

उपमन्यु बसु
संयुक्त सचिव
UPAMANYU BASU
Joint Secretary



भारत सरकार
मत्स्यपालन, पशुपालन एवं डेयरी मंत्रालय
पशुपालन एवं डेयरी विभाग
कृषि भवन, नई दिल्ली-110001
Government of India
Ministry of Fisheries, Animal Husbandry & Dairying
Department of Animal Husbandry and Dairying
Krishi Bhawan, New Delhi-110001

D.O. No. K-11053(5313)/25/2019-LH-Part(1) /21433

Dated: 28th March, 2022

Dear Sir/Madam,

As you are aware that under National Animal Disease Control Programme (NADCP) for control of FMD and Brucellosis, 100% Central assistance is provided to States/UTs for procurement of equipment, accessories, etc. for cold chain maintenance.

Vaccine is the fulcrum of the programme. However, a robust and efficient supply chain along with reliable cold chain equipment (maintaining 2-8^o Celsius), is vital to effective immunisation coverage. Such cold supply chain, will ensure adequate vaccine availability, potency, and safety. The Department has already released funds to States/UTs for procurement of cold chain infrastructure.

The availability of a number of cold chain infrastructure with multiple specifications, often becomes confusing. It is gathered that many States/UTs are still unable to procure them basis the lack of clarity on specifications for cold chain infrastructure. Accordingly, a guidance document (as per Annexure enclosed) has been prepared for model infrastructure specifications so to enable their procurement for optimal utilization within the budget sanctioned. Eventually, based on requirement at various levels- districts, blocks, villages, States /UTs may strategize procurement and placement of these equipment.

I therefore request you to bestow your personal attention and direct the officers concerned to adhere to the specifications and terms while procuring cold chain infrastructure, albeit through GeM as per GFR 2017. Any deviation from this will require prior approval of the Department along with proper justification.

With regards,

Yours sincerely,

Upamanyu Basu
(Upamanyu Basu)

Encl: a/a

To:

ACS/Principal Secretary/Secretary/ Animal Husbandry Department (all States /UTs)

Copy to

1. Commissioner/Director Animal Husbandry Department (all States /UTs)
2. CEOs, SIAs/LDBs (all States / UTs)

Advisory for the procurement of Cold Chain Equipment

Walk-in-Cold Rooms (WICS)

1.1 Size: 10 Cubic Meter to 30 Cubic Meter

1.2 General requirements:

Walk in Cold Rooms are required to store large volumes of vaccines and other time and temperature sensitive products used for programs of Animal Husbandry Department at the State, and District level centres.

1.3 Temperature control:

Cold room: All parts of the room designated for vaccine storage must remain between +2°C to +8°C when measured under any loading condition between empty and full and over the full ambient temperature range of the required temperature zone.

1.4 Holdover Time:

Equipment should have systems or components which are designed to improve temperature stability in the event of a power failure to have hold over time of minimum 6- 8 hours so that the temperature of the Cold room is maintained between +2°C to +8°C.

1.5 Electrical safety rating:

Electrical safety rating: Manufacturer to certify compliance of the supplied electrical and electro-mechanical components with IEC 60335-1. All on-site electrical installation work must comply with IEC 60364-1.

1.6 Voltage, Frequency, and Phasing:

Depending on the size of the enclosure, the following options are to be offered:

1.6.1 Single –phase: 220–240-volt 50/60 Hz and 100–127-volt 50/60 Hz single phase neutral earth (for rooms not exceeding 10 m³ gross capacity).

1.6.2 Three-phase: 190–240-volt 50/60 Hz and 380–480-volt 50/60 Hz three phase neutral and earth (for rooms greater than 10 m³ gross capacity). Y/delta starters are required to minimize starting current and standby generator capacity.

1.7 Voltage stabilization and surge protection:

The equipment must be compatible with the electricity supply installation at the site where the store is to be constructed.

1.8 Panel insulation:

For panel insulation, Polyurethane high-density material preferably should be used. If flammable it must contain a fire-retardant.

1.9 Wall and roof panel construction:

1.9.1 Wall and roof panel skins may be made of:

Stainless steel

or

Zinc coated steel with a corrosion-resistant plastics coating and a surface spread of flame rating meeting with the IEC Standards

1.9.2 Panels must be fully insulated and without internal structural members or stiffeners between the skins. Tongued and grooved joints between panels must be designed to minimize cold bridging. Gaskets must be resistant to damage from oil, fats, water, and detergents. After assembly, all joints must be mastic sealed on the interior side to ensure airtightness. Roof panels with an overall length of 6 metres or less must be self-supporting. Where larger span enclosures are required, additional support will be subject to site-specific design. Panel thickness may vary between 80 – 100 mm.

1.10 Floor construction:

Flooring should be hard wearing, non-slip finish and suitable to store required capacity of vaccines.

