

GOVERNMENT OF INDIA :: DEPARTMENT OF SPACE
SATISH DHAWAN SPACE CENTER SHAR :: SRIHARIKOTA – 524 124
SRI POTTI SREERAMULU.NELLORE DISTRICT (A.P)

TENDER NOTICE NO. SDSC SHAR/Sr.HPS/PT/21/2018-19

On behalf of President of India, Sr. Head Purchase and Stores, SDSC SHAR, SRIHARIKOTA invites **on line quotations** for the following.

SI No	Ref. No.	Description	Qty.
01	SHAR SPP 2018 00 9396 e-procurement [Two Part basis]	Design, Manufacture, Testing at Shop Floor, Supply, Installation at Site, Testing and Commissioning of PLC based X-Ray Machine Crane Manipulator.	1 Set
02	SHAR SC 2018 00 9659 e-procurement [Two Part basis]	Design, Supply and Fabrication of Aerodynamically shaped Multipurpose Fire Tender	1 No.
03	SHAR LS 2018 00 9725 e-procurement [Two part basis]	Contract for Fire Tender deployment along with Fireman & Driver-cum-Operator (DCO) Crew for Propellant complex, Rasayani, ISRO (PCRI)	1 LS
04	SHAR CMD 2018 00 9767 e-procurement [Single Part basis]	Supply of Multi stage Centrifugal Pumps	1 LOT

Last Date for downloading of tender documents : 07.01.2019 at 16:00 hrs.
Due Date for submission of bids online : 07.01.2019 at 16:00 hrs.
Due Date for Bid Sealing on : 07.01.2019 at 16:01 hrs. to 07.01.2019 at 17.30 hrs.
Due Date for Open Authorization : 07.01.2019 at 17.31 hrs. to 09.01.2019 at 17:00 hrs.
Due Date for opening of tenders : 10.01.2019 at 14:30 hrs.

Instructions to Tenderers:

No tender fee shall be applicable for tenders submitted through EGPS

01. For full details/scope of work and terms and conditions etc., please see the enclosed annexures.

02. Interested tenderers can download the e-tender from ISRO e-procurement website <https://eprocure.isro.gov.in> and submit the offer on line in the e-procurement portal. Offers sent physically by post/courier/in person will not be considered.

03. Tender documents are also available on ISRO website www.isro.org; ISRO e-procurement website <https://eprocure.isro.gov.in> and SDSC SHAR, Sriharikota website www.shar.gov.in. The same can be down loaded and offer submitted on line in the e-procurement portal.

04. Quotations received after the due date/time will not be considered.

05. The tender documents are available for download upto **07.01.2019 at 1600 hrs.** and **last date for submission of tenders on line 07.01.2019 at 1600 hrs. and Tender Opening on 10.01.2019 at 14:30 hrs.**

06. Sr. Head, Purchase and Stores, SDSC-SHAR, Sriharikota reserves the right to accept or reject any/or all the quotations.

DT: 10.12.2018

Sr. HEAD, PURCHASE AND STORES

**TECHNICAL SPECIFICATIONS FOR
PROCUREMENT OF
MULTI-PURPOSE FIRE TENDER**

EMPTY

1. GENERAL PROJECT INFORMATION

Satish Dhawan Space Centre (SDSC SHAR) is one of the centres of Indian Space Research Organisation (ISRO), Government of India, located at Sriharikota island, 100 km North of Chennai. The centre has planned to procure a new Fire Tender with multipurpose utilities to meet the firefighting requirements at different areas/facilities.

2. SCOPE OF WORK

- Design, Supply of material and Fabrication of aerodynamically shaped Multipurpose Fire Tender (1 No), generally as per IS 950:2012 and also equipment shall be provided generally as per IS 10460:1983/2000 with multipurpose utility (**Water-7000 Ltrs, Foam 1000 Ltrs, DCP 4 x 75 Kg and CO2 4 x 22.5 Kg**) in complete with accessories, equipment, operational spares as specified herein and including stowage equipment as specified in **ANNEXURE-I**.
- The scope of the supply includes Procurement of Vehicle chassis, design & fabrication of Fire Tender, testing, commissioning, performance demonstration at site and training of department's personnel.
- First fill of chemicals & consumables during performance demonstration are in the scope of bidder and later to replenish of all chemicals and consumables as specified.

A tentative Bill of quantities (BOQ) is detailed in ANNEXURE-I

3. DETALIED SCOPE OF WORK WITH TECHNICAL SPECIFICATIONS

3.1 VEHICLE CHASSIS:

- The Fire Tender shall be built on Mahindra & Mahindra / TATA / Ashok Leyland / Bharat Benz/ Eicher make only built in cabin chassis with 25T GVW capacity, 230-280 BHP, power steering, ABS, 6x4, Bharat stage-IV certified drive Engine.
- The range of 230-280 BHP is mentioned to select appropriate BHP for the engine in such a way that overall design of the fire tender should accommodate requisite items / equipment as given in this document with load bearing by not crossing 25T GVW.
- Suitable Heavy duty drag / tow hooks of adequate capacity shall be provided both front and rear of chassis.
- CCE/PESO approved detachable Spark arrester shall be provided on exhaust of Fire tender engine, and any other engine provided in the Fire Tender.
- The speed / acceleration of vehicle is as per NFPA 1901.

3.2 PUMPING SYSTEM: (PUMP MAKE: GODIVA/ FIREFLY)

- The pump shall be CE marked / UL listed / FM approved, Fire Tender specific, centrifugal with mechanical self-adjusting shaft seal, PTO driven with suitable gear ratio.
- The pump shall be capable of nominal discharge of 6000 LPM at 10 bar & 400 LPM at 40 bar pressure.

- The suction inlet shall be fitted with a standard round thread connection of suitable size to give rated output of the pump and shall be conforming to IS: 902-1974.
- The connection from water tank to pump will be suitably sized to allow full pumping at rated output.
- MOC: Gunmetal conforming to IS 318, LTB Grade 2 (casing, impeller & delivery outlets) with SS shaft, sturdy in operation, with suitable anti-friction bearings. The shaft sealing will be of self-adjusting type as per pump manufacturer's standard design. The impeller neck rings, impeller rings, wear rings and other parts subject frequent wear shall be renewable type. The bearing housing shall be of Cast Iron.
- Provided with suitable high-pressure relief device for relieving excess high pressure automatically and also a thermal relief device when water temperature exceeds design value.
- There shall be 6 outlets of 63mm with screw down delivery valves & female instantaneous coupling as per IS-903 fitted on a distribution manifold. Flanged connection shall be suitably taken from the manifold for deck and bumper monitors.
- An automatic Round the pump Foam proportionating system (RTP) with a selector valve to induce 0 to 6% foam compound shall be provided. It shall be reliable, duly calibrated and supplied by the pump manufacturer only.
- Pump will be rear mounted & shall have 4 mounting points to ensure that complete load is evenly distributed. Mounting shall be done on heavy "C" channels/ plates & shall be secured to the chassis by bolting. Welding shall be strictly avoided. To minimize dynamic load on chassis while running the pump, it shall be provided with a suitable base frame with required shock absorbers.

