SECTION 11 48 00
CLEANING AND DISPOSAL EQUIPMENT

SPEC WRITER NOTES:
1. Delete between // // if not applicable to project.
2. Delete other items or paragraphs in the section that are not applicable and renumber the paragraphs.
3. Select warewashing machines according to usage requirements (volume and type of ware), available space and utilities, and local plumbing codes.

PART 1 - GENERAL

1.1 DESCRIPTION

A. This section specifies food service warewashing equipment as follows:

1. // Dishwashing machines, under counter.//
2. // Dishwashing machines, single tank, electric.//
3. // Dishwashing machines, conveyer, single tank, electric.//
4. // Dishwashing machines, conveyor, double tank, electric.//
5. // Fight-type dish machines, rackless conveyor, electric.//
6. // Dishwashing system, circular.//
7. // Pot washer, electric, rack.//
8. // Ware washer booster heater, electric.//

1.2 RELATED WORK

A. Section 11 40 11, CUSTOM FABRICATED FOODSERVICE EQUIPMENT: Ware washing Tables.

SPEC WRITER NOTE: Retain paragraph below if required for project location.

B. Section 13 05 41, SEISMIC RESTRAINT REQUIREMENTS FOR NON-STRUCTURAL COMPONENTS: Seismic Restraint of Equipment.

C. Section 22 11 00, FACILITY WATER DISTRIBUTION: Plumbing Connections.

D. Section 22 13 00, FACILITY SANITARY SEWERAGE: Plumbing Connections.

E. Section 22 42 26, COMMERCIAL DISPOSERS: Waste Disposers.

F. Section 26 05 21, LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES (600 VOLTS AND BELOW): Electrical Connections.

G. Section 26 29 21, DISCONNECT SWITCHES: Electrical Disconnect Switches.

1.3 QUALITY CONTROL

A. Installer Qualifications: Licensed electrician and plumber either experienced with food service equipment installation or supervised by an experienced food service equipment installer.

SPEC WRITER NOTE: UL Environmental and Public Health (EPH) Classification Mark is currently used by UL to certify compliance with NSF/ANSI standards. Equipment evaluated by UL before 2001 may bear the UL Food Service Product Certification Mark.

B. NSF Compliance: Equipment bears the NSF Certification Mark or UL Classification Mark indicating conformance with NSF/ANSI 3.

C. UL Listing: Equipment has been evaluated according to UL 921, is listed and labeled by UL.

SPEC WRITER NOTE: Retain paragraph and subparagraphs below if required for project location.

D. Seismic Restraint:

1. Comply with requirements in Section 13 05 41, SEISMIC RESTRAINT REQUIREMENTS FOR NON-STRUCTURAL COMPONENTS.
2. Comply with applicable guidelines for seismic restraint of kitchen equipment contained in SMACNA's "Kitchen Ventilation Systems and Food Service Equipment Guidelines 1767," Appendix A.

E. In-Use Service: At least one factory-authorized service agency for equipment shall be located in the geographical area of the installation and shall have the ability to provide service within 24 hours after receiving a service call.

1.4 SUBMITTALS

A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.

B. Manufacturer’s Literature and Data:

1. Include manufacturer's address and telephone number.
2. Include catalog or model numbers, and illustrations and descriptions of ware washing equipment and accessories.
3. Proof of appliance being Energy Star qualified.

C. Installation Drawings: Show dimensions; method of assembly; and details of installation, adjoining construction, coordination with plumbing and electrical work, and other work required for a complete installation.

D. Operating Instructions: Comply with requirements in Section 00 72 00, GENERAL CONDITIONS.

1.5 WARRANTY

A. Warrant food service equipment to be free from defects in materials and workmanship in accordance with requirements of "Warranty of Construction", FAR clause 52.246-21.

1.6 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.

B. NSF International/American National Standards Institute (NSF/ANSI):
3-2019.....Commercial Ware washing Equipment

C. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA): 1767-2001 - Kitchen Ventilation Systems and Food Service Equipment Fabrication and Installation Guidelines.