1.11 Door construction:

Doors must be constructed and insulated to the same standard as the wall. Doors must be lockable with 100% fail-safe provision for opening from inside.

For pedestrian access only: The width and the height of the door preferably should be minimum 800mm and 1975mm respectively.

1.12 Shelving:

Free-standing stove enamelled steel, galvanized steel, stainless steel, aluminium, or plastic adjustable slatted shelving units to carry vaccine in packages. Shelves preferably should not be less than 700 mm length and 500 mm width and 350 mm height to enable smooth placing of boxes of Vaccines Vials. The top face of the lowest shelf must be mounted 200mm above the floor. Shelves must be able to withstand the weight of the Vaccine Boxes and should be washable.

1.13 Refrigeration units:

1.13.1 Depending upon the internal room layout and the room location, refrigeration units may be one of the following types:

- a. Wall-mounted with the condenser unit discharging inside the building that houses the cold room (monobloc system).
Or,
- b. Wall-mounted with weatherproof condenser units located externally as close as possible to the evaporator units (weatherproof split system).
Or,
- c. Wall-mounted with condenser units located in a separate ventilated enclosure mounted as close as possible to the evaporator units (split system).

1.13.2 Refrigeration unit installations must:

- a. Have an automatic duty sharing system designed to ensure even load on the refrigeration units. All units should be fitted with run-hour meters.
- b. Have timer operated electric defrosting system with a condensate drip tray and drain connection.
- c. Have airtight seals between monobloc units and wall panel cut-outs.
- d. Have airtight seals around all pipes and cables penetrations through wall and/or roof panels.

1.14 Evaporator plume guard:

Size and position the evaporator units so that the plume of discharged air at a temperature below +2°C does not reach areas where vaccine is stored. If necessary, provide a removable mesh cage or deflector shield around the evaporator to maintain the safe storage zone.

1.15 Cold climate freeze prevention:

Where cold climate freeze prevention is specified, provide a low-temperature protection system to prevent the temperature of the cold room dropping below +2°C under low ambient temperature conditions.

1.16 Lighting:

Provide internal ceiling-mounted low energy fluorescent or LED luminaires with an external switch and pilot light. The external light and light switch must be fixed to the wall of the cold room enclosure near to the entrance door. The minimum illumination level on the vertical face of the lowest shelves must be 150 lux.

1.17 Alarm system:

Provide a mains-operated audible and/or visible alarm with battery backup and automatic recharge, which is triggered in the event of mains failure or when cold room temperatures are outside set limits.

1.18 Temperature monitoring system:

The centralized multi location temperature monitoring system may be procured separately as per the independent specifications if need is envisaged by the states.

1.19 Consumables:

Provide consumables sufficient for two years of normal operation at the specified location(s).

1.20 Cold Room Size:

The size should be determined based on location and payload expected. The dimensions may be specified as per site inspection.

1.20 Warranty and Service:

On-site warranty for minimum period of 2 years and onsite service commitment for minimum period of 3 years from the date of expiry of warranty period. Availability of spare parts preferably should be for a period of 7-10 years.

Ice Lined Refrigerators (ILRs)

1.1 Size: (50 to 300 Litre)

1.2 General:

Ice-lined compression-cycle, preferably horizontal refrigerators, powered by mains electricity, are used primarily in areas with an intermittent electricity supply (i.e., eight or more hours of reliable electricity per typical day). Manufacturers may offer products suitable for one or more temperature zones.

1.3 Performance:

- a. Operating temperature range: The equipment specifications are designed as per the moderate zone climatic conditions.
- b. Refrigeration cycle: Compression-cycle unit operating on alternating current electricity.
- c. Voltage and frequency: 220–240-volt 50/60 Hz.

1.4 Temperature control:

- a. Refrigerator compartment: The entire vaccine load must remain within the acceptable temperature range during any continuous ambient temperature or day/night cycling temperature.
- b. Thermostat: The thermostat must be set to prevent freezing in any part of the vaccine storage compartment. The thermostat must be effective throughout the ambient operating temperature range. It must be designed so that it cannot be adjusted by the user. A means for adjustment by a technician is acceptable provided the device is protected from user interference (e.g., by location within the appliance cabinet). Alternatively, programmable thermostats may be password protected.

1.5 Temperature Display: Externally readable cabinet-mounted electronic temperature display showing current temperature and alarm status is essential.

1.6 Holdover time: 20 hours.

1.7 Minimum rated ambient temperature: All models will be tested to establish their minimum rated ambient temperature. The minimum acceptable performance rating is achieved if the product passes the day/night test for its nominal temperature zone.