3.2.1. Priming

- Provided with two independent primers capable of priming from 7 m depth in 24 seconds when connected with 100 mm suction and 36 seconds when connected with 140 mm suction.
 - a) Auto twin piston reciprocating primer.
 - b) Exhaust ejector primer as stand by to main primer.
- The priming system shall be OEM supplied.

3.3 Water & Foam Tanks

3.3.1.. Water Tank: Capacity 7000 Ltrs, SS 316L Material

- Tank shall be designed and fabricated as per IS 801 standards and shall comply with all requisites of a mobile road tanker.
- Tank shall be fabricated out of SS 316L plate material (**Mill Test Certificate correlating heat/ plate nos. shall be produced for Department's scrutiny**)
- Profiled plates, pressed and formed shall be used to avoid stiffness so that minimum welding is called for tank shall be shaped to optimize CG location.

Thickness of plates:

Tank bottom & side: Minimum 5 mm. (4 mm required thickness and 1 mm corrosion allowance)

Tank top: Minimum 4 mm (3 mm required thickness and 1 mm corrosion allowance).

Baffles: 4 mm plates which shall be bolted and all fasteners shall be of SS and nuts shall be tack welded.

- Tank shall be fabricated in TIG process GTAW/MIG only (No Arc process- SMAW allowed). Fabrication has to be carried out only by qualified welders (**qualified by TPIA inspectors like M/s Lloyds/ DNV/ BV**).
- Suitably sized Inlets, Outlets, drain, overflow and level indicator piping shall be provided with SS isolation ball valves (up to 50 NB size) and Butterfly valves (above 50 NB size). Drain and overflow pipes shall be suitably terminated away from wheel and taken well below the chassis (with adequate ground clearance).
- Suitable number of SS baffles (detachable type) bolted with SS bolts and nuts shall be provided.
- Designed such that CG of the appliance is as low as possible and to ensure total useful capacity to flow into pump.
- Tank mounting shall be such that to prevent any tank distortion during its service and not to hamper vehicle movement.
- Suitable lifting hooks on the tank shall be provided to enable lifting the tank for maintenance.
- All nozzles shall be minimum 150 mm long and shall be terminated with forged quality SORF flanges.
- Tank/Pump inlet& outlet pipelines shall be terminated at both front and rear side of tender to facilitate easy of operations/ maneuverability at site.
- Tank shall be provided with two filling pipes and 4×63 mm instantaneous male couplings (SS) with strainers. The inlet line in the tank shall have an adequately strong deflector plate, which will avoid the incoming jet of water from hitting the tank side/roof. The filling connections shall be fitted with valves to prevent water leaking through the filling pipe. Valve may be of NRV, Ball and Butterfly type.
- Tank shall be provided with suitable magnetic float with flap type display level indicator.
- Tank shall also have top mounted level switch for display of 4 water levels (25%, 50%, 75%, and 100%) inside cabin.
- Tank shall have Manhole 450 mm dia. minimum and shall have a threaded ring and cap of 300 mm dia. for filling the water tank from the top the cover shall be marked as “water”. A cleaning hole of 250 mm dia. shall also be provided at the bottom.
- A 50mm drain line with a valve shall be provided to drain the tank.
- The tank shall be hydrostatically tested to 0.5 Ksc
- One overflow pipe of diameter at least two times the sum of the diameters of incoming pipes shall be provided to ensure the tank does not get unnecessarily pressurized. Overflow pipe shall be taken up 2 inches higher than the top of the vehicle and cut at an angle of 45 degrees.
- Screwed bends, joints shall be avoided as far as possible. All the joints will be flanged type and shall have O ring sealing. Rubber gaskets shall not be used anywhere in the plumbing.
- Tank shall have following connections to facilitate operations:

Hydrant	- Tank
Tank	- Pump - Hose Reel
Tank	- Pump - Monitor (Foam/Water)
Tank	- Pump - 6 Nos deliveries
Hydrant	- Pump - Hose Reel
Pump	- Cooling system
Pump	-Tank (for filling)
Hydrant	-Roof water monitor
- Suitable pump discharge pipe termination shall be provided in the front bumper and roof of fire tender to facilitate operation of water monitors with necessary operational features and locking mechanism.

3.3.2. Foam Tank: (Capacity- 1000 Ltrs) SS 316 L

- Tank shall be designed and fabricated as per IS 801 standards and shall comply with all requisites of a mobile road tanker.
- Tank shall be fabricated out of SS 316L plate material (**Mill Test Certificate correlating heat/ plate nos. shall be produced for Department's scrutiny**)
- Thickness of SS plates 5mm all around except top and Baffles shall be of 4 mm. Baffle plates shall be bolted and all fasteners shall be of SS and nuts shall be tack welded.
- The tank shall be welded on metacones and suitable lifting eyes shall be provided on the top of the tank for maintenance.
- Tank shall have Manhole 450 mm dia. with 300mm threaded ring and cap and drain shall be 250 mm dia. The cap shall be marked "FOAM".
- A 50mm diameter drain line and a cleaning hole of 250mm shall be provided at the bottom.
- Tank shall be fitted with a sludge trap and the bottom of the tank will have a slight slope towards the sludge trap.
- Inlet SS strainers shall be provided. Foam compound draw-off tube shall be fitted with SS wire mesh strainer with minimum 2.5 times pipe cross section areas as filtration area.
- An automatic round the pump foam proportioning system (RTP) with a selector valve to induce 0 to 6% foam compound shall be provided. It shall be reliable, newly calibrated and shall not require frequent calibration checks.
- The proportioner shall be supplied by the pump manufacturer only.
- Provided with auto venting during off loading or drawing foam compound.
- Auxiliary foam pick up provision shall also be made for drawing foam compound in to the foam producing system from an external source through a pick up tube while producing foam.
- The tank shall be hydrostatically tested to 0.5 Ksc.
- Screwed bends, joints shall be avoided. All the joints will be flanged type and shall have O ring sealing.

3.3.3. Fabrication:

All tanks shall be fabricated with TIG welding process only (GTAW/MIG) No Arc process- SMAW shall be attempted. Fabrication has to be carried out only by qualified workers qualified by (**TPIA inspectors like M/s. Lloyds / DNV / BV**).

