TRIAL DIRECTIVES (TDs) OF DRY CHEMICAL POWDER TENDER WITH AERODYNAMIC DESIGN, CONFIRMING AS PER BIS 10993

Sl.	Technical Parameter	Qualitative Requirements	Trail Directives
1.	**General:**	i. The DCP Tender shall be fabricated on a suitable BS-VI or its latest version on COWL CHASSIS of not less than 18 Ton (4 x 2) – with 4700 mm WB & 180 HP Engine of Ashok Leyland/TATA or any other similar and reputed manufacturer. Drag hook or eye of adequate strength and design shall be provided at the rear & front of chassis by the vendor. ii. The total weight of the DCP Tender would not exceed the G.V.W specified by the chassis manufacturer.	To be checked and verified by BOOs and shall meet the requirement as per relevant standards and QRs.
2.	**Cabin:**	a) The Dry Chemical Powder Fire Tender shall be equipped with a factory-fitted air-conditioned driver-cum-crew cabin in compliance with GSR 886(E) dated 08 December 2023, and the AC system shall conform to IS 14618:2022 requirements and testing procedures, as amended. b) The cabin shall provide two front seats (driver and officer) and one bench seat for five crew members behind them. Seats shall be of good quality, latest design (bucket type with 100 mm thick cushions), and fitted with removable, washable covers. c) The cabin shall have four outward-opening doors (two on each side), fitted with splinter-proof safety glass and proper operating mechanisms. d) A fiberglass first aid box for 10 persons, with contents as per the Factories Act, shall be fitted at a suitable location. e) Non-slip steps and rails shall be provided to assist crew ingress and egress. f) Provision shall be made to store 04 BA sets in the backrests of driver, officer, and crew seats, secured with clamps and brackets (not hanging). g) The cabin structure shall be designed to avoid vibration, rattling, or deformation during vehicle operation.	To be checked physically and verified by BOOs.

		h) Two large sun visors and rear-view mirrors shall be provided on each side. i) The entire cabin floor shall be covered with 3M-make vinyl matting, minimum 6 mm thick, with anti-skid features. j) The cabin shall be fitted with one roof light and two sidelights.	
3.	**Capacity:**	a) The DCP Tender shall have a total capacity of 2000 Kg, comprising 2 × 1000 Kg pressure vessels. Vessels shall be mounted on the chassis to ensure even weight distribution. b) Each pressure vessel shall be designed and fabricated in accordance with ASME Code VIII (Unfired Pressure Vessels), with suitable internal anti-corrosion treatment. c) Each vessel shall be equipped with a filling aperture, pressure gauge, safety valve, and drain plug at appropriate locations. d) Each vessel shall be of adequate size to accommodate 1000 Kg of Dry Chemical Powder, with sufficient free space to facilitate smooth movement of N2 gas and powder, ensuring fluidity during discharge.	To be checked and verified by BOOs and shall meet the requirement as per relevant standards and QRs.
4.	**Expellant:**	a) N2 gas shall be used as the expellant medium. Each DCP vessel shall have its own expellant gas cylinder assembly consisting of a minimum of 04 brand new N2 cylinders of 68 Ltr. capacity each, CCE approved and ISI marked (IS 7285) having filling pressure of not less than 200 kgf/cm2. These cylinders shall be capable of pressurizing the DCP vessels for simultaneously operation of DCP Monitor and 02 hose rells with desired jet length and discharge rate. The total quantity of gas shall be sufficient to discharge 2000 Kg of DCP and flush all pipelines. In addition, 08 reserve N2 cylinders shall be provided. b) The discharge valves of the nitrogen cylinders shall be lever-operated. The operating pressure of the dry powder vessel shall be 14 Kg/cm² - 16 Kg/cm². Cylinders shall be positioned horizontally behind the driver's cabin with proper stands and supports. Pipelines between the N2	To be checked and tested physically by BOOs.

