

**SECTION 11600  
LABORATORY GLASSWARE WASHER  
Model 815 LX**

**PART 1 GENERAL**

**1.01 SYSTEM DESCRIPTION**

- A. Laboratory Glassware Washer/Dryer

**1.02 SUBMITTALS**

- A. Bill of Materials
- B. Product Literature
- C. Installation Plans
- D. Operations and Maintenance Manual
- E. Preventative Maintenance Procedures
- F. Recommended Spare Parts List
- G. Warranty Statement

**1.03 QUALITY ASSURANCE**

- A. Quality Standards: Laboratory Glassware Washer/Dryer manufactured under ISO 9001 accreditation.
- B. Manufacturer Qualifications: A company with a minimum of 35 years experience in the manufacture of products similar to those specified.
- C. Service Support: Manufacturer must have a nationwide network of trained service professionals.

**1.04 WARRANTY**

- A. The warranty period is 13 months from the date your equipment is shipped from our facility or 12 months from installation, whichever comes first.

**PART 2 PRODUCTS**

**2.01 DESIGN STANDARD MANUFACTURER**

- A. This specification is based on the LANCER **815 LX** Series Washer/Dryer, manufactured by and exclusively for LANCER USA Incorporated, 3543 State Road 419, Winter Springs, FL 32708. Telephone: (407) 327-8488, Fax: (407) 327-1229.

**2.02 EQUIPMENT**

- A. Model: LANCER **815 LX** Glassware Washer/Dryer

B. General Description:

Under counter or freestanding, fully automatic and programmable laboratory glassware washer/dryer designed to wash inside of small-necked laboratory glassware using injectors and open glassware using rotary spraying arms. Wash pump and hydraulic circuit provide a high flow rate and low-pressure delivery for thorough cleaning without breakage of washed items. Washer utilizes a forced air drying system with electric heating element and blower. Through the use of a diverse range of racks, baskets, and accessories, the machine is capable of injection washing on multiple levels thereby, minimizing footprint while maximizing wash/dry capacity. Load bearing drop-down door and extendable rack rails allow for loading of each wash level.

C. Dimensions and Capacities:

1. Exterior Dimensions: 33.25 inches (845 mm) high by 23.5 inches (600 mm) wide by 27.56 inches (700 mm) deep, maximum.
2. Interior Wash Chamber Dimensions: 20 inches (508 mm) high by 21 inches (535 mm) wide by 20 inches (510 mm) deep, minimum.
3. Rack Capacity: 2 racks simultaneously, 2 interchangeable rack locations with automatic rack-to-column connection valves.
4. Rotating Spray Arms: 1 located at top and 1 located at bottom of wash chamber.
5. Wash Chamber Load Area: 2 wash levels-360 square inches per level-720 square inches total for 2 levels

D. Engineering Data:

1. Shipping Weight: 295 lbs (134 kg).
2. Shipping Dimensions: 40.75 inches (1,035 mm) high by 33.5 inches (851 mm) wide by 29.25 inches (743 mm) deep, maximum.
3. Heat Loss: 2,380 Btu/hr (697 W) maximum.
4. Sound Level: <63 dBA.

E. Utility Requirements:

1. Electrical Requirements
  - a. Provide a power cord or hard wire connection and a fusible disconnect switch.
  - b. Electrically Heated Washer (Standard):
    - 1 Phase, 208 Volt, 60 Hz, 7kW, 34 A.
    - 1 Phase, 230 Volt, 60 Hz, 7kW, 31 A.
    - 3 Phase, 208 Volt, 60 Hz, 7kW, 20 A.
    - 3 Phase, 230 Volt, 60 Hz, 7kW, 18 A.
2. Softened Cold Water
  - a. Provide a shut off valve with a threaded  $\frac{3}{4}$  inch male hose thread nozzle. Flow Rate: 5  $\frac{1}{4}$  gal/min (20 l/min) with a pressure between 29 to 87 psig (200 to 600 KPa).
  - b. Washer is equipped with a 5 foot (1,524 mm) long,  $\frac{1}{2}$  inch (12 mm) diameter hose with  $\frac{3}{4}$  inch (19 mm) diameter female hose thread fitting.
3. Deionized/Purified Water