- All plates meant for tank fabrication and nozzles shall be subjected to 100 % UT at reputed laboratories and **test results produced for scrutiny of Dept. Engineers during inspection.**
- The tanks shall be die pressed on all sides. Butt welded joints shall be minimized and wherever unavoidable, they shall be radiographically tested for 100% of the joints. Also the joints shall be 100% DP tested.
- Fabricated tanks shall be stress relieved for avoiding stress corrosion during service. No welding/ cold working shall be attempted after stress relieving.
- **The fabrication shop vendor/ sub-vendor shall be approved by reputed TPIA for fabrication of such Fire Tenders.**

- After the final hydrostatic pressure test, the vessel has to be suitably degreased, pickled and passivated & painted as per procedure given in Annexure-IV. The cleaning, pickling and passivation is to be carried out for both inside and outside surface of the vessel as mentioned in Annexure-IV.

3.3.4 Power Take Off (PTO)

- The PTO for driving the pump shall be of suitable make and ratio for the rated output of the pump & torque of the drivetrain. The lever/ switch for engaging the PTO will be provided in the driver's cabin. Necessary modifications to the standard drive system as available on the chassis, shall have to be done by the vendor so as to adopt the PTO unit in the system.
- Necessary supports for the PTO units, propeller shaft coupling, universal joints etc. for power input to & output from PTO unit shall be provided by vendor.
- The drive assembly components (shafts, couplings etc.) shall be dynamically balanced & vibration at any of the rotary parts shall be minimized.

3.3.5. Cooling System

- In addition to the radiator cooling, an indirect cooling system of the open circuit type shall be provided to keep the engine from overheating during extended use in tropical climates & when the ambient temperature is over 40°C.
- The cooling system shall be so designed that the full power output of the engine can be maintained during continuous stationary running without overheating. The operating temperature of the engine cooling water shall be thermostatically controlled. The oil in the sump shall be prevented from overheating and the pump characteristics shall be chosen in a manner so that the engine does not run at its maximum speed for the required output.
- The cooling water outlet pipe from PTO and additional cooling tank shall be connected through a suitable diameter pipe. The end of the pipe shall terminate in a threaded connector.

3.3.6. Pipelines & Valves

- The complete pipeline circuit on the vehicle including fittings will be of SS 316L material only.
- The piping should be flanged for ease of maintenance. Proper support should be provided for rigidity and avoid vibration of the lines. Lines less than 50 mm size should be socket welded and above 50mm size with butt welded with full penetration wells. All bolting and complete piping should be SS only. The draw off pipe position in such a way that the sludge should not pass on foam piping.
- All valves up to 2" size will be lever operated ball valves & all valves above 2" size shall be butterfly valves. Seats of the valves shall be easily replaceable & readily available.
- All lines shall be tested hydraulically for at least 1.5 times the design pressure of the pipeline.

3.3.7. Hose Reel

Two High Pressure hose reels (HP and anti UV exposure service) terminated with high performance light weight water mist spray guns, one hose of minimum 60 m length and the other of 30m length, made from High Pressure single piece hose (SAE R2) of suitable dia. (20 mm) and maximum operating pressure suitable for High Pressure pump discharge conditions.

High Pressure hose reels shall have stainless steel double shut off QCDC connections at both ends. Hose material suitable for saline atmosphere. Hose reel shall be controlled by SS isolation ball valve.

3.3.7. a. Fog/ jet gun:

- Two nos.one each for the hose reels, lockable fog jet adjuster and with foam cone, capable of discharging in JET/FOG pattern shall be provided.
- The jet range should not be less than 20m and the Fog range shall be minimum 12m and capable of aerating Foam discharge.

3.3.8. Water cum Foam Monitor

Deck and Bumper monitor: Make: AKRON / ELKHART / TFT MAKE CE marked & UL listed / FM approved make with good track record of past three years.

- It shall be remote controlled, installed at suitable location operating on 12V or 24V DC and controlled by monitoring switch inside the cabin.
- The monitors shall have Ultra – Flex robotic power cable and include a cable guide for 45⁰ of monitor rotation. The monitor shall be equipped with Manual override knobs in the event of power failure.
- Shall have full horizontal rotation with travel 225⁰ left and right of centre, 135⁰ of vertical travel with stops at 90⁰ above horizontal and 45⁰ below horizontal.
- Deck monitor capable of discharging 0 to 1250gpm with 19psi of loss and a maximum operating pressure of 200psi. Throw of monitor shall be minimum 70m.
- Bumper monitor shall be capable of discharging 450gpm with minimum 55m throw of water jet.
- Foam expansion ratio not less than eight times.

3.3.9. Tyre flushing spray system:

When the Fire Tender is moving, suitable water flushing spray system shall be provided for the protection of tyres from spilled harmful chemicals on the road.

- A separate pump (Monoblock, self-primed) connected to the water tank along with suitably sized pipelines leading to top of all tires with minimum 2 nozzles per tyre.
- Pump capacity and pressure suitably chosen for the number of nozzles.
- **Operation:** Actuation of this flushing arrangement shall be from crew cabin by means of solenoid / pneumatic actuated control valve.

3.4. DRY CHEMICAL POWDER SYSTEM (4×75 KG)

- CS cylinders, 4 numbers of 75Kg capacity cylinders as per IS- 2002/2825 to store 300 Kgs of high efficiency Dry chemical powder as per IS- 4308, shall be provided (vessel design as per ASME Sec VIII Div. 1 and to comply all SMPV rules) two each on either side of the tender.
- Material of construction: SA 516 Gr 60 or 70.

Supplier to submit thickness calculations and fabrication drawings for approval to purchaser prior to start of fabrication.

- Cylindrical vessel, floor mounted, with minimum corrosion allowance of 3.0 mm excluding thinning/ other fabrication allowances.
- Operating pressure : 14 Kg/cm²
- Maximum operating pressure : 17.5 Kg/cm²

- Hydrostatic test pressure : 26.25Kg/cm²
- Aperture with flanged cover at top for loading extinguishing material and suitable number of nozzles.
- Shall have all safety provisions like safety relief valves, pressure regulators, isolation valves, filters and charging circuit.
- The expellant employed for the dry powder units shall be CO₂ / N₂ and the capacity of CO₂ / N₂ cylinders (seamless CCE / PESO approved) employed shall be adequate to ensure complete discharge of the dry chemical powder contents at a uniform rate from each units.
- The dry chemical powder unit shall have two discharge outlets fitted with not less than 22 m of minimum 25 mm bore high pressure hoses for dry powder service terminating in trigger control shut-off nozzles, capable of discharging not less than 3.25kg/Sec/Nozzle in a straight jet or fan- spray pattern. The range of jet shall not be less than 12 m.
- Seamless carbon steel piping with flanged ball valves.
- The hoses and nozzles shall be stowed suitably in lockers symmetrically opposite on either sides of the appliance to facilitate speedy run out on arrival at an accident.