D. Underwriters Laboratories Inc. (UL):
921-06.....Commercial Electric Dishwashers, including revision through and including March 16, 2000

PART 2 - PRODUCTS

SPEC WRITER NOTE:
1. Select capacity of units according to anticipated use; actual use should not exceed 80 percent of capacity of unit.
2. Symbols below correspond with "Room Equipment Guide" identification system. Verify project requirements before specifying equipment that deviates from "Room Equipment Guide."
3. Edit symbols to coordinate with identification shown on drawings.

2.1 DISHWASHING MACHINES, UNDERCOUNTER

A. General Requirements:

1. Stainless-steel construction.
2. Stainless-steel top and side panels.
3. Capacity based on 508 by 508 mm (20 by 20 inch) racks.
4. Accessories:
   a. Water-pressure regulating valve.
5. Provide Energy Star qualified appliances.

B. Sanitizing Systems:

SPEC WRITER NOTE:
1. Select booster heater or chemical sanitizing according to functional requirements and hot-water temperature that is available.

SPEC WRITER NOTE:
2. Select booster heater temperature rise according to hot-water temperature that is available; water delivered to warewasher from booster heater must be 82 degrees C (180 degrees F).

1. Booster Heater: Built-in, electric that produces a // 22 degrees C (40 degrees F) // 39 degrees C (70 degrees F) // water-temperature rise.
2. Chemical: Low-temperature chemical sanitizing system.

C. Under counter Dishwashing Machine Units:

SYMBOL	CAPACITY RACKS/HOUR	SANITIZING SYSTEM
K8010	40	Booster heater
K8011	30	Chemical

2.2 DISHWASHING MACHINES, SINGLE TANK, ELECTRIC

A. General Requirements:

1. Stainless-steel construction.
2. Stainless-steel enclosure panels.
3. Control panel.
4. Electric tank heat.
5. Capacity based on 508 by 508 mm (20 by 20 inch) racks.

SPEC WRITER NOTE:
1. Select accessories according to functional requirements and space available.
2. Select booster heater temperature rise according to hot-water temperature that is available; water delivered to warewasher from booster heater must be 82 degrees C (180 degrees F).

6. Accessories:
   a. Built-in, electric booster heater that produces a // 22 degrees C (40 degrees F) // 39 degrees C (70 degrees F) // water-temperature rise.
   b. Water-pressure regulating valve.
   c. Corner application.
   d. 686 mm (27 inch) wide door opening to accommodate trays and sheet pans.
7. Provide Energy Star qualified appliances.

B. Electric, Single-Tank Dishwashing Machine Units:

SYMBOL	CAPACITY RACKS/HOUR
K8015	53

2.3 DISHWASHING MACHINES, CONVEYOR, SINGLE TANK, ELECTRIC

A. General Requirements:

1. Stainless-steel construction.
2. Stainless-steel front panels.
3. Electric tank heat with low-water tank heat cut-off.
4. Common utility connections.
5. Automatic tank fill.
6. Control panel.
7. Operates // in direction indicated on drawings // right to left // left to right //.
8. Capacity based on 508 by 508 mm (20 by 20inch) racks.

SPEC WRITER NOTE:
1. Select accessories according to functional requirements and space available.
2. Select booster heater temperature rise according to hot-water temperature that is available; water delivered to warewasher from booster heater must be 82 degrees C (180 degrees F).

9. Accessories:
   a. Stainless-steel vent cowls with stack and locking dampers.
   b. Built-in, electric booster heater that produces a // 22 degrees C (40 degrees F) // 39 degrees C (70 degrees F) // water-temperature rise.
   c. Table limit switch.
   d. Water-pressure regulating valve.
   e. Sideloader // with // without // hood.
10. Provide Energy Star qualified appliances.