		cylinders and vessels shall be flexible rubber connections. All connections from the N2 cylinders shall culminate into a fixed common metal manifold. A pressure reducer at the manifold shall be provided such as to pressurize the DCP Vessels at 14 Kg/cm² - 16 Kg/cm² for operation with arrangements to prevent backflow of expellant gas. Each battery of N2 cylinders shall be connected to a common manifold with necessary valve regulators.	
5.	**Design of DCP Vessel:**	a) Each DCP vessel shall be provided with a pressure release/ safety valve or equivalent device to discharge excess N2 gas into the atmosphere, even when the vessel is fully charged with dry powder. The excess gas shall not affect the quality or performance of the DCP. b) Each vessel shall be designed to ensure a total discharge of not less than 90% of its rated capacity. Adequate expellant gas shall also be available to flush all pipelines, hose lines, and monitor lines after use. c) DCP vessel shall have following constructional details as under:- i. Filling aperture with cover 150 mm ii. Man hole with bolted cover Internal dia 450 mm iii. Drain plug 150 mm iv. Safety valve 02 Nos. of suitable size as per norms v. Pressure gauge 01 no of suitable size as per norms vi. Isolation valve 01 no of suitable size as per norms vii. Discharge valve 01 no of suitable size as per norms d) An alternate independent connection from the expellant gas manifold will be provided to flush all the lines after use & the control valve for flushing the hand lines etc. will be located on the control place. The two	To be checked and verified by BOOs and shall meet the requirement as per relevant standards and QRs.

		vessels shall not have any inter connection. e) Certified neoprene or PTFE sealing gaskets at the drain plug, manhole and filling aperture to prevent leakage, ensuring compliance with IS/ASME pressure vessel standards shall be installed. f) Discharge outlets from each vessel shall be provided with NRVs and these outlets from each vessel shall join a common delivery header which shall be further connected to the long range monitor and hose reels which may provided on either side of the vehicle. g) The flush line from cylinder manifold shall be directly connected to the delivery header with suitable control valves.	
6.	**Monitor:**	a) A long-range DCP monitor shall be mounted on an independent platform immediately behind the driver's cabin. The monitor shall be capable of traversing 360° in the horizontal plane, with a suitable locking device to secure it in the desired position during operation. b) The monitor shall be capable of throwing dry powder to a distance of not less than 40 metres in still air. The discharge rate shall be adjustable to 15, 25, and 40 Kg/sec at operating pressure, with manual regulation of throw. The monitor shall be connected to both DCP vessels to enable powder discharge from either or both vessels.	To be checked and tested physically by BOOs.
7.	**Hand lines:**	a) Two hand lines shall be connected to the common delivery header, each fitted with a 30 m long high-pressure hose mounted on a hose reel conforming to IS 884:2025. A total of 02 hose reels shall be provided. Hose reels shall be located at the rear of the appliance in an easily accessible position to facilitate quick withdrawal. b) The hose reels shall be designed to prevent overrunning of the hose and to avoid kinking during winding. Each hand line shall be fitted with a trigger-type pistol grip nozzle. The discharge rate from each hand line shall be not less than 5 Kg/sec, with a throw of not less than 10 m at full operating pressure. c) Both the hose reels shall have motorized	To be checked and verified by BOOs and shall . meet the requirement as per relevant standards and QRs.

		auto rewind facility along with manual rewind option near the hose reel.	
8.	**Control Panel**	a) An adequately illuminated control panel shall be provided at an easily accessible position to operate the Dry Powder System. All controls and equipment items shall be clearly marked or identified with suitable labels to facilitate easy operation. b) The control panel shall include the following: i. Pressure gauge for expellant gas cylinders ii. Pressure gauge to indicate operating pressure iii. Operating levers for: a. Expellant gas valve b. Monitor valve c. Valves for hose reels d. Pressure release valve e. Flushing valve for monitor f. Flushing valve for hose reels d) Switches for lighting arrangements e) Instruction plate for operation, with line diagram	To be checked and verified by BOOs
9.	**Electrical System :**	All electrical wiring shall be properly fixed in position and protected against heat, oil, and physical damage. Each electrical circuit shall be provided with a separate fuse, suitably marked and grouped in a common fuse box located in an easily accessible position, with provision for a minimum of four spare fuses in the driver's cabin. All controls for the electrical system shall be provided in front of the driver's seat. The battery shall be housed in a totally enclosed box. Wiring shall be made of flame-retardant automotive grade wires, routed through conduits to minimize the risk of short circuits, enhance safety against accidental damage, and facilitate easy inspection and maintenance during fault rectification or routine servicing.	To be checked and verified by BOOs