3.5. CO₂ SYSTEM (4 × 22.5 KG)

- Four numbers of CO₂ cylinders (seamless CCE / PESO approved) each of 22.5 kg capacity as per relevant IS shall be provided two each on either side of the fire tender in symmetrically opposite lockers.
- The CO₂ cylinders shall be floor mounted in vertical position and shall have discharge manifolds of suitable material fitted with not less than 10 m high pressure hoses for CO₂ service terminated with applicator and discharge horns.
- The discharge hoses and horns shall be stowed suitably in lockers on either side of the appliance to facilitate speedy run out on arrival at an accident.

3.6. ELECTRICAL SYSTEMS

- All wirings shall be properly clamped and routed through conduits/ cable trays and does not hinder vehicular movement.
- Cable shall be of standard copper of adequate gauge thickness to carry minimum 125% of maximum current subjected to.
- Cable shall be sized in order to withstand smooth operation of major equipment at low voltage condition as per NFPA standards and they shall be uniquely identified at every 0.5m intervals and shall have less than 10% voltage drop.
- Separate fuse for each circuit and adequate spare fuse inside box in driving cabin.
- Battery Cut off switch shall be provided in the driving cabin in a suitable location easily accessible to driver.
- Safe and suitable electrical tap off for VHF and PA system.

3.6.1. Telescopic Light Mast

- A compact NFPA compliant, low profile, roof mounted lighting system, fitted with IP 67 certified 4 × 230 W LED lamp fittings, vertically elevated pneumatically up to 4.6 m shall be installed on the roof of the vehicle.
- Operating on 12V and 24 V DC electrical system.
- Output of 60,000 Lumens with life span of 50,000 hours.

- The light unit shall comprise of manually adjustable rotation and tilt positioner, mounting frame with built-in tilt system.

3.7. SS FUEL TANK:

Capacity of SS fuel tank is **360 Ltrs** which shall be suitable for fire pump operation also. The fuel tank provided along with vehicle shall have a built in local cum remote level gauge cum indicator (**included in the scope of vendor**) and shall have display in cabin panel.

3.8. BODY WORK AND STOWAGE

3.8.1. Shape of Fire Tender:

- Aesthetically looking, functionally convenient and ergonomically designed shape
- **Vendor shall submit GA drawing indicating major systems and their dimensions and CG w.r.t nearest axle, loading diagram, electrical and pneumatic schematics, list of major equipments / components, makes and MOC etc. within 15 days after receipt of PO to SDSC SHAR for department's approval.**

3.8.2. Cabin:

- The cabin for driver /officer in charge & crew of 4 firemen shall be integrated by extending the original cabin from OEM.
- Seating capacity for 4 firemen, one each for driver and Officer / Leader (Total 6) personnel with adjustable driver seat and cushioned seats.
- Driver seat shall be Wire knitted 4 way adjustable type/ equivalent to Haritha make seating systems.
- Shall be spacious and provided with adequate lighting, accessories.
- Two nos. of heavy duty fans of reputed make (REMI / equivalent) one each for driver and Officer in charge shall be provided in the cabin.
- Inside paneling of cabin shall be with PVC coated aluminum.
- Aluminum chequered plate covering shall be provided on top and rear side of cabin.
- Windshield (safety laminated glass, of reputed make and standard dimension) sized to get maximum view with wipers & curved from sides and top for better efficiency and aesthetic look.
- Space/ cubicles for housing Breathing air sets behind seats.
- All doors shall be provided with safety glass (sliding type) of reputed make.
- Large size rear view mirrors on sides and convex round mirrors shall be provided.
- Sturdy, heavy duty door/ Window locks and mechanisms shall be of reputed make.

3.8.3. Cabin Panel:

- A digital display indicating drive Engine output rpm and pump rpm shall be provided at the control panel.
- A pump hour meter displaying the total running duration of the pump which starts ticking when the PTO is engaged shall also be provided at the control panel.
- Water level display (25%, 50%, 75% &100% of water tank).
- Foam level indicator.
- Pump engaged indicator LED.
- PTO and engine temperature meter.

- Control panels shall be adequately illuminated for easy monitoring.
- Monitor switch, Pneumatic valve switches.

3.8.4. Base Frame and Super Structure:

- Al alloy/ MS tubular/ Square sections of min 3 mm thickness shall be used
- No welding shall be attempted on the vehicle chassis.
- A MS base frame made from ISMC 100 (minimum) shall be clamped to the vehicle chassis. All parts of the Fire Tender like tankages, pump bed frame, ladders, stowage cabinets etc. shall be derived only from this base frame.
- Above said MS base frame used shall be sand blasted and suitably surface treated as per approved codes and norms.
- The entire super structure shall be of aluminum material.
- In case of super structure all fasteners (U-clamps, washers, bolts and studs) shall be surface treated, and suitably hardened MS/Aluminum.
- It is to be ensured that the above items shall be guaranteed for corrosion resistance for complete life of the vehicle (Minimum 10 years).

3.8.5. Foot Board and Hand Rails:

- One foot board made of chequered Aluminum plate of sufficient thickness shall be provided at the rear of the vehicle and for entry to cabin (four sides).
- Handrails made of Stainless Steel/Aluminum pipes shall be provided on sides and roof edges.

3.8.6. Body Work

- Body work shall be of High strength light weight Al sheets of suitable thickness including that of total flooring chequered plates of suitable thickness (min 14 SWG).
- Vehicle/Tank bay roof shall be of Al sheet with rain water channel on sides. The thickness of plates shall be suitably chosen to ensure ruggedness to the vehicle.
- Sturdy Al chequered plate for footboards, tank, pump area and roof.

