



सीएसआईआर-केंद्रीय खाद्य प्रौद्योगिक अनुसंधान संस्थान
CSIR- CENTRAL FOOD TECHNOLOGICAL RESEARCH INSTITUTE
मैसूरु / MYSURU-570 020, भारत / INDIA

(Constituent Laboratory of CSIR, New Delhi (Ministry of Science & Technology)
An ISO 9001:2008, ISO 14001:2004 & ISO 17025:2005, NABL Accredited Laboratory

Tender Ref: A3/74176/19 Date: 16-12- 2019

Tender ID: 2019_CSIR_38221_1

The revised final specification based on the discussion in Pre Bid Conference enabling equal opportunity to all OEMs has been incorporated below as revision to the original tender specification. All bidders are requested to peruse the same and submit their bids accordingly on or before 02.00 p.m. on 23/Jan/2020.

All other tender terms and conditions remain unaltered.

Revised Technical Specifications for Millet Processing plant

S. No.	Item	Quantity						
1	<p>Cleaner</p> <p>Cleaner fitted with Vibro/gyro capable of cleaning following millets of different bulk density(BD) and geometric mean diameter(GMD)</p> <table border="1"><thead><tr><th>Type of millets</th><th>BD (Kg/m³)</th><th>GMD (mm)</th></tr></thead><tbody><tr><td>Little millet</td><td>785.9</td><td>1.75±0.06</td></tr></tbody></table>	Type of millets	BD (Kg/m ³)	GMD (mm)	Little millet	785.9	1.75±0.06	1
Type of millets	BD (Kg/m ³)	GMD (mm)						
Little millet	785.9	1.75±0.06						

Foxtail millet	787.5	1.67±0.11
Proso millet	816.2	2.15±0.11
Kodo Millet	810.1	2.19±0.12
Brown top millet	749.8	1.87±0.03

All steel construction cleaner deck capable of handling 1 Ton of above said millet is required for high-quality size separation and aspiration of dry material such as leaves, straw and other foreign materials.

1 set of the additional following size of sieves should be provide along with the machine:

- a) Sieve – 0.8 and 1.1mm
- b) Sieve – 1.4 and 1.7mm
- c) Sieve – 2.6 and 3.0mm

The unit should have aspiration system at inlet and outlet points, with adjustable feed hopper for even distribution of material on screen surface, provision for quick removal and insertion/ stretching of screen through quick-release clamps; enclosed type counter-balanced drive system for operation; dust control; provision to vary the deck vibration and speed; provision to vary machine conditions while the machine is in operation. The unit should have efficient de-clogging system to prevent choking of screens.

The unit should be fitted with appropriate capacity continuous rated TEFC induction motor and starter of reputed make to run on 415V, 50Hz, 3 phase AC supply.

Capacity - 1 ton/h

2	<p>Destoner</p> <p>Vibratory destoner vacuum type for continuous destoning of grains. The unit should be of all-steel construction with vibratory deck and well balanced built-in fan. All the vibratory components should be properly balanced.</p> <p>The unit should have facilities for independent alteration of inclination of deck and volume of air. Necessary fitting with feed hopper, regulators for uniform flow of grains across the entire width of deck with all essential accessories. The machine should be fitted with shock-absorbing anti-vibration mounts to make the frame vibration-free.</p> <p>The unit should be fitted with suitable continuous rated TEFC induction electric motor and starter of reputed make to run on 415volts, 50Hz, 3 phase AC supply.</p> <p>Capacity - 1ton/h</p>	1
3	<p>Drawer Magnet Separator system</p> <p>Drawer type Magnet (fixed to chutes) is required to remove ferrous contaminants from dry, free-flowing grains. When grains fall down on drawer magnet metal are a clog and other particles go to another section. Generally, it holds and captures ferrous contaminants from flowing food products. They are applied in the cleaning house prior to the milling unit.</p>	<p>Number as per the requirement (1unit in each section i.e. Before Dehusking system, polishing & before finished material</p>
4	<p>Pneumatic Sheller</p> <p>Pneumatic Sheller is intended to facilitate the easy removal of husks from grains. Input grain is passed between two counter-revolving rollers, which results in the removal of the husk from the grain.</p> <p>The machine should be equipped with Vibro aspirator, compressor and automatic systems that control the pressure exerted by the rollers, as well as the correct feed rate for the input grains with the help of Vibrator system which allows uniform distribution of grain.</p> <ul style="list-style-type: none"> • Capable of dehusking of 80% and above 	1unit

