

Pellet Mill

USER REQUIREMENT SPECIFICATIONS

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U.S. DEPARTMENT OF COMMERCE

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2 SCOPE

The project will include the installation of a new Pellet Mill system. This document defines the requirements and deliverables for this system. It describes overall requirements that must be met to produce the specific equipment requested. Equipment procurement, delivery, and start-up support are included. No installation is required.

This URS is the input document for the:

- Equipment procurement purposes.
- Equipment sizing
- Functional and technical specifications.

3 BACKGROUND

The Dakota Bioproducts Innovation Institute is a research facility for the development of high-quality bioproducts. A Pellet mill has been identified as one of the densification technologies that will be available for customer use.

4 PROCESS DESCRIPTION

The Pellet Mill will be a self-contained skid that will allow for the processing of different materials into pelleted form. The pellet mill will be manually fed from an infeed chute feeder that will convey the material into the feed conditioners. The pellet mill will include three conditioners that will allow for the addition of steam or liquids into the mash prior to the pelleting chamber.

The pellets will be pressed through a perforated rotating die that will compress the material into different diameters of pellets based on the configuration of the die. The pellet mill will allow for die changes to change the pelleting parameters.

The pellet mill will be capable of being fed by hand or by suspending a super sack of material over the infeed chute. The finished pellets will drop from the pellet mill die by gravity discharge into a collection bucket.

5 BASIS OF DESIGN

5.1 Capacities

The Pellet Mill capacity will vary depending on die diameter and hole configuration. Typically, 500 lb/hr rate using a ¼" diameter die on feed pellets is to be expected.

5.2 Construction

The Pellet Mill shall be mounted on a steel support structure preferably with wheels for easy movement to different locations. Requirements for the support structure and other component parts will be defined by the Pellet Mill supplier in a pre-purchase detailed proposal and drawings.

5.3 Health, Safety and Environment (HSE)

The Pellet Mill will satisfy appropriate conformity assessment procedures and the controls shall carry the UL marking. The selected unit shall be provided with a dedicated control panel with E-stop.

5.4 Operation, personnel and automation

The Pellet Mill will be set up to be operated by a single operator. All controls will be housed in a single panel for feeder, conditioners, die motor start/stops and E-stop.

5.5 Materials of Construction

Materials of construction for the Pellet Mill will be carbon steel.

5.6 Reliability & maintenance

The Pellet Mill will be designed to operate routinely during 8-12-hour pelleting operations. All wear parts shall be easily accessible and able to be replaced on a regular maintenance schedule. Dies, rollers and other wear parts shall be stock items that can be ordered and delivered in a timely manner.

6 ABBREVIATIONS, ACRONYMS & DEFINITIONS

Acronyms	Description
ASME-BPE	American Society of Mechanical Engineers Bio-Processing Equipment
BSL-1	Bio-Safety Level 1
C&Q	Commissioning & Qualification
CIP	Clean In Place
cGMP	current Good Manufacturing Practices
HVAC	Heating Ventilation & Air Conditioning
REQ	Required Attribute
OPT	Optional Attribute
PLC	Programable Logic Controller
SCADA	Supervisory Control and Data Acquisition
SOP	Standard Operating Procedures
URS	User Requirements Specification

7 USER REQUIREMENT SPECIFICATIONS

URS TABLE – Pellet Mill		
Designation	Description	Type
URS-F1	Lab Scale Pellet Mill capable of handling various materials at a rate of 500 lb/hr depending on die configuration, material to be pelleted, etc.	REQ
URS-F2	Pellet Mill to be constructed of carbon steel.	REQ
URS-F3	Pellet Mill, feeder, conditioners, etc. to be mounted on a steel skid capable of being moved easily via wheels, forklift, etc.	REQ
URS-F4	Feeder to be provided with ability to regulate feed rate into the pellet mill.	REQ
URS-F5	Three (3) conditioners to be provided to allow for addition of steam or liquids to the mash prior to pelleting.	OPT
URS-F6	Pellet mill to have easily accessible die and rollers for easy change out.	REQ
URS-F7	Pellet Mill to come complete with control unit that allows starting and stopping of feeder, conditioners and pellet mill. VFD for feeder will be included to adjust feed rate into the pellet mill.	REQ
URS-F8	Conditioners to each have minimum two ports for steam and liquid addition. Steam usage to be generally less than 12 pounds per conditioner.	OPT
URS-F9	All drive motors and gearmotors shall be 480V, 3-phase/ 60Hz connection.	REQ
URS-F10	A control system shall be provided and consist of a control cabinet housing, start/stop switches and E-Stop.	REQ
URS-F11	Control voltage shall be 120 VAC.	REQ
URS-F12	Full system documentation shall be provided, including instruction and maintenance manuals, safety instructions, P&ID, and dimensional drawings.	REQ
URS-F13	Control system documentation shall be provided, including specifications, wiring overview, circuit diagram, arrangement drawing, terminal connection diagram.	REQ