3.8.7. Stowage:

Suitable cubicle space with locker arrangement for stowage of PPE, rescue tools and the accessories as listed in **Enclosure-2 of ANNEXURE-I** as per BIS norms for towable fire tenders:

- Locker doors shall be hinged for smaller lockers below chassis level
- Aluminum Roller shutters for stowage lockers should be water tight when closed
- Shutters shall be powdered coated / anodized with sturdy locking mechanism
- Sufficient reinforced doors shall be provided for all stowage lockers below chassis level with sturdy hinges (concealed type) and additional heavy duty chains to act as emergency foot board for minimum two firemen per locker.
- Tool box container for storing operational tools for vehicles and pumps. Each locker door shall have identified display board for printed equipment list.
- Suitable arrangement shall be provided for secure clamping of accessories & tools inside stowage compartment including shadow making of tools to be secured

- Space/ Cubicles for housing Breathing air sets behind seats of front cabin.
- A separate stowage space with locking provision with sliding doors shall also be made available inside cabin with two compartments- one for delicate electronic accessories and the other for housing a copy of all documents relevant to the tender.
- Automatic internal lighting of LED with minimum 1 meter length shall be provided on both sides when locker doors are open with master switch in cabin
- Vendor shall supply the stowage equipment indicated in **Enclosure-2 of ANNEXURE-I**
- For all water fittings like branch pipes, nozzles etc. quick release type couplings shall be provided which ensure locating them easily and prevent damage of internal paneling of the vehicle. Suitable clamps, brackets, holders, etc., shall be provided for all other items.

3.8.8. Ladder Gallows

- To accommodate a 10.5 m Aluminum double extension trussed member ladder with rollers provided with locking arrangement in a manner that does not provide any obstruction to the working of monitor in stowed condition.

3.8.9. Suction Hose Lockers

- On roof with grab bars and toe bars, for 4×2.5 m long armored suction hoses.

4.0 MATERIAL OF CONSTRUCTION

4.1 For Water and Foam Tanks

- All water wetted parts shall be made of SS 316L.
- Pipes and pipe fittings shall be made of SS 316.

4.2 For DCP Tanks

- Tank shall be made of Carbon steel SA 516 Gr 60 or 70.
- Pipes: CS seamless: A106 Gr B.
- Pipe fittings: ASTM A234 WPB/A105.
- Flanges shall be Carbon steel ASTM A105.
- SS ball/butterfly valves.

4.3 Pump

- Casing, impellers & delivery outlets etc. Gunmetal, LTB Grade 2.
- Primer, base frame etc. High strength light weight SS/ Al alloy.
- Bearing housing shall be of Cast Iron.
- Pump shaft and primer shaft: SS High tensile bars (forged).

4.4. Lockers

- Lockers doors shall be of Al roller shutters.
- Level indicators shall be of treated steel.
- Sufficient spare parts shall be handed over as operational spares for maintenance of shutters.

5.0. WORKMANSHIP AND FINISH

- All parts of the fire tender shall be of good workmanship and shall have streamlined finish.
- The GVW of appliance shall not exceed the rated GVW of the chassis manufacturer with all equipment and crew. **The load distribution diagram shall be submitted along with the offer failing which the offer is liable for rejection.**

5.1. Painting and Marking

- The entire structure shall be prepared by grinding the welded surface, priming the finished material with a zinc rich primer and then finally coated with a two pack epoxy based paint.
- The complete vehicle (all exterior surface) and monitor shall be painted with at least two coats of zinc phosphate epoxy primer each of 50microns DFT and two coats of polyurethane finish paint (Fire red colour-shade No 536 of BIS-5) each coat of 50 microns DFT having UV protection property. Further improvement on the paint may be carried out by the manufacturer beyond that mentioned above, to give better protection and surface finish.
- Water and foam lines shall be painted with Zinc phosphate epoxy primer each of 50 microns DFT and two coats of polyurethane finished paint each coat of 50 microns DFT. Water lines shall be painted red in colour and foam lines shall be painted yellow in colour. Flow direction shall be marked at strategic pipings.
- The bidder shall give the details of the entire painting process and also the details of in-house painting facilities like paint booth etc. The colour for the outside shall be as per the latest international and Indian norms for fire brigade vehicles. The user name shall be written on both sides with yellow colour.
- Reflective stripes shall be affixed to the perimeter of the vehicle. The stripe or combination of stripes shall be a minimum of 4 in. (100mm) in total width and shall conform to the minimum requirements of ASTM D 4956, Standard Specification for Retro reflective Sheeting for Traffic Control Type-I, Class-1 or Class-3. At least 50% of the cab and body length on each side, at least 50% of the width of the rear, and at least 25% of the width of the front of the vehicle shall have the reflective material affixed to it.
- SS nameplates of minimum size 500mm x 700mm shall be fixed permanently inside the driver's cabin and also at the rear vehicle. These nameplates shall contain all major technical specifications including year of manufacturing, vendor and client name, water, foam tank capacity, Engine/ pump, chassis/ Sl. Nos. maximum load to be allowed, etc. Letters shall be machine engraved followed by painting for permanent display.
- All the lockers/ cabin shall be provided with SS name plates with letters itched on it boldly indicating the content. Control panel/ valves/ levers/ pump flow diagram shall be similarly indicated. OEM's marking on pumps and PTO shall be made available.
- Owner's emblem in original colour together with name (in English) shall be written in golden yellow colour on both sides of the vehicle.

6.0. PERFORMANCE AND ACCEPTANCE TESTING

The fully laden and built-up fire tender shall satisfy all minimum performance criteria laid down in BIS/ NFPA norms (Speed & acceleration of vehicle, CG requirements, braking capacity etc.).

6.1. Vehicle Stability Test

Fully laden tender shall be stable on road on travel. While standing if tilted on either side overturning shall not occur up to 27 degrees from horizontal.

7.0. ACCESSORIES

The following accessories shall be provided in addition to those normally fitted on modern commercial vehicles.

1. Head lamps (Round standard type) - 02nos.
2. Fog lamps – 02nos. (Hella Make).
3. Reversing light.
4. Slim profile light bar with revolving flashlights and strobes on cabin roof top-Grand make.
5. Blinker Traffic indicators.
6. Wind screen wipers – 2 nos.
7. Air Horn.
8. Heavy duty fan (Driver's/ Officer's cabin) – 02 nos.(Remi make).
9. Siren (Battery operated) on roof top: 1Km range, with weather proof motor - IP 56.
10. Search light (Adjustable to give flood or beam light, mounted in a convenient position capable of being readily disconnected and mounted on a tripod away from the appliance, complete with tripod and with not less than 30 m of TRS cable on a reel mounted on the appliance).
11. Inspection lamp (Protected type on wander lead with a plug. A socket shall be provided in the control panel in the driver's cab for plugging in the lamp.
12. Traffications: Illuminated with indicating lights on instrument panel or in any other prominent position in driving compartment.
13. Siren- Battery operated.
14. Tail lamps.
15. Rear reflectors.
16. Cab, instrument panel and locker light.
17. Level switch with cabin display for water tank.
18. Battery charger.
19. Tools (All tools required for normal routine maintenance of the appliance which are not included in the kit for the chassis).

Note: The above accessories from serial number 1 to 17 shall be suitable to draw power from the vehicle batteries / engine alternator (or preferably a separate battery with charger to be supplied along with tender).