	<ul style="list-style-type: none"> • The hardness of the Rubber roller should be in the range of 85 to 90 shore & size of 10"x10" • Infinite adjustment of the degree of shelling by adjusting compressed air pressure • Sensor-enabled panel disengages the rubber rollers automatically when input product flow stops • Feed rate can be controlled electronically • An inbuilt cooling system to dissipate heat generated on rubber rollers • Auto/manual mode of working • Capacity 1ton/h <p>The unit should be fitted with suitable continuous rated TEFC induction electric motor and starter of reputed make to run on 415volts, 50Hz, 3 phase AC supply.</p>	
5	<p>Husk collection / Dust control system</p> <p>System used to collect the husk and dust from machinery includes dust blower, collecting system, motor, and cyclone fitted with airlock and dust collecting bag</p>	1
6	<p>Separator</p> <p>The separator should be capable of separating two products of same size but different specific gravity i.e. Unhulled millets from hulled millets.</p> <ul style="list-style-type: none"> • Capacity 1ton/h <p>The unit should be fitted with suitable continuous rated TEFC induction electric motor and starter of reputed make to run on 415volts, 50Hz, 3 phase AC supply.</p>	1
7	<p>Cone polisher / whitner / Vertical abrasive polisher</p> <p>Semi-automatic polisher for polishing of hulled grain with provision to vary machine speed/conditions while the machine is in operation.</p> <p>The machine should be equipped with bran collection system & holding bin fitted with rotary valve for uniform mixing of paddy husk with hulled millet before passing through the polisher in each stage.</p> <ul style="list-style-type: none"> • Capacity 1ton/h <p>The unit should be fitted with suitable continuous rated TEFC induction electric motor and starter of reputed</p>	3

	make to run on 415volts, 50Hz, 3 phase AC supply.	
8	<p>Plansifter</p> <p>The plansifter is required for efficient sifting and grading of floury and granular products.</p> <p>Automatic machine should be equipped with VFD controlled system and vibrating feeder, Self-cleaning rubber balls prevent choking and easy replaceable sieves (additional set of sieves and screen tensioning system to be provided).</p> <ul style="list-style-type: none"> • Capacity – 1ton/h <p>The unit should be fitted with suitable continuous rated TEFC induction electric motor and starter of reputed make to run on 415volts, 50Hz, 3 phase AC supply.</p>	1
9	<p>Central dust collection discharge system</p> <p>System integrated with all dust collecting point across the mill to collect the dust from bucket elevator/machinery wherever required which includes dust blower, collecting system, motor, and cyclone fitted with airlock and dust collecting bag</p>	1
10	<p>Bucket elevator</p> <p>In M.S. construction with polymer Buckets, Pulley & Light Weight Polymer Belting, geared box with motor.</p> <p>The unit should be fitted with appropriate capacity continuous rated TEFC induction motor and starter of reputed make to run on 415V, 50Hz, 3 phase AC supply.</p> <p>Capacity 1ton/h(each)</p> <p>This Elevator will feed millet to Bin of machine for continuous process. Delivery pipe in S.S. [Elevator height – 23 ft(2nos.), 32 ft(2nos.) and 36feet (1No.)]</p>	As per layout requirement for smooth and continuous running of plant

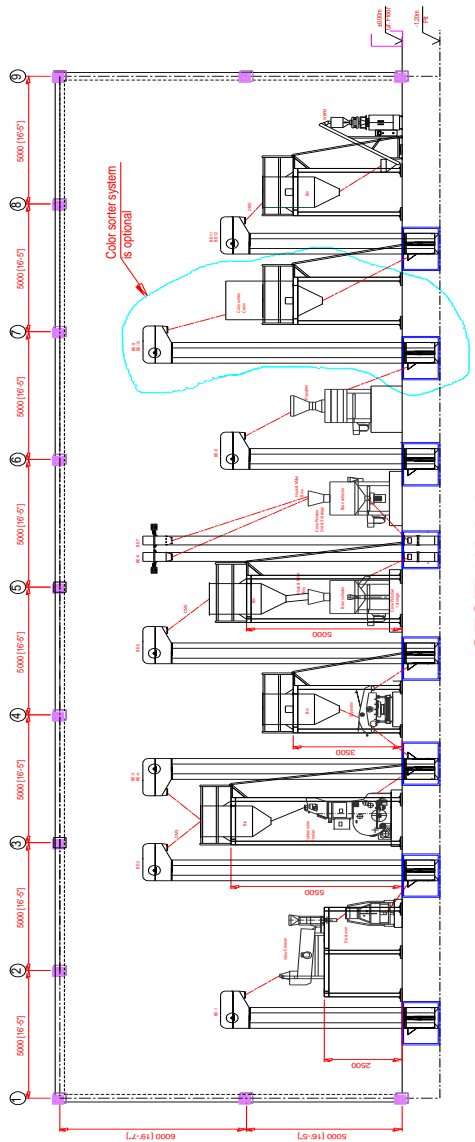
11	<p>Storing tanks with MS structure</p> <p>Polished grain storage tanks 3 to 4 mm body thickness in S.S.304 Construction without cover fitted with suitable Discharge Valve with holding capacity 1ton/h for following different type of millets;</p> <table border="1" data-bbox="302 422 831 873"> <thead> <tr> <th>Type of millets</th> <th>BD (Kg/m³)</th> </tr> </thead> <tbody> <tr> <td>Little millet</td> <td>785.9</td> </tr> <tr> <td>Foxtail millet</td> <td>787.5</td> </tr> <tr> <td>Proso millet</td> <td>816.2</td> </tr> <tr> <td>Kodo Millet</td> <td>810.1</td> </tr> <tr> <td>Brown top millet</td> <td>749.8</td> </tr> </tbody> </table> <p>M.S. STRUCTURE: 1 lot</p> <p>Supporting structure in M.S. construction including Stair Case, ladder, Walkways, Railings and Grating Platform.</p>	Type of millets	BD (Kg/m ³)	Little millet	785.9	Foxtail millet	787.5	Proso millet	816.2	Kodo Millet	810.1	Brown top millet	749.8	2
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Brown top millet	749.8													
12	<p>Storing tanks with MS structure</p> <p>Storing tanks 3 to 4 mm body thickness in MS Construction without cover fitted with suitable Discharge Valve withholding capacity 1ton/h (for cleaned raw millets), For paddy husk holding capacity of 70kg and others as per the layout requirement for following different types of millets</p> <table border="1" data-bbox="302 1329 831 1780"> <thead> <tr> <th>Type of millets</th> <th>BD (Kg/m³)</th> </tr> </thead> <tbody> <tr> <td>Little millet</td> <td>785.9</td> </tr> <tr> <td>Foxtail millet</td> <td>787.5</td> </tr> <tr> <td>Proso millet</td> <td>816.2</td> </tr> <tr> <td>Kodo Millet</td> <td>810.1</td> </tr> <tr> <td>Brown top millet</td> <td>749.8</td> </tr> </tbody> </table> <p>M.S. STRUCTURE: 1 lot</p>	Type of millets	BD (Kg/m ³)	Little millet	785.9	Foxtail millet	787.5	Proso millet	816.2	Kodo Millet	810.1	Brown top millet	749.8	As per layout requirement for holding of millet and paddy husk at different stage during continuous running of plant
Type of millets	BD (Kg/m ³)													
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	Supporting structure in M.S. construction including Stair Case, ladder, Walkways, Railings and Grating Platform.	
13	<p>Bag filling machine with SS304 hopper/contact parts, Semi-Automatic high speed processor based electronic weighing system with standard load cells, double speed vibratory feeder and Pneumatically operated functions.</p> <p>Range: 5 to 50 Kgs</p>	1

