

Appendix

PURCHASE SPECIFICATION FOR PRODUCT FILLER

SPECIFICATION NUMBER: 227-FIL-1

The Oklahoma State University
Food and Ag Products Center
Stillwater, OK

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ISSUE INFORMATION:

<i>REV</i>	<i>DATE</i>	<i>DESCRIPTION</i>	<i>PREPARED</i>	<i>CHKD.</i>	<i>FAPC APPR.</i>
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1. SYSTEM DESCRIPTION:

- 1.1. Process Description: Fill flowable solids, liquids, slurries and suspensions into containers covering a wide range of product physical properties and container dimensions and volumes. Filler to be food grade and approved for used in commercial food processing facilities.
- 1.2. Performance Criteria: Operator controlled, intermittent fill, using volumetric measurement to within +/- 5% of setpoint. Physical uniformity and temperature of product to be maintained.
- 1.3. Product Parameters:
 - 1.3.1. Liquids, slurries and suspensions varying in viscosity from 1 to 50,000 centipoise.
 - 1.3.2. Flowable solids with the longest particle dimension less than one inch.
 - 1.3.3. Temperatures from 35 to 195 F.
- 1.4. Process Parameters: Capacities of up to 30 containers per minute. Rigid and collapsible containers will include glass, plastic, metal, and paper with volumes to 1.0 gallon. Operator will manually place and remove container to be filled. Option for future automation desired.
- 1.5. Equipment Elevation: Working level should be adjustable within a convenient range for operators that range from 5'-4" to 6'-4" tall.
- 1.6. Systems Interface: Level control on fill hopper to interface with pump control. Possible future interface for automated conveyor infeed of containers and discharge to automatic capper.

2. PROJECT CONDITIONS:

Site Utility Data. The following utilities are available on site:

- 2.1. Electrical 110V, 20 amp, 60 Hz
 220V, 20 and 30 amp, 60 Hz
 440V, 30 amp, 60 Hz
- 2.2. Steam: Medium Pressure 60 psig
 Culinary 100 psig
- 2.3. Potable Water 60 psig, 70 F
- 2.4. Hot Water 60 psig, 160 F
- 2.5. Compressed Air 100 psig

3. REFERENCES:

Design and fabrication shall comply with the applicable sections of the latest editions and addenda of the following codes and standards:

- 3.1. American Society of Testing Materials (ASTM)
- 3.2. American National Standards Institute (ANSI)
- 3.3. American Welding Society (AWS)
- 3.4. Current Good Manufacturing Practices (cGMPs) in compliance with CFR Title 21, parts 210,211, 607, and 640.
- 3.5. Food and Drug Administration (FDA)
- 3.6. National Electrical Manufacturer's Association (NEMA)
- 3.7. Occupational Safety and Health Association (OSHA)
- 3.8. Dairy and Food Industries Supply Association, Inc. (3-A)

4. MATERIALS:

- 4.1. All surfaces shall be fabricated of cleanable materials that are corrosion resistant.
- 4.2. All support structure shall be corrosion resistant and cleanable. Interiors of pipes and structural members shall be completely and permanently sealed from the environment.
- 4.3. No galvanized or painted surfaces.
- 4.4. Tri-clamp style connections shall be used.

- 4.5. All electrical enclosures will be rated NEMA 4X.
- 4.6. RTD temperature probes shall be used with a redundant element.
- 4.7. Equipment to be portable, mounted on locking casters with hard rubber surface, and sealed ball bearings.

5. CONTROLS:

- 5.1. Provide minimum automatic controls to operate the equipment or system, including filler bowl level control and manual fill switch.
- 5.2. Allow at least 25% free space in electronic enclosures to allow for system expansion and future add-ons.

6. MAINTENANCE AND SERVICE:

- 6.1. All components shall be installed to facilitate “quick-change” where possible.
- 6.2. Equipment configuration and features shall allow ease of access for routine servicing and maintenance.
- 6.3. The equipment shall be suitable for operation in a pilot-plant environment, subject to wash-down with hot water and cleaning chemicals.

7. MANUFACTURERS (blanks are inserted in place of the actual name of manufacturers):

- 7.1. _____ controls and electrical components
- 7.2. _____ and DC drive systems
- 7.3. _____ electric motors, wash-down, continuous duty, TEFC, food grade, C-face
- 7.4. _____ steam control valves, air operated, fail-close
- 7.5. _____ steam pressure regulators
- 7.6. _____ steam traps, separators, strainers, and air vents
- 7.7. _____ hydraulic and pneumatic fittings and controls
- 7.8. _____ air cylinders
- 7.9. _____ circular-chart recorders

8. SUBMITTALS:

- 8.1. General: Vendor selection will be made from submitted quotes and documentation. Vendor shall state any exceptions or clarifications to the quote specification. Equipment number shall be referenced on all documents. All information requested must be received by the bid due date of _____.
- 8.2. The quote shall include the following items:
 - 8.2.1. Spare parts list and part cost. The spare parts list shall provide part numbers, USA source and stocked supplier name, address, and telephone number.
 - 8.2.2. General arrangement drawings with outline dimensions and operations and maintenance access dimensions.
 - 8.2.3. Equipment weights.
 - 8.2.4. Electrical power requirements.
 - 8.2.5. Utility requirements (air, water, steam, etc.).
 - 8.2.6. Warranty.
- 8.3. Quote will be submitted to and evaluated by:
The Oklahoma State University
Food and Ag Products Center
Stillwater, OK 74078
Phone: 405-744-6688
FAX: 405-744-6313
Attn: _____

9. INSPECTION AND ACCEPTANCE TESTING:

Oklahoma State University reserves the right to inspect and test the fully assembled, piped, and wired equipment prior to shipment.

10. EQUIPMENT IDENTIFICATION:

- 10.1. Supply a permanent, engraved nameplate to identify the machine that includes the following information:
 - 10.1.1. Manufacturer name and address
 - 10.1.2. Serial number
 - 10.1.3. Model number
 - 10.1.4. Date of manufacture
- 10.2. Supply permanent, engraved nameplates for the control panel.
- 10.3. Label all instrument readouts and lights on control panel. Label all equipment inside (rack mounted instruments, relay buses, power supplies, circuit breakers, terminal blocks, etc.)
- 10.4. Identify conductors at each termination with wire numbers using permanent type marker.

11. SAFETY:

- 11.1. Furnish an approved electrical disconnect and air bleed-off disconnect (all components vented to room atmosphere) at operator access points.
- 11.2. All guards shall be interlocked to stop equipment movement if opened.

12. DELIVERY:

- 12.1. Vendor shall furnish all materials, equipment, labor, and engineering necessary to fabricate shipping container, prepare for shipment, and ship equipment prepaid to:
Food and Ag Products Center
Oklahoma State University
Corner of Monroe and Farm
Stillwater, OK 74078
Phone: 405-744-6071
- 12.2. Equipment shall be protected from damage during shipping due to rough handling, fork-trucks, and weather. Equipment shall be mounted securely on a pallet or skid.

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