

Annex 1; Specification

USAID/LMD project

Addis Ababa Ethiopia

General Technical Specifications

1. Part B contains the technical specifications of the required commodities.
2. Bulk milk cooling tanks offered, must comply with the following Standard: BS EN 13732:2002+A2:2009 Bulk Milk Coolers on Farms. Requirements for construction, performance, suitability for use, safety and hygiene.
3. All supplied commodities must be new. All parts, sub-parts, gears, electrical motors, electrical relays and mechanisms must be new.
4. Electrical equipment offered, must comply with EN 60204 Electrical Equipment and Safety of Machines.
5. All electrical equipment must operate on 380/220V, 50 Hz. Transformers will not be accepted. Auto-sensing, multi-voltage power supplies are preferable.
6. Electrical control panels must be constructed of stainless steel.
7. Electrical relays, switches and components must be of superior quality, Siemens or equivalent. The name of the manufacturer of the electrical components will be identified in the Offer.
8. The supplies which are the subject of the invitation to supply are to be delivered with an individual or overall lot of spare parts. The Offeror shall include with his offer a list of such spare parts, drawn up in the light of his professional experience and taking account of the place of use.
9. The list of spare parts must indicate the unit prices thereof. However, the Purchaser reserves the right to amend the list of spare parts within the percentage referred to above (20%). These amendments will be indicated in the letter of contract.
10. The spare parts shall be delivered at the same time as the supplies themselves.
11. If the supplies which are the subject of the RFQ, are not divided into lots, the quantity or quantities required shall be indivisible. The offeror must therefore offer the whole of the quantity or quantities indicated.
12. Offers for part of the total quantity required will not be taken into consideration.
13. The Purchaser reserves the right to vary the quantities stipulated at the time of ordering, within the limits of +/-20% of the total supply requested.
14. Supplies shall be packaged in such a way that they are protected from all damage during transport (whether by sea, air, road or rail).

15. The packaging of the supplies shall become the property of the Purchaser.
16. A spare-parts manual and maintenance manuals shall be provided with each set of equipment, in English.
17. For each set of equipment, an operator's instruction manual written in English shall be provided by the supplier, to include technical drawings and wiring diagrams of electrical circuits and will include any necessary additional instructions on operation and use.

1. Stainless Steel

The milk storage and handling equipment items, together with all the piping, valves, fittings and connections will be constructed of acid-resistant stainless steel.

The stainless steel used for construction of equipment, fittings and piping must conform to one of the following Standards. The submitted Offer documentation will include a statement endorsing the quality of the stainless steel.

National Standard	AISI304	AISI316	AISI316L
USA	AISI304	AISI316	AISI316L
Germany	W.Nr. 1.4301	W.Nr.1.4401	W.Nr. 1.4404
United Kingdom	BS304 S15	BS316 S16	BS 316 S11 and 316 S12
Sweden	SS2333	SS2347	SS2348

2. Requested Supply

The requested quotation is for the supply of a quantity turnkey fully equipped Milk Cooling Centres.

The equipment to be supplied to each Milk Cooling Centre is to include the following items:

Item Description	Units	Quantity
Weighing tank, stainless steel, capacity 200 litres	pcs	5
Digital weighing scales	pcs	5
Centrifugal pump, 5000 litres/hour	pcs	5
In-line stainless steel milk filter	pcs	5
Plate cooler, connected to raw water supply (estimated 10-12°C) to pre-cool milk. To be located on the milk inlet line,	pcs	5

before the cooling tank.		
<p>Milk cooling tank, direct expansion, cylindrical shape, top lid cover, thermometer in tank wall range 0-100°C, and agitator with control panel.</p> <p>Must comply with the following Standard: BS EN 13732:2002+A2:2009 Bulk Milk Coolers on Farms. Requirements for construction, performance, suitability for use, safety and hygiene:</p> <p>Cooling capacity from 32 to 4°C within 2 hours.</p> <p>All stainless steel construction, with dip-stick for volume measurement, cleaning brushes and accessories.</p> <p>Capacity:</p> <p>2000 litres,</p> <p>1000 litres</p>	<p>Pcs</p> <p>pcs</p>	<p>5</p> <p>5</p>
CIP unit for automatic cleaning	sets	5
Supporting Equipment		
Set of piping, valves and connections, as required. All stainless steel.	sets	5
Set of pipe hangers, supports, electric cables, cable conduit	sets	5
Milk composition analyzer, for fat, protein, lactose, solids, added water	pcs	5
Salut alcohol gun, stainless steel	pcs	15
Lactometer 1.026-1.032 with immersion cylinder	pcs	10
Thermometer 0-100 °C, dairy type enclosed in protective case	pcs	10
Measuring Equipment		
Stainless steel milk cans 40 litres	pcs	50
Milk bucket, 15 litres, stainless steel	pcs	10
Milk measuring set, stainless steel Dippers 100 ml, 250 ml, 500 ml, of each 1000 ml, 2000 ml	cs	10
Milk funnel, stainless steel, with filter screen with cotton filters	pcs	10
Generators as stand by to be specified by suppliers	pcs	5

Sets of spare parts and consumables adequate for two years for all tanks and other equipment	sets	lumpsum
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***Note:** Electrical equipment offered, must comply with EN 60204 Electrical Equipment and Safety of Machines.