In addition to the detailed specifications of the machinery the following points may also be added as a general item in the specification of machinery for the specific lines:

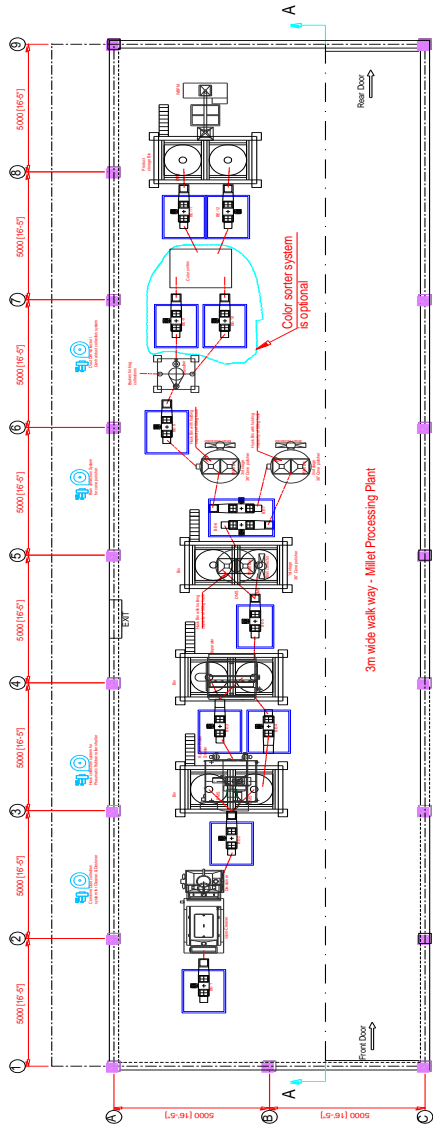
1. Essential spares of machinery like screens, abrasives, rubber rollers and other spares for smooth functioning of the plant for one year of operation should be supplied.
2. Tools required for maintenance of machinery should be supplied
3. Appropriate guard for all open drives should be provided for safety
4. The individual machinery should be supplied with electrical motor and matching starter
5. Provision for starting/ stopping the individual machine of the line should be made available
6. The electrical motor supplied should be from reputed manufacturers having an efficiency of 80% and above
7. Control panel for the entire plant should be provided along with indicator lamps and Voltage,
8. The charges for wiring the individual machinery with necessary and regulatory safety features should be included in the scope of supply
9. The AMC for the entire plant (after warranty period) should also be indicated

10. Please mention the area required for each line and arrange to provide layout drawing accordingly.
11. The colour scheme of painting of all the machines shall be of uniform colour



SECTION A-A

NOTE:
 BE - Bucket elevator
 DMS - Drawer magnet separator
 WBPM - Weighing & bag packing machine



PLAN

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DRN	DATE	NAME	TITLE
CFD	10/03/2019	DR. S. S. SURESH	RESEARCH INSTITUTE, MYSURU - 570 020
APPD			
CHKD			
DRAUGHTSMAN'S SIGNATURE		TITLE	
DRAWING NUMBER		MILLET PROCESSING PLANT	
SHEET NO.		g	
PAGE NO.		g	



Break Sharp Edges