- a. Provide a shut off valve with a threaded  $\frac{3}{4}$  inch male hose thread nozzle. Flow Rate:  $5\frac{1}{4}$  gal/min (20 l/min) with a pressure between 29 to 87 psig (200 to 600 KPa).
  - b. Washer is provided with a 5-foot (1,524 mm) long,  $\frac{1}{2}$  inch (12 mm) diameter hose with  $\frac{3}{4}$  inch (19 mm) diameter female hose thread fitting.
4. Water Consumption
    - a. 3.1 gallons (12 liters) per fill.
  5. Drain
    - a. Provide a fixed standpipe and plumbing trap with a minimum inside diameter of  $1\frac{1}{2}$  inches (40 mm). Height above finished floor level between 20 to 27 inches (500 to 700 mm). Discharge flow rate:  $10\frac{1}{2}$  gal/min (40 l/min) and maximum temperature 203°F (95°C).
    - b. Washer is equipped with a 5 foot (1,524 mm) long,  $\frac{3}{4}$  inch (19 mm) diameter hose with gooseneck for connection to standpipe.
    - c. Unit can be configured for floor draining without the need for a standpipe. (must be noted at time of order)
  6. Condensate Drain
    - a. Provide a fixed standpipe and plumbing trap with a minimum inside diameter of  $1\frac{1}{2}$  inches (40 mm). Height above finished floor level between 20 to 27 inches (500 to 700 mm). Discharge flow rate:  $5\frac{1}{4}$  gal/min (20 l/min).
    - b. Washer is equipped with a 5 foot (1,524 mm) long,  $\frac{3}{4}$  inch (19 mm) diameter hose with gooseneck for connection to standpipe.
- F. Construction and Components:
1. Body, Door, and Washing Chamber: #4 sanitary high-grade finish AISI 304L stainless steel construction throughout interior of washer and exterior panels.
  2. Insulation: Synthetic, rubber based closed cell foam.
  3. Main Wash Pump:  $\frac{3}{4}$  HP with capacity of 92 gal/min (350 liters/min).
  4. Drain Pump: 30 W with capacity of  $6\frac{1}{4}$  gal/min (24 l/min).
  5. Detergent and Acid Additive Pumps: Peristaltic type dosing at a rate of 280 ml per minute.
  6. Electric Water Heating (Standard): 6 kW, type 304 stainless steel electrical submersion heater elements provide heating up to 95°C.
  7. Water Filters: Included in hoses and water inlet valves to prevent debris from entering wash chamber.
  8. Double Filter System: In chamber to protect recirculation and drain pump, easily removed for inspection and cleaning.
  9. Complete Service Panel Access: To heaters, safety relays and circuit breakers.
- G. Features:
1. Washing Circuit: All components in contact with wash and rinse solutions made of stainless steel or other materials impervious to the effects of detergents, additives, and general laboratory chemicals.
  2. Drying System: 1 kW electrical heating element and blower for quick drying in wash chamber.