END OF SPECIFICATION

8 SELECTION CRITERIA

Vendors will be evaluated based on the following criteria:

Evaluation Criteria		
Description	Ranking	Weight
Mandatory Technical Requirements A review of your proposal to determine adherence with the REQ specifications and technical requirements.	1-10	30%
Proposal Pricing Review of your proposal in relation to the services offered in the proposal. Proposals will be evaluated against competing proposals for cost effectiveness. Proposals will be evaluated to be reasonable and appropriate.	1-10	20%
Technical Response The technical response in your proposal portrays knowledge, experience, and professionalism. Relevant product features and/or specifications are available with your equipment other than those mandatory specifications allotted above.	1-10	10%
Lead Time A review of your product's lead time to meet business objectives.	1-10	15%
Product Warranty The available warranty, in scope, duration, and value, proposed with your product.	1-10	5%
Experience and Demonstrated Results Our evaluation will include a review of your history, your experience as it relates to the requirements within this RFP, evidence of past performance, quality and relevance of past work, references, and related items.	1-10	20%

9 RETURN BIDS TO

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10 OTHER PROVISIONS

Must meet 200 CFR buy America Provision • Title 49 Subtitle B Chapter VI [Part 661](#)

Federal Participation Disclosure – “This project will be partially funded with Federal funds from the United States Department of Commerce, Economic Development Administration and therefore is subject to the Federal laws and regulations associated with that program.”

Must meet Federal Contract provision 200 CFR Title 2 subtitle A Chapter II [Part 200](#)

Certification Relating to Prohibited Entity

For contractors, vendors, suppliers, or subcontractors who enter into a contract with the State of South Dakota by submitting a response to this solicitation or agreeing to contract with the State, the bidder or offeror certifies and agrees that the following information is correct:

The bidder or offeror, in preparing its response or offer or in considering proposals submitted from qualified, potential vendors, suppliers, and subcontractors, or in the solicitation, selection, or commercial treatment of any vendor, supplier, or subcontractor, is not an entity, regardless of its principal place of business, that is ultimately owned or controlled, directly or indirectly, by a foreign national, a foreign parent entity, or foreign government from China, Iran, North Korea, Russia, Cuba, or Venezuela, as defined by South Dakota Executive Order 2023-02. It is understood and agreed that, if this certification is false, such false certification will constitute grounds for the State to reject the bid or response submitted by the bidder or offeror on this project and terminate any contract awarded based on the bid or response. The successful bidder or offeror further agrees to provide immediate written notice to the contracting executive branch agency if during the term of the contract it no longer complies with this certification and agrees such noncompliance may be grounds for contract termination.

RESTRICTION OF BOYCOTT OF ISRAEL

For contractors, vendors, suppliers, or subcontractors with five (5) or more employees who enter into a contract with the State of South Dakota that involves the expenditure of one hundred thousand dollars (\$100,000) or more, by submitting a response to this solicitation or agreeing to contract with the State, the bidder or offeror certifies and agrees that the following information is correct:

The bidder or offeror, in preparing its response or offer or in considering proposals submitted from qualified, potential vendors, suppliers, and subcontractors, or in the solicitation, selection, or commercial treatment of any vendor, supplier, or subcontractor, has not refused to transact business activities, has not terminated business activities, and has not taken other similar actions intended to limit its commercial relations, related to the subject matter of the bid or offer, with a person or entity on the basis of Israeli national origin, or residence or incorporation in Israel or its territories, with the specific intent to accomplish a boycott or divestment of Israel in a discriminatory manner. It is understood and agreed that, if this certification is false, such false certification will constitute grounds for the State to reject the bid or response submitted by the bidder or offeror on this project and terminate any contract awarded based on the bid or response. The successful bidder or offeror further agrees to provide immediate written notice to the contracting executive branch agency if during the term of the contract it no longer complies with this certification and agrees such noncompliance may be grounds for contract termination.