled through this simple APP from a single source (device).

LAST Cycle Report			
Machine ID <b>160043</b>			
Cycle ID	108	Program	0
Start Date	22/02/2017 08:12:55	End Date	22/02/2017 11:11:03
User name	lastservice	Cycle result	Interrupted
Cycle Data			
Product Code	Mix	Order	Description
			COLLAUDO
Recipe data			
Washing number	0	Rinsing number	3
Washing 1 Temperature [°C]	85	Rinsing 1 Temperature [°C]	50
Washing 1 Time [min]	5	Rinsing 1 Time [min]	5
Washing 1 Water type	1	Rinsing 1 Water type	0
Washing 1 Detergent type	1	Rinsing 1 Reps	1
Washing 1 Detergent quantity [ml]	100	Rinsing 2 Temperature [°C]	45

Washing 2 Detergent quantity [ml]	100	Rinsing 3 Water type	1
Washing 2 Reps	1	Rinsing 3 Reps	1
Washing 3 Temperature [°C]	65	Flushing time [min]	1
Washing 3 Time [min]	5	Final rinse conductivity [uS]	0.00
Washing 3 Water type	3		
Washing 3 Detergent type	3	Drying temperature [°C]	
Washing 3 Detergent quantity [ml]	100	Drying time [min]	
Washing 3 Reps	1	Cooling temperature [°C]	
Washing 4 Temperature [°C]	0	Cooling time [min]	
Washing 4 Time [min]	0		
Washing 4 Water type	0		
Washing 4 Detergent type	0		
Washing 4 Detergent quantity [ml]	0		
Washing 4 Reps	0		
Alarms			
Date and time	Description	User	State
2/22/2017 9:10:05 AM	30-Detergent 2 missing flow		ALARM ON