3. Steam Condenser: Removes vapors and steam whenever chamber temperature exceeds 50°C (122°F) and directs all condensate, vapors and steam to drain.
  4. Glassware Racks and Trays: #4 sanitary high-grade finish AISI 304L stainless steel, removable, interchangeable on two rack levels, with full extension roller slides attached to rack/tray (only track members remaining in wash chamber when rack/tray removed), pinned in place for safety to prevent accidental roll-out.
  5. Injectors: #4 sanitary high-grade finish AISI 304L stainless steel, mounted in racks with headers inserted into water outlet on wall of chamber; star-shaped polypropinol feet and integral injector tips for protection of washed items; injectors threaded into rack for easy removal, cleanout, and replacement.
  6. Rack-to-Column Connection Valves: Automatically opened when injector racks or spray arm racks are inserted into any level of the multi-level chamber.
  7. Spray Arms: #4 sanitary high-grade AISI 304L stainless steel; mounted on top and bottom of chamber; racks and trays available with spray arms mounted on bottom, with headers inserted into water outlet on wall of chamber; easily disassembled for cleaning and maintenance.
  8. Door: Front, drop-down, spring counterbalanced; capable of supporting full glassware load and functioning as a loading platform; double-wall construction; insulated to minimize noise and surface temperature.
  9. Fully Extendable Load Bearing Arms: Support jet racks for easy loading and unloading of glassware.
  10. Tested for compliance with EC Electromagnetic Compatibility Directive.
- H. Microprocessor Controls:
1. LANCER Control System
    - a. Capable of storing 20 user-definable programs with up to 54 functions per program; 4 factory-preset programs.
    - b. All machine parameters are password protected.
  2. Wash Cycle Program Functions:
    - a. Prewash: 0 to 3 cycles, at up to 95°C, of 0 to 30 minutes each, 0 to 6 minutes (1,680 ml) of liquid detergent addition at 280 ml/min. User can select cold or purified water.
    - b. Wash: 0 or 1 cycle, at up to 95°C, of 0 to 30 minutes, 0 to 6 minutes (1,680 ml) of liquid detergent intake at 280 ml/min. User can select cold or purified water.
    - c. Running Water Rinse Number 1: 0 to 9 fill, 30 second rinse and drain cycles. User can select cold or purified water.
    - d. Acid Rinse: 0 or 1 cycle of 0 to 30 minutes, 0 to 6 minutes (1,680 ml) of liquid acid rinsing additive intake at 280 ml/min. User can select cold or purified water.
    - e. Running Water Rinse Number 2: 0 to 9 fill, 30 second rinse and drain cycles. User can select cold or purified water.
    - f. Cold Deionized/Purified Water Rinse: 0 to 1 cycle of 0 to 30 minutes each. User can select cold or purified water.
    - g. Hot Deionized/Purified Water Rinse: 0 or 1 cycle, at up to 95°C, of 0 to 30 minutes. User can select cold or purified water.

- h. Drying Time: 35 minutes.
  - i. Pause Time: 30 minutes.
3. Service Mode:
    - a. Enables access for verification of component function and calibration.
    - b. Enables adjustment of general operating parameters for optimal performance at individual facilities.
  4. Control Panel Display: 16-character, 2 row liquid crystal display, 2-1/2 inches (63.5 mm) long, to display all program parameters.
  5. Control Panel Keypad:
    - a. Power button to turn washer on and off.
    - b. Numeric keyboard to select wash program.
    - c. Start button to start wash cycle.
    - d. Key button to confirm information when in programming mode.
    - e. Number "1" button to display current temperature and programmed temperature.
    - f. Number "2" button to display phase, sequence and cycle times.
    - g. Number "3/-" button to display phase and status.
    - h. Start button to display Relay 1 to 8 status during wash cycle.
    - i. Key button to display Relay 9 status during wash cycle.
  6. Alarm conditions displayed in plain language with clear definition, not requiring reference to operation manual for interpretation of codes.
  7. Water Temperature: Capable of heating up to and maintaining 95°C for a minimum of 30 minutes.
  8. Automatic intake and dispensing of liquid detergent with independent adjustable dosing times for each prewash and wash cycle.
  9. Automatic intake and dispensing of liquid acid rinse additive with adjustable dosing times.
  10. Automatic self-diagnosis of mechanical and electrical malfunctions with audible and visual alarms, including automatic monitoring of fill and drain time to detect possible malfunctions that could result in overflow.
  11. Door safety interlock acts as a fail-safe by removing power from machine output components when door is in the open position.
  12. Two sensors control water level inside machine and prevent overflow.
  13. Door lock prevents interference with wash cycle once it is in operation.

## **PART 3 EXECUTION**

### **3.01 PREPARATION, DELIVERY**

- A. Verify utility connections have been installed and are in proper location before beginning installation of equipment.
- B. Do not install equipment until all construction work and painting has been completed.
- C. Provide receiving, distribution, and storage areas of sufficient size and capacity to accommodate crated equipment.

### **3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions and in accordance with all Local, State, and Federal Codes.
- B. Install equipment plumb, square and straight, without distortions.
- C. Connect equipment hoses and power.

### **3.03 COMMISSIONING AND TRAINING**

- A. Provide services of manufacturer's designated service group to place equipment in complete and proper operating condition.
- B. Provide manufacturer's representative to train owner's personnel in the operation of equipment.

### **3.04 CLEANING AND PROTECTION**

- A. Clean all equipment surfaces using methods recommended by manufacturer.
- B. Provide protection for equipment surfaces until accepted by owner.

END OF SECTION