B. Electric, Single-Tank, Conveyor Dishwashing Machine Units:

SYMBOL	CAPACITY RACKS/HOUR	UNIT LENGTH	PREWASH REQUIREMENTS
K8030	200	1117 mm (44 inches)	-
K8031	200	1676 mm (66 inches)	Prewash
K8040	200	1930 mm (76 inches)	Prewash

2.4 DISHWASHING MACHINES, CONVEYOR, DOUBLE TANK, ELECTRIC

A. General Requirements:

1. Stainless-steel construction.
2. Stainless-steel front panels.
3. Electric tank heat with low-water tank heat cut-off.
4. Common utility connections.
5. Automatic tank fill.
6. Control panel.
7. Operates //in direction indicated on drawings // right to left // left to right //.
8. Capacity based on 508 by 508 mm (20 by 20 inch) racks.

SPEC WRITER NOTE:
1. Select accessories according to functional requirements and space available.
2. Select booster heater temperature rise according to hot-water temperature that is available; water delivered to warewasher from booster heater must be 82 degrees C (180 degrees F).

9. Accessories:
   a. Stainless-steel vent cowls with stack and locking dampers.
   b. Built-in, electric booster heater that produces a // 22 degrees C (40 degrees F) // 39 degrees C (70 degrees F) // water-temperature rise.
   c. Table limit switch.
   d. Water-pressure regulating valve.
   e. Sideloader // with // without // hood.
10. Provide Energy Star qualified appliances.

B. Electric, Double-Tank, Conveyor Dishwashing Machine Units:

SYMBOL	CAPACITY RACKS/HOUR	UNIT LENGTH	PREWASH REQUIREMENTS
K8050	254	1626 mm (64 inches)	-
K8051	254	2184 mm (86 inches)	Prewash
K8052	254	2540 mm (100 inches)	Power Prewash

2.5 FLIGHT-TYPE DISH MACHINES, RACKLESS CONVEYOR, ELECTRIC

A. General Requirements:

1. Stainless-steel frame, legs, and feet.
2. Stainless-steel front and end panels.

3. Multitank unit with prewash, wash, rinse and 82 degrees C (180 degrees F) sanitize sections.
4. 508 to 660 mm (20 to 26 inch) wide conveyor.
5. Electric tank heat with low-water tank heat cut-off.
6. Common utility connections.
7. Automatic tank fill.
8. Control panel.
9. Operates in // direction indicated on drawings // right to left // left to right //.
10. Variable conveyor speed.
11. Rinse saver.
12. Stainless-steel vent cowls.

SPEC WRITER NOTE:
1. Select accessories according to functional requirements and space available.
2. Select booster heater temperature rise according to hot-water temperature that is available; water delivered to warewasher from booster heater must be 82 degrees C (180 degrees F).

13. Accessories:
    a. Internally mounted electric booster heater that produces a // 22 degrees C (40 degrees F) // 39 degrees C (70 degrees F) // water-temperature rise.
    b. Electric blower dryer.
    c. Circuit breakers.
    d. Stainless-steel back panels.
    e. Water-pressure regulating valve.

B. Electric, Rackless-Conveyor, Flight-Type Dish Machines Units:

SYMBOL	CAPACITY DISHER/HOUR
K8060	8,500
K8070	10,250
K8090	19,000

2.6 DISHWASHING SYSTEM, CIRCULAR

A. Dishwashing Machines:
1. Stainless-steel frame, legs, and feet.
2. Stainless-steel front and back panels.

3. Electric tank heat with low-water tank heat cut-off.
4. Common utility connections.
5. Automatic tank fill.
6. Control Panel.
7. Operates // in direction indicated on drawings // clockwise // counter-clockwise //.
8. Variable conveyor speed.
9. Rinse saver.
10. Stainless-steel vent cowls.
11. Doors on outside radius.
12. Door safety switches.
13. Hood opening to accommodate 508 by 508 mm (20 by 20 inch) trays.

SPEC WRITER NOTE:
1. Select accessories according to functional requirements and space available.
2. Select booster heater temperature rise according to hot-water temperature that is available; water delivered to warewasher from booster heater must be 82 degrees C (180 degrees F).