8.0. GENERAL CONDITIONS

8.1. Inspection

Pre-delivery inspection will be done by ISRO/SDSC Engineers at various milestone/stages as defined in the following Table-I.

Table –I	
I.1.	Inspection procedures for Water and Foam Tanks and related piping
	<p>The following test procedures shall be followed for the Tanks:-</p> <ol style="list-style-type: none">1. Approval of welding procedure (WPS) and welder qualification (PQR) as per ASME.2. Review of Mill test certificates (MTC) and check on stamping of plates, flanges and nozzle before start of fabrication.3. 100% DP Test for all Butt and socket welds and 100 % X-Ray radiography for butt welds.4. 100%DP Test for all weld lends of nozzles to shell (i.e. reinforcement pads) for water and foam tanks.5. Visual and dimensional check of water and foam tanks before mounting on chassis.6. Water fill hold test for fabricated water and foam tanks at atmospheric pressure for 24 hours.7. Hydrostatic test is at 1.5 times design pressure for the pipelines for the duration as mentioned by ASME code of pressure.
I.2.	Inspection procedures for Water pump
	<p>The following Test procedures shall be followed for Pump.</p> <ol style="list-style-type: none">1. Review of MTC for material of casing, impeller, shaft and mechanical seal.2. Review of manufacturer’s test report for dynamic balancing of impeller, Hydro test of casing and performance of pump for characteristic curves as per code.3. Performance testing of pump for duty point conditions including 4 hour mechanical run test (including noise and vibration measurement).4. Parameters at max and min allowable speeds to establish performance curves at these speeds.5. Visual and dimensional checks.6. Performance test of primer (Main and auxiliary) at rated conditions.
I.3.	Inspection procedures for Foam cum Water monitor and Valves.
	<p>The following Test procedures shall be followed for Monitor:</p> <ol style="list-style-type: none">1. Review of MTC.2. Hydro test at 1.5 times the design pressure (if applicable).3. Availability of the specified flow, throw and pressure of water and foam as per specs.4. Performance testing of valves and monitor to establish the performance at rated output.
I.4.	Inspection procedures for PTO units
	<p>All standard tests as specified by the PTO supplier.</p> <ol style="list-style-type: none">1. Review of MTCs for Material of construction.2. Four hour mechanical run test along with the pump on test bench with shop driver.

	<p>3. Visual and dimensional check.</p> <p>Note: - All the above inspections which are mentioned from 1.2 to 1.4 and test shall be carried out at pump manufacturers shop prior to dispatch. Stage inspections shall be carried out to review the internal documents for the tests carried out by the manufacturer from time to time and also to witness to the critical tests being carried out by the vendor during the final stage inspection</p>
I.5.	Inspection procedures for Fire Tender.
	<p>The following test procedures shall be followed for Fire Tender.</p> <ol style="list-style-type: none"> 1. Review of MTC and visual inspection of raw materials for frame work, cladding, and flooring, fasteners etc. used for structure and body fabrication before start of fabrication. 2. Inspection of framework (for cabin & body) for soundness of welding and fitment of chassis and dimensional check. 3. Inspection of proper installation of pumps, tanks, piping with supports and their dimensional checks.
I.6.	Inspection procedures for Fully fabricated vehicle.
	<p>The following test procedures shall be followed for completed and fully laden Fire Tender:</p> <ol style="list-style-type: none"> 1. Check on actual payload on chassis, performance of engine, PTO engagement, transmission and electrical systems at full load. 2. Dimensional check, ground clearance check and suspension effectiveness. 3. Fire Tender performance test- Max speed, acceleration, turning radius and grade ability test as per codes (NFPA1901/IS). 4. Vehicle sturdiness test (NFPA1901) - Cab interior sound level test, low and rated voltage electrical system test, service and aux braking test. 5. Stability test: The stability of the appliance shall be such that when under fully equipped and laden condition, if the surface on which the appliance stands is tilted to either side, the point at which over turning occurs is not passed at an angle of 27 degrees from horizontal. 6. Road test of vehicle to ensure all parameters are as specified by chassis manufacturer for 15 Km of paved and 8 Km of gravel road. 7. Pump Endurance Test: The rating of pump shall be min. 4 hrs. The pump shall be tested for a continuous period of four hours nonstop and the water shall not be replenished in the radiator during this test. Test for water pump and associated equipment while discharging water from water monitors and outlets individually and in combination. 8. Priming Test: The priming shall be tested as per the latest standards and the system shall be subjected to a test at a suction of 7 Mtrs. The priming shall be achieved in less than 24 seconds. 9. Shower Test: After completion of fabrication, the vehicle shall be subjected to shower test as per the norms laid down under BIS. The appliance shall not show any signs of leakages during this test. 10. Foam proportionating system tests. 11. Functional testing of each hose outlet individually and in combination. 12. Tests related to condition monitoring of pumps and shafts.

Table-2
STAGE WISE INSPECTION DETAILS OF FIRE TENDER

I.a)	Stage-I
	<p>After completion of under structure:</p> <ol style="list-style-type: none"> 1. Verification of Material Test Certificates (MTC), components/ sub-assemblies identification, before fabrication. 2. Check dimensions of understructure on chassis, fabricated components as per specifications and approved drawings. 3. Verification of all manufacturers/ fabricators document including documents of imported items. 4. Approval of welding procedure (WPS), welder qualifications (PQR) as per relevant ASME codes/ standard.
I.b)	Stage-II
	<p>After completion of paneling:</p> <ol style="list-style-type: none"> 1. Check overall dimensions, body work, cab interior fittings. 2. Verification of UT/Radiography/DP Test of SS/CS plates and nozzles of foam and water tank, DCP vessel as applicable as per relevant procedure and standard. 3. Verification of NDT records of butt welded joints as per ASME Sec-V (X-Ray radiography 100% for tanks and pipelines). 4. Check construction details of water tank and foam tank and carryout water fill hold test at atmospheric pressure. Check all piping/fittings, internals, bolts & nuts of the tanks for material. Leakage test for both the tanks for 24 hours. Check all piping with hydraulic test pressure as stated in previous page .Check location/ placement of control panel, instruments, controls, other equipment & accessories etc. 5. Test Power Take Off unit (PTO). 6. Test the foam induction and foam compound proportionating system. 7. Verify monitor position and its movements. 8. Carry out hydrostatic test of pump (centrifugal) as per specification.
I.c)	Stage- III
	<p>After completion of fitment and painting</p> <ol style="list-style-type: none"> 1. Check stability of the unit after mounting all equipment and accessories. It should be free from undue rattling and vibration. 2. Each appliance shall be clearly and permanently marked. 3. Check proper functioning of all types of signal lights, alarms, bell etc. 4. Check quality of workmanship. 5. Painting of exterior/interior of Fire Tender, Fire service Insignia conforming to IS/ISRO-SDSC norms. 6. Check completeness of equipment for any deficiency in quality to standard quality or non-conformation to specification should be rechecked. 7. Check calibration of instruments, gauges, tools, accessories etc. 8. Check operation of various levers, locks, caps, fitment of tanks, linkages, markings and plumbing work. 9. Check storage space for adequacy.