1.8 Lock: The door or lid must be fitted with a lock. Minimum two keys are to be supplied with every unit.

1.9 Corrosion resistance: Internal and external cabinet, lid and frame protected against corrosion.

1.10 Electrical safety rating: Manufacturer to certify compliance with IEC 60335-1 and IEC60335-2-24.

1.11 Refrigerant: Compressors operating on R 134a refrigerant to be preferably used.

1.12 Environmental requirements: Ambient temperature range during transport and storage: -30°C to +55°C when the product is inactivated. Ambient humidity range during transport, storage, and use: 5% to 95% RH (Preferably).

1.13 Physical characteristics:

- a. Voltage stabilizer compatibility: All electrical components must be supplied with an appropriate device of equivalent performance to those voltage stabilizers.



b. Control panel and thermometer: The control panel must be positioned on the front of the unit. The on/off switch should be recessed or otherwise protected so that it is not possible inadvertently to switch the unit off.

1.14 Temperature monitoring system:

The centralized multi location temperature monitoring system may be procured separately as per the need of the States/ UTs.

1.15 Servicing Provision: The product is to be designed to achieve a maintenance-free life of not less than 10 years apart from routine de-frosting and cleaning and replacement of batteries (if any).

1.16 Instructions: User and maintenance instructions to be written for users and repair technicians

1.17 Warranty and service:

Warranty for minimum period of 2 years and onsite service commitment for minimum period of 3 years from the date of expiry of warranty period. Availability of spare parts for at least 7-10 years.

1.18 Manufacturers

Preferably OEM / Made in India

Active Cooling Boxes

1.1 Size:35 to 60 Litre

1.2 General:

A portable cooling boxes with DC compressor is required for transportation of vaccine vials from vaccine storage sites. Active cooling boxes are placed in the room connected to AC supply and in the vehicle connected to DC supply through battery power. Active cooling box should be able to store the vaccines and other temperature sensitive products at refrigerated as well as freezer conditions.

1.3 Performance:

a. Refrigeration:Powerful DC compressor with integrated control electronics able to maintain the temperature -20°C to 20°C.

b. Voltage and frequency:Unit should be able to work on AC Supply - 220–240-volt 50/60 Hz as well as on 12V DC supply.

1.4 Storage Chambers:

A convertible dual chamber with removable partition. The temperature of each chamber should be set separately, and temperature display of each compartment should also be separate. Built-in LED light for visibility of contents in dark is required.

1.5 Display and programming:

Digital LED display indicating the actual temperature of each compartment separately. Provided with ON/OFF key and easy to program with keys for setting the temperature of each compartment.

1.6 Construction:

Light Body ABS Material with minimum 40mm PU (Poly Urethane) insulation. Cold chain box with wheels and handle for ease of pulling is preferred.

1.7 Performance safety:

a. Battery backup: Retrofit / inbuilt battery backup maintaining desired temperature without power supply for minimum 6 hours is to be supplied with each unit. Battery should preferably be lithium battery supplied with connectors to charge the battery backup as well as connecting to cold box. Cold chain unit must maintain +2 to +8°C for minimum period of 6-8 hours when disconnected from AC main power and connected to battery back-up.

b. Hold over time: Minimum 30 min without use of battery back-up and minimum 6 hours using battery back up

1.8. Other features:

Noise level: <45dB

1.9 Quality standard: ISO 9001:2008, WHO PQS guidelines

1.10 Warranty and service:

Warranty for minimum period of 2 years and onsite service commitment for minimum period of 3 years from the date of expiry of warranty period.

Vaccine Carriers

1.1 Size: 1.5 to 3 litre

1.2 Performance:

a. Vaccine storage capacity: As per requirement (2 - 5.0 litres).

b. Cold life: Should be able to maintain the temperature of +2°C to +8°C for the period of minimum 6-8 Hours when exposed to external temperature of 37°C

1.3 Shape:

Vaccine carriers should be substantially square or rectangular in plan and section. Rounded corners are preferred. Light weight.

1.4 Design principles:

The design of the container, including the placement of the packs and of the load, must promote the free circulation of air within the container to ensure minimum temperature stratification. Container design should seek to minimize the weight of icepacks/ gel packs required to meet the cold life requirement. Non-rigid and semi-rigid designs are acceptable.

1.5 Lid:

Vaccine carriers must be fitted with an insulated lid which fits securely to the body of the container when closed to minimize cold bridging and maximize structural strength. Hinged lids are acceptable but are not mandatory.

1.6 Hinges:

Hinges, where fitted, must allow the lid to open beyond 90° to give full access to the interior of the vaccine carrier. Preferably the hinges must be recessed so that they are fully protected

against damage during transport and storage. Hinges must be maintenance-free, without need for lubrication and must be secured to the container in a manner which prevents loosening due to vibration.