3.1 Weighing and Recording Options

Offers will include a choice of two (2) options for weighing the milk, measuring the fat content, and recording the volumes of milk arriving at the Milk Collection Centres.

Option1: Manual System to include:

Mechanical or electronic weighing scales, with battery backup, for weighing 50 litre milk cans

Spring balance weighing scale suspended type, for weighing buckets of milk up to 15 kgs.

Milk Composition analyzer, electronic, to measure fat, protein, lactose, SNF and added water.

Option 2: Automated Processor System to include:

Weighing tank, capacity 200 litres, capable of automatic weighing and recording.

Milk analyzer, electronic, for measuring milk composition, to measure fat, protein, lactose, SNF, added water.

Micro-processor with software to automatically record the weight of milk, the measured fat percentage, and calculate the total weight of fat delivered, in a totally integrated process.

Smart card system to enable farmers' individual I.D. to be recorded.

Print-out of receipt as a record of the delivery and the payment to the farmer.

3. Detailed Specifications

4.1 Milk reception electronic scale, 500 kg

Scales for weighing milk, of sufficient dimensions to permit weighing in a 200 litre vat placed on the scales.

Weighing Range	0.5 Kgs – 500 Kgs
Accuracy	±0.5 kgs
Material of construction	Stainless steel, AISI304
Display	Digital
Power requirement	240V, 50 Hz

Battery backup	Yes
Components protected from water	Yes

4.2 Raw milk horizontal storage tank,

To comply with BS EN 13732:2002+A2:2009 Bulk Milk Coolers on Farms. Requirements for construction, performance, suitability for use, safety and hygiene.

Free standing tank, constructed of stainless steel AISI 304, to be equipped with a direct expansion refrigeration unit.

The tank will be mounted on four adjustable stainless steel legs provided with stainless steel base-plates. All auxiliary parts will be constructed of stainless steel AISI 304, according DIN 1.4301 for inside and outside of tanks. The tank will be insulated with at least 50 mm thick non-polluting polyurethane insulation material to prevent product heat loss/gain.

Inlet 1.5 inches

Outlet 2 inches, stainless steel valve

All welding joints will be smooth polished with a sanitary finish of a high quality.

Tanks will be fitted with a one-piece lid which can be opened for inspection of the tank interior and secured by a locking mechanism, CIP spray-ball with 360 degree rotation, fixed by a locking pin or screw thread, air vent of sufficient diameter to permit filling of tanks when the lid is closed, electro-mechanical stainless steel agitator with a statically and dynamically balanced bladed propeller driven by a geared and shrouded electric motor having sufficient capacity to mix the contents of the full tank within 2 minutes, operating at 30 rpm, sanitary sampling cock, dial thermometer and foamless milk inlet pipe curved to terminate in close proximity to the internal tank wall to prevent foaming, and dismountable for cleaning.

Tank internal floors will have a fall of sufficient slope as to ensure full and effective drainage of the tank contents.

Refrigerant: Ecologically approved. Certification to be included with the Offer.

Operating panel, safety class IP 65.

Agitator to be controlled by a 5 minutes timed operating cycle.

4.3 Centrifugal milk pump

Capacity 5000 litres/hour.

Product-wetted parts i.e. pump casing, impeller and pump shaft to be constructed of acid-resistant steel AISI 316L.

Screws, nuts, yoke, shroud and legs to be constructed of stainless steel AISI 304.

Seals to be made of Nitrile (NBR) or EPDM rubber.

Max. Inlet pressure	4 kPa (4 bar)
Temperature range	-10°C to +140°C
Motor	3 ~, 50 Hz, 220V
Connections	As required on site

3.4 PHE Plate cooler, 5000 litres/hour

Plate cooler. To be connected to raw water supply (estimated water temperature 10-12°C)

Milk inlet temperature 32°C, estimated outlet temperature 12-15°C.

Stainless steel plates.

Inlet and outlet valves on product and iced water, stainless steel manual butterfly valves.

Insulation material for iced water pipes to be supplied as necessary, with clamps, screws and fittings as required.

3.5 Milk Weighing Tank

Capacity 200 litres. Constructed of stainless steel AISI304, rectangular, single compartment vat, with rounded corners. Bottom sloped towards the outlet. Supported on four adjustable legs, or suspended on weighing scale. Capacity indication scale, glass blasted on inside vat wall, with removable lid.

4.6. Milk Cans

Stainless steel, capacity 40 litres.

Smooth surface polished to 150 grit

Bottom ring secure.

Handles secure

Lid mushroom type

3.6 Cleaning-In-Place Unit

Automatic washing system, washing cycles controlled by PLC