I.d)	Stage-III contd..Performance Test
	<p>The following performance test shall be carried out at vendor's site:</p> <ol style="list-style-type: none"> 1. Pump Test: The pump shall be run for a period of four hours nonstop delivering the rated output with a lift of 3 Mtr. During the test all parameter like cooling system, temperature of the engine oil, PTO sump oil temperature shall match as per manufacturer's recommendation. 2. Vehicle tests as defined in I.6 of Table –I. 3. The pump casing and impeller shall be subjected to a hydraulic pressure 1.5 times of maximum operating pressure to detect leakage performance etc. 4. Priming Test: The primer shall be capable of lifting water at least 7 Mtr in less than 24 seconds. 5. Hose Reel: Performance shall be tested as per tender specification. 6. Foam making system: <ul style="list-style-type: none"> - Induction 0 to 6% at all five settings. - Throw 70/35 Mtr. Monitor/Branch. - Expansion 8 times Monitor and Branch. 7. DCP system: Complete operation including flushing. (DCP and N₂ /Co₂ gas to be provided free of cost by vendor for this test).
I.e)	Functional Test & Road Test.
	Shall be carried out as per Sl. No: I.6 of Table-1

8.2 Training

- Vendor shall give undertaking to impart a comprehensive training to SDSC Fire service staff on use of fire tender including operation and maintenance of various components and accessories supplied along with fire tender, at SDSC SHAR premises, for a minimum period of one week, on free of cost.
- Training shall be imparted by experienced and well qualified instructors who had got first hand training for above referred equipment's / components and accessories.

8.3 Documents

8.3.1. After placement of order (Stage-1)

The following documents are required to be submitted in three sets prior to fabrication for department's approval without which fire tender is not allowed to be fabricated.

1. GA and cross sectional drawings of chassis and fire tender.
2. Final load distribution and reaction diagram of major elements w.r.t. axles.
3. Characteristic curves and other details of pumps and PTO.
4. Flow diagram showing all piping, tanks, pumps, valves etc.
5. Fabrication drawings of superstructure and base frame.
6. Single line flow diagram of water and foam piping systems.
7. Line diagram of electrical circuits and schematics.
8. Thickness calculation and fabrication drawing of water and foam tanks, DCP and Co₂ vessels and piping.
9. Details of electrodes to be used in SS welding.

10. Fabrication drawing of water monitor and valves.
11. Cabin layout schematic.
12. Drawing showing layout of all equipment, lockers, cabin etc.
13. Quality assurance plan (QAP) for inspection and testing.
14. Detailed technical specification of all equipment's /components.
15. Catalogues of all major equipment's / components (Pump, PTO, water monitor etc.)
16. Dimensional details of Pump, PTO, and water monitor etc.

Note: Quality Assurance Plan (QAP) with points mentioned at different parts of this documents regarding scope of vendor, SDSC SHAR and TPI Agency has to be prepared by the vendor within two weeks of PO receipt and is to be submitted to the department for approval before implementation.

8.3.2. After completion of order (Stage-2)

The following documents are required to be submitted (**3 sets and 1 soft copy**) in the form of Production Master File (PMF):

- With overall details of system sub –system
- Operating & instrumentation manual for the tender
 1. As built drawings of vehicle chassis and tender (1 set reproducible).
 2. As built drawings of all fabricated tanks, DCP and CO₂ systems.
 3. Isometric drawing of water and foam pipelines and as built flow diagrams.
 4. As built drawings of power transmission systems and electrical circuits.
 5. Operating and instrumentation manual for the tender.
 6. Operation and Maintenance (O&M) manual and spare parts book of pump, PTO, water monitors valves, Hose reels.
 7. Operation and Maintenance (O&M) manual and spare parts book of truss ladders, telescopic light mast, BA sets, pneumatic tools & instruments.
 8. Operation and Maintenance (O&M) manual and spare parts book of instruments, electronic and electrical items.
 9. Vehicle documents (Chassis with spares list).
 10. Manufacturer's test reports, inspection reports, general instruction book with overall details of systems/sub-systems and Performance test reports of individual equipments/components (Pump, Engine, Hose, Monitor, Nozzle etc).
 11. Overall performance test report of Fire Tender.
 12. CCE approval for DCP and CO₂ systems.

Note: Imported elements, if any shall conform to EN safety directive/equipment norms from country of origin.

9.0 INSTRUCTIONS TO THE BIDDER

The instruction to Bidder shall be read in conjunction with the Notice Inviting Tender (NIT), Tender documents, Technical Specifications (TS). Notwithstanding the sub-division of the documents into Notice Inviting Tender (NIT), Tender documents and Technical specification and parts, every part of each shall be deemed to be complementary and supplementary to each other.

In case of any conflict/contradiction, the documents shall prevail over one another in the following order:-

- a. For all commercial, contractual and general conditions, Notice Inviting Tender (NIT).
- b. Any contradiction either between various parts of document or in the content of the document itself shall be a matter of clarification to be obtained by the bidder from the purchaser. The purchaser's decision shall be final and binding.
- c. The Bidder shall study the specifications mentioned in this total document and shall take full responsibility for best quality of material and workmanship, guaranteed operation and smooth performance of the Fire Tender along with equipment, accessories and stowage equipment. This technical specification is only guidance to the bidder and hence all the items necessary for safe and satisfactory operation, guaranteed and reliable performance of proposed fire tender shall be included in his offer though these might not have been specifically mentioned in the technical specification / schedule of quantities.
- d. The Bidder shall satisfy SDSC SHAR that he possesses the necessary technical experience for design& execution and has at his disposal suitable facilities and crew to ensure that his work shall be of the best quality and workmanship. Necessary particulars in this regard shall be furnished with the offer.
- e. Successful Bidder shall obtain prior approval from SDSC SHAR for selecting sub- suppliers and makes for any of the equipment / components.
- f. An unpriced copy of the order on the sub-suppliers comprising all detailed specifications and the quantities of the material ordered, bill of material including necessary drawings thereof, shall be sent to SDSC SHAR immediately after such order is placed by the successful Bidder.
- g. The purchaser reserves the right of selecting the make/model of equipment, Instrumentation items wherever necessary and the supplier shall agree to supply equipment of particular make/model without any cost implication to purchaser.
- h. The bidder shall take all precaution against damages due to rains or other natural causes and no liability shall lie with the purchaser for any loss on this account.
- i. The approval of drawings and/or inspection by SDSC SHAR and/ or their authorized representative shall not absolve or relieve the bidder from any of his obligation under this contract and they shall be wholly and solely responsible for the satisfactory operation and guaranteed performance of the systems and equipment forming part of the fire tender.
- j. This specification is issued for procurement from indigenous sources only. However, no foreign exchange or import license for importing equipment, components, raw materials or spares will

be arranged for or provided by the purchaser. In case the equipment offered involves expenditure in foreign exchange, same shall be arranged and borne by the Bidder.