1.7 Closure device:

The lid should be fitted with a mechanism to secure it in place so that the vaccine carrier does not open if it is dropped onto its side or onto its lid when full. Acceptable closure devices include, but are not confined to, magnetic or mechanical catches. It must not be possible for the catch to open accidentally once engaged. Mechanical catches must be recessed so that they are fully protected against damage during transport and storage. Catches preferably should be maintenance-free, without need for lubrication and must be secured to the container in a manner which prevents loosening due to vibration.

1.8 Carrying device:

The body of the container must be fitted with one or more of the following carrying devices arranged so that the vaccine carrier can be comfortably carried in a substantially upright position:

- a. Carrying handle: A hinged, sliding, or moulded-in handle attached to, or forming an integral part of, the container body or lid. When folded away, moveable handles must not extend beyond the maximum length, width, or height of the container. The handle arrangement must not prevent stable stacking of the boxes.
- b. Shoulder strap: An adjustable strap arrangement which allows the vaccine carrier to be carried over the shoulder.
- c. Backpack: An adjustable padded strap arrangement which allows the vaccine carrier to be carried as a backpack.

All carrying devices must be robustly constructed and firmly attached in order to survive rough handling.

1.9 Corrosion resistance:

All metallic components and their fixings must be constructed in stainless steel or a suitable non-ferrous metal.

1.10 Chemical resistance:

The external and internal surfaces of the container must be resistant to chemicals used for disinfecting.

1.11 IP rating:

Protection of the container with lid closed and latched not less than IEC 60529: IP55

1.12 Robustness:

The container must withstand a one-meter drop onto each face, edge, and corner at its rated fully loaded weight. At the end of the test there must be no damage that affects the performance of the product and the lid must still close and latch correctly.

1.13 Warranty and service:

Warranty for minimum period of 2 years and onsite service commitment for minimum period of 3 years from the date of expiry of warranty period.

Deep Freezers

1.1 Size: 170 to 1000 litres

1.2 Operating temperature range: The equipment specifications are designed as per the moderate zone for climatic conditions.

1.3 Refrigeration cycle: Compression-cycle unit operating on alternating current electricity.

1.4 Voltage and frequency:

220–240-volt 50/60 Hz and 100–127-volt 50/60 Hz options are to be offered.

1.5 Temperature control:

a. All freezers: The vaccine load must remain below -15°C during any continuous ambient temperature test(s) or day/night cycling temperature test(s). Combined units must achieve this performance with no water packs in the water-pack compartment.

b. Combined freezers only: While freezing a quantity of water-packs equal to its water-pack freezing capacity, the temperature of the full load of vaccines must remain below -5°C and return to below -15°C within the 24-hour freezing cycle under the maximum continuous ambient temperature test conditions of its rated temperature zone.

1.6 Thermometer: Externally readable cabinet-mounted electronic display indicating the current temperature and alarm status.

1.7 Evaporator configuration: If the evaporator is mounted in shelves the minimum clearance between shelves must be 130 mm.

1.8 Lock: The door or lid must be fitted with a lock. Two keys are to be supplied with every unit.

1.9 Corrosion resistance: Internal and external cabinet, lid and frame protected against corrosion.

1.10 Electrical safety rating: Manufacturer to certify compliance with IEC 60335-1 and IEC60335-2-24.

1.11 Warranty and service:Warranty for minimum period of 2 years and onsite service commitment for minimum period of 3 years from the date of expiry of warranty period. Availability of spare parts should be for 10 years.

Commercial Terms


The following terms are essential for long term benefit of program.

1.1 Bidder must have experience of at least 5 years in supplying the concerned cold chain product. OEM manufacturing is preferred.

1.2 Bidder must have minimum 50% past performance of ordered quantity. Cold chain product up to 50% of bid quantity must have been supplied in last 2 years.

1.3 Bidder should ensure smooth running of unit for minimum period of 5 years including 2 years warranty and 3 years of annual maintenance. The warranty servicing should be on site. Company should provide backup unit during servicing of portable unit.

1.4 Availability of spares for the minimum period of 10 years from the date of supply is essential.

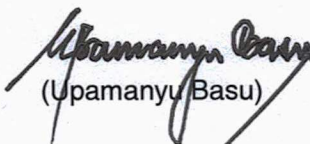


1.5 Mobile and small stationary cold chain products must be physically examined by the technical committee.

1.6 The cold chain products may be tested at ISO – 17025 accredited laboratories.

Glossary

Sl	Acronyms	Abbreviations
1.	WICs	Walk in Cold Room
2.	ILRs	Ice Lined Refrigerator
3.	IEC	International Electrotechnical Commission
4.	ISO	International Organization for Standardization
5.	BIS	Bureau of Indian Standard
6.	OEM	Original Equipment Manufacturer
7.	PQS	Performance, Quality and Safety (PQS)
8.	WHO	World Health Organization Performance, Quality and Safety


(Upamanyu Basu)

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