14. Accessories:
    a. Internally mounted electric booster heater that produces a // 22 degrees C (40 degrees F) // 39 degrees C (70 degrees F) // water-temperature rise.
    b. Electric blower dryer.
    c. Circuit breakers.
    d. Water-pressure regulating valve.
    e. Automatic shutdown device.

B. Conveyors: With circular conveyor table.
1. Oval-shaped system.
2. Stainless-steel table construction, not less than 2.0 mm (0.0781 inch) thick.
3. Stainless-steel supports, legs, and feet.
4. Stainless-steel chain/track construction.
5. Rack over shelf.
6. Rack storage shelf.
7. Scrap trough with flushing nozzles.
8. Start-stop station.
9. Accessories:

a. Mounted hose reel.

b. Extra button start/stop station.

c. Mounting and piping for // waste disposer // pulper // with controls.

d. Trough silver saver.

C. Circular Dishwashing Systems:

SYMBOL	DESCRIPTION	CAPACITY RACKS/HOUR
K8110	Dishwashing System: Dishwashing machine and conveyor	200 to 254
K8111	Dishwashing Machine: One to two tanks	200 to 254
K8112	Conveyor	200 to 254

2.7 POT WASHER, ELECTRIC, RACK

A. General Requirements:

1. Stainless-steel construction.
2. Stainless-steel front and side enclosure panels.
3. Operates straight through // in direction indicated on drawings // right to left // left to right //.
4. Control panel.
5. Electric tank heat.
6. Hold-down grid to protect light ware.
7. Stainless-steel // bake-sheet // basket // counter-pan // general utility // rack.
8. Capacity based on 609 by 711 mm (24 by 28 inch) racks.

SPEC WRITER NOTE:
1. Select accessories according to functional requirements and space available.
2. Select booster heater temperature rise according to hot-water temperature that is available; water delivered to warewasher from booster heater must be 82 degrees C (180 degrees F).

9. Accessories:

a. Water-pressure regulating valve.

b. Auto fill.

c. Corner operation.

d. Built in Electric booster heater that produces a // 22 degrees C (40 degrees F) // 39 degrees C (70 degrees F) // water-temperature rise.

B. Electric, Rack, Pot Washer Units:

SYMBOL	CAPACITY RACKS/HOUR
K8310	25
K8320	50

2.8 WAREWASHER BOOSTER HEATER, ELECTRIC

A. General Requirements:

1. Lined tank.
2. Temperature/pressure-relief valve.
3. Pressure-reducing valve.
4. Two-temperature pressure gauges.
5. High temperature limit control.
6. Pilot indicator light.
7. On-off switch.
8. Low-water cut-off.
9. // 23- to 30-liter (6- to 8-gallons) // 61-liter (16-gallons) // storage capacity.

SPEC WRITER NOTE: Select accessories according to functional requirements and space available.

10. Accessories:
    a. All-stainless-steel body and base.
    b. Brass pressure-reducing valve with bypass.
    c. Adjustable stainless-steel legs, 152 to 203 mm (6 to 8 inches) high.
    d. Shock absorber.

SPEC WRITER NOTE: Select booster heater size according to hot-water temperature that is available; water delivered to warewashers from booster heater must be 82 degrees C (180 degrees F).

B. Warewasher Booster Heater Units:

SYMBOL	SIZE (KW)

K8420	4 to 23
K8421	24 to 58

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install ware washing equipment, including controls and accessory equipment, arranged for safe and convenient operation and maintenance.

B. Install ware washing equipment to prevent backflow of polluted water or waste into water supply system or into the warewashing equipment.

C. Install and interconnect electrical controls and switches.

SPEC WRITER NOTE: Retain paragraph below if required for project location.

D. Install seismic restraints for equipment.

3.2 CLEAN-UP

A. At completion of the installation, clean, lubricate, and adjust ware washing equipment as required to produce ready-for-use condition.

B. Where stainless-steel surfaces are damaged during ware washing equipment installation procedures, repair finishes to match adjoining undamaged surfaces.

3.3 INSTRUCTIONS

A. Instruct personnel and transmit operating instructions in accordance with requirements in Section 01 00 00, GENERAL REQUIREMENTS.

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