SECTION 115300
LABORATORY GLASSWARE WASHER
Model 1600 LXP
(Specifier to select options in sections 2.02 D, H & I)

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. Warranty Statement

1.03 QUALITY ASSURANCE

A. Laboratory Glassware Washer/Dryer manufactured under ISO 9001 accreditation.

B. Manufactured to UL Standard 61010.1

C. Tested for compliance with EC Electromagnetic Compatibility Directive.

D. Manufacturer Qualifications: A company with a minimum of 40 years' experience in the manufacture of products similar to those specified.

E. 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 occurs first.

PART 2 PRODUCTS

2.01 DESIGN STANDARD MANUFACTURER

A. This specification is based on the GETINGE LANCER ULTIMA **1600 LXP** Washer/Dryer, manufactured by and exclusively for Lancer Sales USA Inc., 1150 Emma Oaks Tr – Ste 140, Lake Mary, FL 32746. Telephone: (407) 327-8488,
Fax: (407) 327-1229.

2.02 EQUIPMENT

Model: GETINGE LANCER ULTIMA **1600 LXP** Glassware Washer/Dryer

A. General Description:

Freestanding, fully automatic and programmable laboratory glassware washer/dryer designed to wash inside of small-necked laboratory glassware using injectors (racks sold separately) 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. A drying blower, HEPA filter, and electrical heating element force hot air into the wash chamber and through the jet rack spindles to accomplish thorough drying up to 110°C. Through the use of a diverse range of racks, baskets, and accessories (sold separately), 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 without the use of carts or trolleys.

B. Dimensions and Capacities:

1. Exterior Dimensions: 71.46 inches high by 34.09 inches wide by 34.72 inches deep, maximum.
2. Interior Wash Chamber Dimensions: 33.66 inches high by 25.79 inches wide by 25.98 inches deep, minimum.
3. Rack Capacity: 4 racks simultaneously, 5 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: 4 wash levels – 671 square inches per level, 2,684 square inches total 4 levels.

C. Engineering Data:

1. Shipping Weight: 705 lbs
2. Shipping Dimensions: 82 inches high by 44 inches wide by 45.7 inches deep, maximum.
3. Heat Loss: 5,950 Btu/hr (1500 Kcal/h) maximum.
4. Sound Level: <69 dB.

D. Utility Requirements (*Provided by others*):

1. Electrical Requirements
    a. Electrical cable for hard wire connection and a fusible disconnect switch must be provided by others.
    b. Electrically Heated Washer (Standard):

    3 Phase, 208 Volt, 60 Hz, 21 kW, 59 A.

    3 Phase, 480 Volt, 60 Hz, 21 kW, 26 A.

    a. Steam Heated Washer (*Optional*):

    3 Phase, 208 Volt, 60 Hz, 4.2 kW, 20 A.

    3 Phase, 480 Volt, 60 Hz, 4.2 kW, 9 A.
2. Hot Water
    a. Shut off valve with a threaded ¾ inch male hose thread nozzle. Optimal Flow Rate: 5 ¼ gal/min (20 l/min) with a pressure between 29 to 87 psig (200 to 600 KPa). Maximum Temperature: 50°C (122°F).
    b. Washer is equipped with a 5 foot (1,524 mm) long, ½ inch (12 mm) diameter hose with ¾ inch (19 mm) diameter female hose thread fitting.
3. Cold Water

a. Shut off valve with a threaded ¾ inch male hose thread nozzle. Optimal Flow Rate: 5 ¼ 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, ½ inch (12 mm) diameter hose with ¾ inch (19 mm) diameter female hose thread fitting.

2. Deionized/Purified Water
   a. Shut off valve with a threaded ¾ inch male hose thread nozzle. Optimal Flow Rate: 5 ¼ 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, ½ inch (12 mm) diameter hose with ¾ inch (19 mm) diameter female hose thread fitting.
3. Water Consumption
   a. 7.9 to 9.2 gallons (30 to 35 liters) per fill.
4. Drain
   a. Fixed standpipe and plumbing trap with a minimum inside diameter of 1 ½ inches (40 mm). Height above finished floor level between 31 to 35 inches (800 to 900 mm). Discharge flow rate: 10 ½ gal/min (40 l/min) and maximum temperature 203˚F (95 ˚C).
   b. Washer is equipped with a 5 foot (1,524 mm) long, ¾ inch (19 mm) diameter hose with gooseneck for connection to standpipe.
5. Overflow Safety Discharge
   a. Floor drain connection or fixed discharge tube with an outside diameter of 1 ¼ inches (32 mm). Maximum height above finished floor level 23 inches (600 mm). Flow Rate: 5 ¼ gal/min (20 l/min) and maximum temperature 203˚F (95 ˚C).
   b. Washer is equipped with a 5 foot (1,524 mm) long, ¾ inch (19 mm) diameter hose with 1 ¼ inch (32 mm) end piece for connection to discharge tube.
6. (*Optional*) Steam Feed (*only when steam heating option is purchased*)
   a. Shut off valve, strainer and flexible steam hose for connection to washers ½ inch male BSP threaded inlet.
   b. Steam pressure between 29 to 87 psig (200 to 600 kPa). Maximum consumption 265 lbs/hr, 66 lbs/cycle. Typically 1 cycle per hour is used.
7. Steam Condensate Return (*only when steam heating option is purchased*)
   a. Shut off valve, steam trap and flexible steam hose for connection to washer's ½ inch male BSP threaded outlet.
8. Exhaust Connection Preferred
   a. Exhaust hood 12 inches (300 mm) minimum, 40 inches (1000 mm) maximum above the washer's exhaust pipes. Discharge flow rate: 60 CFM; maximum temperature 203˚F (95 ˚C) and maximum relative humidity of 95%.