Report example



LAB division

**Fully integrated solutions**

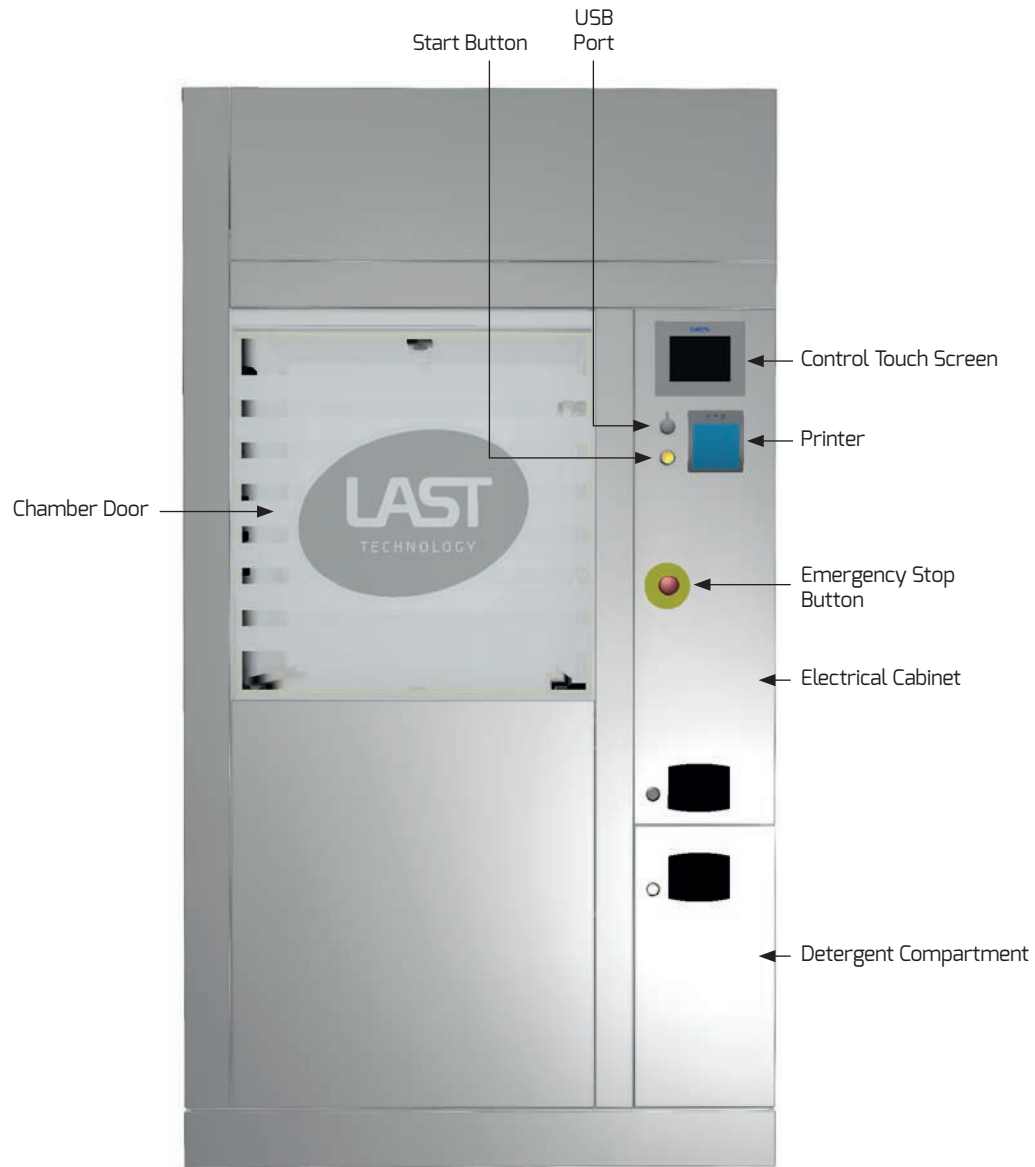




## Product Handling System

- Possibility to choose between manual or full automatic product loading systems, both developed in order to ensure the highest ergonomic standards considering the sizes and weight of loads.
- The carts/baskets system is of single or multi-level type according to products that need to be processed.
- Tailored-made solution of carts/baskets for graduated cylinders, ampoules, bekers, pipettes, and other glassware of any sizes.
- Transport trolleys for the movement of the carts can be of fixed or variable height.







**Type AQUA Glassware Washers - doors of hinged or sliding type**

Type	Chamber Dimensions (mm - inches)			Capacity (litres / cu. ft.)	Overall Dimensions (mm - inches)		
	Width (a)	Height (b)	Lenght (c)		Width (d)	Height (e)	Lenght (f)
<b>AQUA 250</b>	585 / 23	700 / 27.5	617 / 24.5	250 / 8.5	1050 / 41	2090 / 82	765 / 30
<b>AQUA 350</b>	735 / 29	700 / 27.5	815 / 32	400 / 14	1200 / 47	2090 / 82	965 / 38
<b>AQUA 500</b>	685 / 27	700 / 27.5	997 / 39	470 / 16.5	1150 / 45	2090 / 82	1145 / 45

**Type AQUA Cage and Rack Washers - doors of hinged or sliding type**

Type	Chamber Dimensions (mm - inches)			Capacity (litres / cu. ft.)	Overall Dimensions (mm - inches)		
	Width (a)	Height (b)	Lenght (c)		Width (d)	Height (e)	Lenght (f)
<b>AQUA 1000</b>	992 / 39	992 / 39	1000 / 39.5	1000 / 35.5	2500 / 98.5	2550 / 100	1215 / 48
<b>AQUA 1250</b>	992 / 39	1242 / 49	1000 / 39.5	1250 / 44.5	2500 / 98.5	2800 / 110	1215 / 48
<b>AQUA 1500</b>	1242 / 49	992 / 39	1250 / 49	1500 / 53	2750 / 108	2550 / 100	1465 / 57.5
<b>AQUA 4000</b>	1392 / 55	1852 / 73	1554 / 61	4000 / 142	3000 / 118	2800 / 110	1691 / 66.5



LAB division

**Be green. Be Smart**





## Sustainability

Concentrating on environmental sustainability as a differentiation feature of the company is an informed decision of LAST, which is in fact convinced and conscious that the attention towards environmental issues can lead to substantial economic benefits in the medium-long term.

The company's decision to invest in human capital highly qualified in the technical-engineering field, and in research projects to develop new equipment and improve their performance in energy and water consumption terms, embodies LAST's idea of being green and considering the environment as an opportunity to grow.

## Activities, Services and Documentation

From the User Requirement Specification (URS) to the machine Qualification, LAST provides extensive documentation and services for supporting all steps of the project as per the internal operating procedures and flow diagram:

- Analysis of URS and reexamination of feasibility
- Project Plan (Gantt)
- Quality Plan (QP)
- Document Qualification (DQ) including P&ID, lay out drawing (GAD), Utility Interface Agreement (UIA), Software Interface Agreement (SIA), Electrical Diagram (ED), Pneumatic Diagram (PD), Bill of materials/components (BOM), Functional Design Specification (FDS), Software Design Specification (SDS), Hardware Design Specification (HDS), Installation, User and Maintenance Manual (IUMM), Welding Validation Manual (WVM), Machine and software Validation Manual (MSVM).
- Factory Acceptance Test (FAT)
- Site Acceptance Test (SAT)
- Machine positioning, Installation and Start up
- Installation, operation and performance qualification (IQ, OQ & PQ)
- Training courses
- Program of preventive maintenance
- Spare parts and consumable products

LAST Technology reserves the rights to make product improvement and specification changes without prior notice.



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