

UNIVERSITY OF ZIMBABWE



VICE CHANCELLOR'S OFFICE

The Specification for the Agro Industrial Park Plants

Name of the Client to be indicated as: The University of Zimbabwe
(Government of Zimbabwe)

Att: Procurement Management Unit

1. EASTERN WING OF THE INDUSTRIAL PARK

The total floor area covers 20m x 40 m = 800 m². The main product is bread with estimated to be 20,000 loaves per day. It is anticipated to give additional starch products like of different typed powdered or solid.

1.1 Bread Making Machine

Specifications for processing flow producing 20, 000 loaves per day or equivalent with flexible raw materials intake.

1. 1 x dough Mixer or equivalent. The maximum speed: 115/230 R/M; to give max dough/flour: at least 80/50kg per time. Power supply: single (220Vac or 3-phase 380/400Vac.)
2. 1 x hydraulic dough divider or equivalent compatible with dough mixer and suite the toast loaf bread range
3. 1 x toast moulder or equivalent compatible with hydraulic dough divider, preferable weight range of 30 – 1200g or 2000 pcs/ hour.

4. 1 x fermenting box or equivalent compatible with item 1 -3 particularly with a trolley matching the oven baking
5. 1 x rotary rack oven or equivalent with tray size(mm) and tray (No) 400 * 600/32 or 20 group toast pans or equivalent compatible with item 1 -4.
6. 1 x bread slicer compatible with product (toast loaf bread) preferably 20 – 31pcs thickness range 12 – 15 mm. Power supply: 230 V ac
7. 1 x baking trolley with ability to perform the following functions - fermenting, baking and cooling
8. 1 x loaf pans in straps or equivalent. The tray should hold at 5 loaves in one group and should be none-stick with the lid and hole in the bottom.

1.2Wash Room

The Wash Room is erected directly opposite the Eastern wing and the building consist of a holding Unit and wash Unit. This section ensure that the raw materials are prepared to the best form in preparation for processing. Common raw material includes: sweet potatoes, soya beans, Irish potato, maize and wheat.

1. All machines should have capability to clean the available raw materials and the power input is either single phase 220-240Vac or 3-phase 380-400Vac all at 50Hz frequency.
2. In case of a sweet potato peeler, it should be able to produce between 700 – 800kg per hour with maximum power of 1.5kW. it should be versatile and able to either clean, peel including vegetable and fruits such as (onion, carrot, ginger, beet and potato).

2. WESTERN SIDE OF THE INDUSTRIAL PARK SHELL

The western side is a direct duplicate of the eastern side with a total floor area measuring 40 m x 20 m to give 800 m² space. This section will house machinery to produce vegetable oil and stock feeds with soya beans as the main raw material for the whole process. Power supply at this wing is both single-phase 220-240Vac and 380-400Vac all at 50Hz frequency.

2.1 Oil Processing Plant

The plant is expected to produce a total of 100 tonnes per day at maximum when sufficient raw material is in place. The production consists of 6 lines whose specifications are as follows:

1. Oil pressing line capable of producing 100 tonnes per day or equivalent and the power supply should be 3-phase, 380-400Vac at 50Hz. The plant can be batch type with at least 3 batches at maximum conversion efficiency.
2. 1 x 4 tonnes per day steam boiler or equivalent preferably gas fired with all the controls and monitoring done on computer panel or accessed using direct wire board.
3. 1 x oil packing plant with accessories. This should have an auxiliary
4. 1 x oil refinery plant, capable of handling the output of the oil pressing plant converting 100 tonnes per day of raw material. The plant should be able to be batched for flexibility
5. Feed line capable to process 140 tonnes per day of feed and the power supply should be either single 220-240vac or 3-phase 380 -400Vac at 50hz frequency.

2.2 Stock Feed Plant

The plant should be able to process the output of the oil pressing plant and should be compatible with either single phase 220-240Vac or 3-phase 380-400Vac at 50Hz frequency. The plant should have the following sections:

1. Material receiving and pre-cleaning – system should screen and clean the raw material and allow only material within range. Control of this section is either manual or semi-automated on screen or direct wire board.
2. Crushing system - this part should be preferably pneumatic controlled and with sufficient indicators for level, buffer etc. maximum size of the motor should be less than 6kW and easy to operate and maintain.
3. Batching and mixing - this part should be preferably pneumatic controlled and with sufficient indicators for level, and system interlinked with strong and rugged conveyor system powered by energy efficient motors.

4. Pelletizing, cooling and cleaning – this part should be able to do these three things effectively well and preferably pneumatic operated and cooling by means of draft fans.
5. Packing and dust collection - system should have capability to easy pack, and evacuate dust and preferably pneumatic controlled.
6. Operation and maintenance - the system should be easy to operate and maintain with minimum human interference.