B. Construction and Components:

1. Door, Washing Chamber and Sump: #4 sanitary high-grade finish AISI 316L stainless steel construction throughout interior of washer, exterior panels of 304 L stainless steel.
2. Insulation: Synthetic, rubber based closed cell foam.
3. Main Wash Pump: 3 HP with capacity of 198 gal/min (750 l/min).
4. Drain Pump: 170 W with capacity of 10 ½ gal/min (40 l/min).
5. Detergent and Acid Additive Pumps: Peristaltic type dosing at a rate of 280 ml per minute.
6. Electric Water Heating (Standard): 18 kW, type 304 stainless steel electrical submersion heater elements provide heating up to 95˚C.

7. Dryer Heating: 4.2 kW heating elements provide drying up to 110˚C.
8. Water Filters: Included in hoses and water inlet valves to prevent debris from entering wash chamber.
9. Double Filter System: In chamber to protect recirculation and drain pump, easily removable for inspection and cleaning.
10. Complete Service Panel Access: via split panel design for access to heaters, safety relays and circuit breakers.

C. 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. HEPA Filtered Forced Air Drying: Drying circuit consists of two electrical heating elements, HEPA filters and drying blowers that force hot air into the wash chamber and through the jet rack spindles to thoroughly dry the interior and exterior of all glassware, plastic ware and other parts after cleaning.
3. Glassware Racks and Trays (*sold separately, please specify below*): Single piece, full width racks made of 304L stainless steel, removable, interchangeable on four rack levels, with full extension roller slides attached to rack/tray, held in place for safety with easy to use retention lever to prevent accidental roll-out.
4. 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 support bases and integral injector tips for protection of glassware; injectors threaded into rack for easy removal, cleanout, and replacement. Removable glassware supports shall be provided on long injectors for taller glassware
5. Plumbing column external to chamber to maximize usable chamber space.
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 316L 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 to eliminate the requirement for a loading trolley; 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 without the need for a loading cart.
10. Water volume automatically adjusted to optimal wash efficiency based on load.
11. On-Board Chemical Storage: Pullout drawer provides storage and spill containment for a 2 ½ gallon (10 liter) container of detergent solution and a 2 ½ gallon (10 liter) container of acid solution.

D. Microprocessor Controls:

1. GETINGE LANCER ULTIMA Control System
    a. Capable of storing 40 wash (4 preset, 36 user definable) programs, identified by name, with full programmability of all wash parameters
    b. All machine parameters are password protected.
    c. Ability to update software via front panel USB without the requirement of a technician
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 hot, 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 hot, cold or purified water.
c. Rinse A: 0 to 9 fill, 30 second rinse and drain cycles. User can select hot, 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 hot, cold or purified water.
e. Rinse B: 0 to 9 fill, 30 second rinse and drain cycles. User can select hot, cold or purified water.
f. Pure Water Rinse: 0 to 4 cycles, at up to 95°C of 0 to 30 minutes each. User can select cold or purified water.
g. Pure Water Rinse HOT: 0 or 1 cycle, at up to 95°C, of 0 to 30 minutes. User can select hot or purified water.
h. Drying Time: 0 to 90 minutes, temperature selection up to 110°C in 1°C increments.
i. Cooling Time: 0 to 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. Controls: Programmable microprocessor control system with 7” color touchscreen user interface
   a. 40 programs include 4 preset and 36 user defined
   b. Intuitive, icon based interface for ease of use
   c. Supervisor controlled passcode protection for access levels
   d. Real time, graphic display of cycle progression and parameters
   e. Front panel USB port for data collection
   f. Integral Ethernet port and RS422/485 connectivity
   g. Audible and color-coded visual alarms for quick identification of alarm types and conditions
   h. Self-diagnostic software for real time monitoring
   i. Alarm history may be viewed and exported to USB or printer
5. Alarm conditions displayed in red with clear definition, not requiring reference to operation manual for interpretation of codes.
6. Automatic intake and dispensing of liquid acid rinse additive with adjustable dosing.
7. 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.
8. Two sensors control water level inside machine and prevent overflow.

E. *Accessories (sold separately).*
   1. *General Labware/Biology/Chemistry Package*
      a. *PST 16 - Basic Basket*
      b. *64 IXLC 16 - Injector rack with 64 long and short injectors*
      c. *36 IXL 16 - Injector rack with 36 long injectors*

d. *LTC – Small mesh basket*

2. *Wastewater/Environmental Package*
   a. *PST 16 – Basic Basket*
   b. *64 IXL 16 – Injector rack with 64 long injectors*
   c. *64 IXC 16 – Injector rack with 64 short injectors for BOD Bottles*
   d. *GCI 16 – Full cover screen for 64 IXC rack*
   e. *LTC – Small mesh basket*

F. Options *(specifier to select):*
   1. Drain discharge cooling
   2. pH neutralization via reciprocating chemical dosing pump
   3. HAB 14 –Trim kit for recessed installation
   4. Seismic bracket kit
   5. Steam heating

PART 2 EXECUTION

2.01 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.

2.02 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; securely anchor.

2.03 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.

2.04 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