08.01.2024

Technical Specifications

Steam Cooking Vacuum Jacketed Kettle with Agitator for producing Milk Toffee at Galpokuna Farm

It is intended to purchase new (minimum) 600 liters Steam Cooking Vacuum Jacketed Kettle with Agitator for the Galpokuna Farm in order to increase the production capacity and reduce milk condensing (process) time of milk toffee production. The bidders who intended to quote this project should possess the following specifications general conditions.

1. General

Contractor shall furnish and install the Steam Cooking Vacuum Jacketed Kettle with Agitator to increase the capacity and reduce process time of existing milk toffee production, as here in after specified. The scope of the contractor shall cover design, supply, delivery, erection, connection, testing, commissioning, training and maintenance for a specific period of complete.

Steam Cooking Vacuum Jacketed Kettle set shall be supplied complete with all ancillary equipment necessary for starting and running of the set, steam supply system, instrumentation, control & protection arrangement, electrical supply, spares and special Tools.

The set to be mounted on designer recommended suitable basement (foundation) to minimize the transmission of vibration, movement etc. for optimize process and to maximize the lifetime of the machinery set.

Flexible connections shall be provided to all steam and other supply lines as appropriate for retrofit designed process that leave the set to prevent the transmission of vibration and the fracture of the piping due to movement/vibration of the set.

The contractors are encouraged to visit the site to examine the existing milk toffee production process and asses all the material and work to be included in order to ensure complete functioning of the Steam Cooking Vacuum Jacketed Kettle (with agitator) system covering all intended/implied requirements; and all the material & work shall be included in to contractor's scope. The contractor is supposed to discuss with the client in prior, if any modification or addition required to the existing infrastructure for implementing contractor's scope (i.e.: Boiler capacity, Steam line/ capacity modification, Kettle foundation, Electrical Panel modifications, etc.)

2. Standards

The Jacketed kettle and the accessories shall be designed, manufactured and tested in compliance with the latest versions including, but not limited to the following standards (or any other similar recognized standards).

Jacketed Kettle

GB 150-1998 (G8150-1998)	Design of steel pressure vessels, fabrication, inspection and acceptance requirements
JBIT 4735-1991	Steel welded atmospheric pressure vessels
GB 16798-1997 (G816798-1997)	Requirements of safety and sanitation for food machinery

3. Characteristics of the Kettle

a) General

- **Material**

a) Stainless steel inner pot (AISI 3 16) or similar food grade material, carbon steel outer pot (Q235-B) treated with anti-rust paint
b) Easy clean the pot in case of caramelized/adhered food
c) The whole machine is made of stainless steel (AISI 316) or similar food grade material

- **Clean Requirement**

Stainless steel AISI 316 (or similar food grade material) as production material shall resistant to heat (hot water), acid and alkali

- **Operation**

a) Shall equipped with pressure gauges (for steam & vacuum for minimum), temperature gauges, safety valve and electrical control box.
b) Easy to operate (user friendly)
c) Alarm system for notifying abnormal/faulty conditions (i.e.: Low/High pressure & temperature)
d) Preferred the Kettle "Tilting" option. But should be Manual
e) Transparent top window to see the product inside, is preferred
f) Safety precautions are expected for both machine and human due to mechanical, electrical and chemical hazardous.
g) Emergency stop

b) Other characteristics

a) Kettle pot is the double layer structure formed by inside and outside spherical pot; middle layer contains heat-conducting (steam). Shall include Steam condensate outlet.

b) Temperature shall be uniform in the whole heating area

c) High thermal efficiency, reliable performance

d) Easy control the heating temperature

e) short boiling time with vacuum technology

*The contractor shall calculate and specify the "Time consumed" for condensing process of raw milk (600 liters of cow raw milk) up to "70o/o solids & 30'yo water", for both scenarios WITH and WITHOUT vacuum technology. Considering at your machine rated seam supply

(The times consumed Shall be clearly declared in the offer, and shall be demonstrated in commissioning)

f) All the design shall be complied with the industrial safety standards

g) Control panels are to be fabricated according to IEE standards.

4. Technical parameters of Jacketed Kettle

- Capacity : Minimum 600 liters
- Caliber diameter (mm) : Approx. 1200 mm
- Depth of Pot (mm) : Approx. 850 mm
- Working pressure ≤0.085 MPa and adjustable
- Stirring speed 36 rev/min and adjustable
- Stirring power (kW) ≤2.0
- Temperature : Minimum operating temperature 140^{o}C

  Uniform distribution of heat throughout the cooking chamber

- Product : Raw milk (Cow/ buffalo) & sugar; and high versatility for similar products
- Motors & other electrical components (Electric control box):

  Supply voltage : 230V/1400V (+/-6%) at 50Hz

  General standard electrical insulation protection (IP 65)

- Operating condition

  Ambient temperature : 30oC - 38oC

  Relative Humidity : > 85o/o

5. After sales services

- Spare parts shall be available to order at least for ten years after commissioning
- Driving & control equipment and related accessories, all Electrical I pneumatic components shall be of world reputed makes / brands (Shall be declared in the offer)

6. Warranty requirement

Comprehensive two-year warranty shall provide for the machine and all the other relevant equipment, attachment and accessories. Bidder shall explain clearly the warranty conditions in the bid.

7. Scope of Supply

- Steam Heating Vacuum Jacketed Kettle with Agitator
- Machine framework with standing legs
- Machine installing foundation (Optional)
- Electric control box
- Electric power supply cables and steam supply connection pipes and accessories
- Standard spare parts for two-year operation
- Operation, maintenance manual and spare parts catalogue in English language
- Too[kit
- Training
- providing after sales services including technical assistance as required

8. Scope of work

- Design, supply, delivery (including loading & unloading), shifting, placing, installation, connection, testing, commissioning.
- Training the machine operators and maintenance crew.
- Providing after sales services including technical assistance as required.

9. Bidder/Bid eligibility criteria

1) Bidder shall have supplied minimum three number of Steam Jacketed Kettles within the last 5 years
2) Bidder shall have supplied minimum one number of Steam Vacuum Jacketed Kettle with a capacity of over 400 liters within past three years. (Need to provide relevant client details)
3) Bidder shall have ability to provide necessary technical assistance at any instant and without delays in case of trouble shooting or supply of spare parts.
4) (If the bidder is not the principal supplier, they shall provide a copy of authorization certificate to deal with quoted brand and a confirmation email from the principles as a proof document)
5) Bidder shall have a minimum 25 Mn (LKR) annual turnover continuing for last 5 years.
6) Bidder shall provide necessary spare parts with the machine (free of charge) required for smooth operation of two years after machine commissioning.
7) Bidder shall provide a written confirmation mentioning the ability of supplying spare parts for minimum years after machine commissioning.
8) Bidder shall provide details of manufacturer's production capacity and worldwide agents if any
9) Bidder shall provide the details of quality standards holding by the manufacturer.
10) The machine should be compatible to the existing utilities and other available facilities.
11) Bidder shall supply a complete schedule of preventive maintenance recommended by the manufacturer.
12) Bidder preferred to provide the operating cost related to the machine for 50,000 liters in LKR. (Mention the recommended required man power)
13) Bidder preferred to provide the machine maintenance cost in basis of 10 operational hours per day and 6 Productions.