

The considerable experience gained in over 30 years of activity in the washing and sterilizing field enables ICOS to offer a new range of equipment for processing of containers used in the pharmaceutical industry.

All equipment satisfies the strict standards of the pharmaceutical industry (FDA, cGMP, GAMP 5, etc.).

These machines are identified as follows:

- WASHING AND DRYING BOX, BL SERIES
- WASHING, STERILIZING AND DRYING TUNNEL, TLS SERIES

The BL process involves washing, rinsing and drying phases.

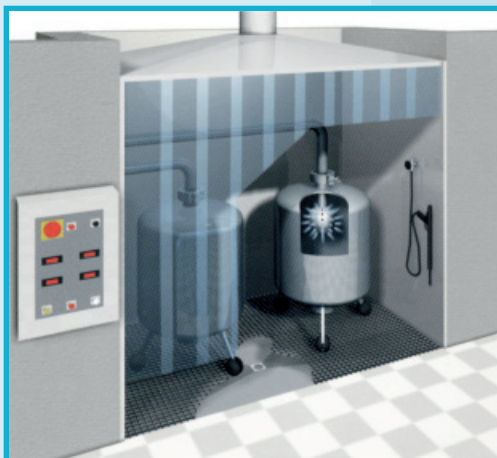
The TLS process involves washing, rinsing, internal sterilizing and drying phases.

FIELD OF APPLICATION

These machines are designed and developed for the complete processing of large preparation containers used in the pharmaceutical industry.



TYPE - TLS 4



MAIN FEATURES OF BOX - BL SERIES

- Automatic internal washing of tank by spray ball, with addition of detergent if necessary
- Automatic internal rinsing of tank by spray ball
- External washing by means of relative manual hose
- Internal drying by means of compressed air heated by a heat exchanger

CONSTRUCTION FEATURE OF BOX - BL SERIE

- Walls of AISI 304 stainless steel
- Curtain of antistatic and self-extinguishing PVC strips applied to the front part of the box
- Tank bottom of AISI 304 stainless steel shaped with a suitable slope for draining the water at a central point
- Treadable 304 AISI stainless steel expanded-plate mesh over the tank
- Water- and steam-proof internal lighting
- Hydraulic system components of sanitary type
- Walls assembled watertight
- Walls finished to a scotch-brite degree
- All the pipes in contact with fluids of sanitary type are polished to a degree of roughness $\leq 0.5 \mu\text{m}$



PLC: SIEMENS or ALLEN-BRADLEY



OP or PC: SIEMENS or ALLEN-BRADLEY SCADA SYSTEM DESIGNED FOR FDA 21 CFR PART 11

CONTROL SYSTEM

The machines of BL and TLS series are provided with a control system consisting of a controller (PLC), an operating panel (OP) or programmable computer (PC) and printer.

The control system manages the machine and its basic parameters, such as phases time, pump pressure, water pressure, water temperature, air temperature, detergents dosing, water conductivity, water PH, water level control; it allows an easy interfacing with the operator and makes it possible to customize the process cycles and the manual operations.

In addition, the system produces a complete process documentation and assists the users in the operations of machine validation.

Note: A full description of the control system is contained in the brochure.

MAIN FEATURES OF TUNNEL - TLS SERIES

- Automatic internal washing of tank by spray ball, with addition of detergent if necessary
- Automatic internal rinsing of tank by spray ball
- Internal sterilization of tank at 121°C
- Internal drying by means of compressed air heated by a heat exchanger
- Maintenance of air class 100 inside the tunnel by means of recycling fan, heat exchanger and HEPA-type filters

CONSTRUCTION FEATURE OF TUNNEL - TLS SERIE

- Construction of through type
- Walls made of AISI 304 stainless steel
- Loading and unloading door of folding type with manual opening with pneumatic locking devices
- Tunnel internal lighting of water and steam proof type
- Components of hydraulic system of sanitary type
- Walls assembled watertight
- All the pipes in contact with fluids of sanitary type are polished to a degree of roughness $\leq 0.5 \mu\text{m}$



PROCESS DATA FOR BOX - BL SERIES

The process consists of combined actions and phases that allow maximum flexibility. The choice of processing times and the succession of the phases make it possible to obtain an ideal cycle based on the characteristics of the material to be processed.

PHASES	ACTIONS
loading of container	manual
internal washing	spray ball water, detergent if needed
1st internal rinse	spray ball water
2nd internal rinse	spray ball water
external washing	spay gun water
drying	compressed air heated up to 130 °C
unloading of container	manual

Note: The above phases refer to a standard program

PROCESS DATA FOR TUNNEL - TLS SERIES

PHASES	ACTIONS
loading of container	manual
internal washing	spray ball water, detergent if needed
1st internal rinse	spray ball water
2nd internal rinse	spray ball water
external washing	spray nozzles
internal sterilization	steam at 121 °C
drying	compressed air heated up to 130 °C
unloading of container	manual

Note: The above phases refer to a standard program

BL SERIES - WASHING AND DRYING BOX

Type	Capacity (litres / cu. ft.)	Chamber dimensions (mm / inches)			Overall dimensions (mm / inches)		
		Width	Height	Length	Width	Height	Length
BL 1	5000 / 176.5	2000 / 78.5	2500 / 98.5	1000 / 39.5	2120 / 83.5	2930 / 115	1100 / 43
BL 2	7500 / 264.5	2000 / 78.5	2500 / 98.5	1500 / 59	2120 / 83.5	2930 / 115	1600 / 63
BL 3	6250 / 220.5	2500 / 98.5	2500 / 98.5	1000 / 39.5	2620 / 103	2930 / 115	1100 / 43
BL 4	9375 / 331	2500 / 98.5	2500 / 98.5	1500 / 59	2620 / 103	2930 / 115	1600 / 63
BL 5	11250 / 397	3000 / 118	2500 / 98.5	1500 / 59	3120 / 122.5	2930 / 115	1600 / 63
BL 6	15000 / 529.5	3000 / 118	2500 / 98.5	2000 / 78.5	3120 / 122.5	2930 / 115	2100 / 82.5

TLS SERIES - WASHING, STERILIZING AND DRYING TUNNEL

Type	Capacity (litres / cu. ft.)	Chamber dimensions (mm / inches)			Overall dimensions (mm / inches)		
		Width	Height	Length	Width	Height	Length
TLS 1	8160 / 288	1700 / 63	2500 / 98.5	1920 / 75.5	2000 / 78.5	2930 / 115	2000 / 78.5
TLS 2	10285 / 363	1700 / 63	2500 / 98.5	2420 / 95	2000 / 78.5	2930 / 115	2500 / 98.5
TLS 3	12410 / 438	1700 / 63	2500 / 98.5	2920 / 115	2000 / 78.5	2930 / 115	3000 / 118
TLS 4	16790 / 593	2300 / 90.5	2500 / 98.5	2920 / 115	2600 / 102	2930 / 115	3000 / 118
TLS 5	22540 / 795	2300 / 90.5	2500 / 98.5	3920 / 154	2600 / 102	2930 / 115	4000 / 157.5
TLS 6	33210 / 1173	2700 / 106	2500 / 98.5	4920 / 193.5	3000 / 118	2930 / 115	5000 / 196.5



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