10.	**Construction Details:**	a) The rear structure of the appliance shall be constructed using Zinc-treated galvanized tubular steel sections or extruded Aluminium sections of 40 mm × 40 mm × 3 mm thickness, selected to provide adequate strength, long-term durability, and elasticity for absorbing operational stresses, while ensuring effective corrosion resistance and prevention of rusting. b) The cabin structure shall be fabricated from 14 SWG MS pressed sections, duly treated for anti-corrosion protection. c) The complete outside paneling shall be made from 14 SWG Aluminium sheets, with internal paneling from 16 SWG Aluminium chequered plates. The cabin roof shall be panelled with 14 SWG Aluminium sheets. d) The entire flooring of the vehicle shall be covered with 10 SWG Aluminium chequered plates, and the roof of the rear body shall be covered with 14 SWG aluminium chequered plates. e) The DCP Tender shall be supplied complete with an initial charge of 2000 Kg ABC Type ISI-marked DCP as per IS 4308:2019. f) The appliance shall be fitted with a rear towing arrangement of adequate strength to carry a Four-ton trailer. The unit shall be well balanced on the chassis, with the centre of gravity kept as low as possible. The overall height shall not exceed permissible limits. g) In addition to enclosed accommodation, a riding platform for two persons shall be provided at the rear of the appliance. Grab rails and non-skid steps shall be fitted wherever required to assist crew mounting and dismounting. h) All rear light fittings shall be suitably protected by expanded metal guards to prevent damage due to crew movement.	To be checked and verified by BOOs and shall meet the requirement as per relevant standards and QRs.
11.	**Lockers:**	a) Lockers shall be fitted with water proofing linings. b) All lockers shall be provided with internal automatic on-off lighting system with a	To be checked physically by BOOs.

		master switch in cab c) The doors of lockers shall have efficient means for holding the closed by flush fitting spring loaded lockers. d) The doors of side lockers shall not be hinged at the bottom.	
12.	**Equipments:**	List of mandatory equipment for users as enclosed with QRs as **Appendix-A**	Shall be checked physically and tested and should meet the requirement as per relevant standards and QRs. Necessary certificates from statutory authority, wherever required, shall also be checked and verified by BOOs.
13.	**Accessories to be provided along with the vehicle:**	The following accessories shall be provided along with the vehicle: a. Electrically operated siren – 01 No. b. Two-tone hooter with Public Address system – 01 No. c. Revolving lights / light bar (Grand type) – 02 Nos. d. Search light with 30 m wire reel and tripod stand – 01 No. e. Spare nitrogen cylinders – 08 Nos.	To be checked and verified by BOOs
14.	**Paintings & Marking:**	a. The entire appliance shall be painted externally with DUPONT "Fire Red" paint, applied in double-coat spray finish, with a dry film thickness of **0.12 to 0.20 mm**. Lettering work in yellow colour shall be provided on both sides of the DCP Tender as specified. b. The whole vehicle shall be painted internally and externally with zinc chromate undercoat followed by sufficient finishing coats. The driving compartment and inside lockers shall be painted in pale cream. The chassis and wheel assemblies shall be painted black.	To be checked and verified by BOOs

		c. The owner's emblem in original colours, together with the name (in Hindi and English), shall be written in golden yellow colour on both sides of the vehicle.	
15.	**Public Address Equipment:**	A Grand make latest type battery operated lighting bar with multi tone hooter, microphone, in-built amplifier and flashing beacon system with strobe shall be provided. The light bar shall be of minimum 1700 mm length, operated on 12/24 V battery and shall include: a. 2 rotating red beacon lights b. 4 halogen lights c. 4 strobe lights d. Multi-tone hooter e. Public address system with in-built amplifier and microphone The PA system shall be of AHUJA / PHILIPS / NENUSVOICE or any other reputed make with a minimum capacity of 75 watts and shall be installed in front of the officer's seat in the driver's cabin.	To be checked and verified by BOOs
16.	**Workmanship:**	The GVW of the appliance shall not exceed the chassis manufacturer's specified GVW when fully equipped and manned with crew. A weight distribution diagram shall be submitted for approval. The appliance shall clearly display the following markings at suitable locations: a. Manufacturer's name and trademark b. Engine and chassis number c. Capacity of DCP tank d. Year of manufacture	To be checked and verified by BOOs
17.	**Instruction Book, Accessories and Equipment:**	Instruction Book or Books for the guidance of the user, including both operating and normal maintenance procedures shall be supplied.	To be checked physically by BOOs
18.	**Acceptance Tests:**	Acceptance tests shall be carried out in accordance with applicable BIS standards in practice. Prior to dispatch of the fire tender from the vendor's site/workshop, the following tests shall be conducted in the presence of CISF Fire Wing representatives and management officials: **Road Test**: a) Acceleration and performance test	Shall meet the requirement as per relevant standards and QRs.

		b) Braking test c) Turning circle test **Stability Test:** a) Under fully laden condition (including crew) to the designed payload b) Vehicle shall pass the overturning test: The appliance stability shall be such that, when fully equipped and laden, if the surface is tilted to either side, overturning shall not occur at an angle less than 27° from horizontal. The bidder shall carry out this test on a mechanical tilt platform facility at their works. **Hydraulic Test:** All stainless steel piping, valves, gauges and regulators of the DCP fire tender shall be subjected to hydrostatic test pressure equal to 1.5 times the working pressure, maintained for not less than 10 minutes, with no leakage permitted.	
19.	**Approvals:**	i) All equipment quoted by the vendor shall conform to the latest version of relevant Indian/International standards. ii) The vendor shall mention the relevant standard reference against each item governed by Indian or overseas international standards. iii) The vendor shall provide original certificates of all necessary or mandatory approvals in respect of the fire tender before dispatch. iv) On placement of order, the fire tender shall be delivered at the plant premises. Transit insurance shall be included in the vendor's scope. v) The vendor shall offer stage inspection of the fire tender in two stages, with the second stage being the final Pre Dispatch Inspection. vi) After supply, the vendor shall provide free training in operation of the system to CISF personnel. vii) On final supply, the vendor shall hand over the operation and maintenance manual, electrical system manual, and all guarantee certificates for accessories installed on the fire tender to the plant indenter.	To be checked and verified with relevant standards and Govt. approved Lab.

		viii) Along with the techno-commercial offer, the vendor shall submit a separate sheet listing all items installed on the foam tender, clearly indicating the scope of supply.	
20.	**Qualifying Conditions:**	i) Only manufacturers of fire tenders shall quote against this enquiry. ii) Against this enquiry, the vendor shall supply the chassis as well as the body of the fire tender, along with all associated accessories. iii) The vendor shall furnish notarized photocopies of purchase orders for similar capacity/function fire tenders supplied in the last five years. iv) The vendor shall provide the name, address, and contact details of clients where similar tenders have been successfully supplied within the last five years, along with the technical offer. v) The vendor shall sign and stamp each page of the specification as proof of acceptance. Additionally, wherever values or data are called for in the specification, the same shall be provided in the offer. Blanket statements such as **"we confirm to this specification"** shall not be accepted.	To be checked and verified by BOOs
21.	**Inspection:**	Two stage-wise inspections/tests of the DCP Tender shall be carried out at the fabricator's site by CISF Fire Wing representatives and management officials. A Pre Dispatch Inspection (PDI) is mandatory. **<u>Stage-I Inspection</u>:** a. Construction of under-structure b. Hydrostatic test of DCP tanks c. Lockers and associated assemblies **Stage-II & Final Inspection:** Final acceptance test/inspection (PDI) as mentioned at Sr. No. 18, i.e- Acceptance test in accordance with the approved specifications/ tender documents shall be conducted. The following documents shall be necessarily enclosed with the offer: a. General Arrangement Drawing of the DCP Tender	To be conducted by BOOs at the site of vendor.

		b. Drawing of DCP Tank c. Flow Diagram d. Electrical Circuit Diagram e. All relevant test certificates from Govt. approved lab, OEM authorization, BIS/ISI/ISO compliance documents and GeM generated contract papers shall be furnished by the supplier as per procurement norms. f. Catalogue **Note:** The PDI clause is mandatory and shall be incorporated at the time of indent of the fire equipment. The CISF representative for inspection/PDI shall be detailed by the Fire Directorate, New Delhi.	

(BSF)

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