- k. Any equipment / material which in any way fails to meet the requirements of the specification will be rejected by the purchaser and such equipment / material shall not be used under the contract. The successful Bidder will be required to promptly furnish new material at his cost without hampering the overall schedule of the supply.
- l. Any changes or difficulties which might be encountered during the execution of work or any other problems due to local conditions which are not anticipated / included in the tender document shall fall under full obligations of the successful Bidder. No claim on account of the same and for any ambiguity in any respect will be entertained after placement of order by Purchaser.
- m. The equipment covered in this specification shall conform to the technical specification, general requirements and relevant latest standards / codes in respect of dimensions, size, material, manufacture, inspection, testing and painting, etc., as applicable.
- n. All material, dimensional standards, tolerances, process of manufacture and testing procedures shall be in accordance with the latest revision of the standard codes specified in this Tendering Specification. In case where such suitable standards are not mentioned, any acceptable Indian/International Standards shall be adopted with prior approval of SDSC SHAR.
- o. All equipment supplied shall allow access to facilitate connecting up, inspection, maintenance and repair and shall operate satisfactorily under such variations of load, pressure and climatic conditions as may occur during working.
- p. All documents, instructions, name plates etc. shall be written in English language. All weights, dimensions and units shall be in metric system.
- q. The Bidder shall be responsible for completeness of supplies, work and services to make the Fire tender ready for proper operation. Any equipment and material not specifically mentioned in this tendering specification, but required for safe, smooth and efficient operation and guaranteed performance of the Fire tender shall be deemed to be included under the scope of work of the Bidder. No claim shall be entertained on this account after placement of Order.
- r. SDSC SHAR reserves the right to reject all or any of the offer fully or partly without assigning any reasons, whatsoever.
- s. The Bidder shall quote for earliest delivery of the equipment / supplies as well as earliest completion of the entire work.
- t. The Bidder shall submit the Quality Assurance Plan (QAP) containing the overall quality management and procedures which he proposes to follow for performing the work during various phases of execution. This QAP shall be submitted to the department for approval within two weeks of receipt of purchase order by successful bidder.
- u. At the time of award of contract, the detailed Quality Assurance Plan (QAP) is to be followed for execution of the contract which will be mutually discussed and agreed too.
- v. The sub-contracts for part works can be given for successful completion of supply of fire tender with consensus of SDSC SHAR. The total sub-contract of the project is not allowed.
- w. Materials used and equipment supplied shall be new and the best of their kind and shall comply with the latest revisions of all relevant standards. Manufacturer's certificates shall be furnished by the successful Bidder for the material used.

- x. The Fire tender shall be designed & engineered, manufactured, assembled, tested and commissioned as per the standards laid down in this specification. Detailed instructions on such aspects as are not indicated herein shall be as per the latest Indian standards.
- y. Bidder shall clearly indicate the deviations taken from the Tender documents/specifications separately in his offer. Which is to be submitted in Vendor comparison check list as per **Annexure-III** given to this document.
- z. All drawings / documents are to be submitted for approval after awarding the contract.

10.0 SPECIAL INSTRUCTION TO THE BIDDER

10.1. GENERAL PROCEDURES

- **The overall lowest offer will be considered for awarding the contract.**
- **The Splitting up of order item wise is not acceptable.**

The Indent consists of two parts viz., Part-1(Techno commercial Bid) and Part-2(Price Bid).

10.2. PART-I: TECHNO-COMMERCIAL BID

Technical and **un-priced** commercial part as per price bid format is given in **ANNEXURE-II**. All the documents given below shall be scanned and uploaded **to the techno-commercial bid. The bids will be rejected if any filled price is found with techno-commercial bid.**

The bidder shall submit the following:

- 1. The bidder shall have at least 5 years of experience in the field of design and fabrication of fire tenders. The supporting document shall be furnished for evaluation. Bidders who fail to produce supporting documents will be rejected.**
- 2. The bidder shall produce**
 - a. One recent (last 5 years) Purchase order (PO) of Rs.1.1Cr in the field of design and fabrication of fire tenders.**
 - (Or)**
 - b. 2nos of recent (last 5 years) PO's of Rs.0.80Cr in the field of design and fabrication of fire tenders**
- 3. The average annual turnover of the contractor shall be Rs.1.70Cr for last 3 years. The supporting documents shall be produced. for the above item No.2 and No. 3**
4. The solvency certificate of worth Rs.0.50 Cr is to be submitted from a national bank.
5. Unpriced price bid copy as per the given **ANNEXURE-II** is to be attached along with this bid.
6. Submission of bid letter along with one set of proposal document duly signed and stamped as token of acceptance. Scanned copy shall be uploaded in the ISRO e-procurement portal.
7. The filled Vendor comparison checklist is to be submitted as given in **ANNEXURE-III**.

8. Power of attorney in favour of authorised signatory of the bid/ proposal documents.
9. Compliance statement to the technical specification given is to be duly signed & stamped and to be uploaded in SDSC SHAR portal as a part of acceptance.
10. Detailed QAP shall be submitted by the party after placement of order. Quality Assurance Plan mutually agreed by successful bidder and SDSC SHAR shall be complied. The party shall confirm the broad guidelines mentioned in the technical specification document.
11. Deviations, if any, w.r.t technical and commercial terms & conditions shall be clearly brought out in Vendor comparison check list **ANNEXURE III**. If deviations are not listed separately, it will be presumed that the bidder is adhering to all the technical specifications and commercial terms & conditions given in this document.
12. Quote shall be based on F.O.R. Sriharikota.
13. Goods and Services Tax (GST) shall be reimbursed at actual as per the provisions of GST act or relevant notifications issued by Government of India from time to time. SDSC SHAR is eligible for concessional rates of GST under as per relevant notifications (presently @5% on supply). Exemption certificate shall be issued to the contractor for supplies of goods only. The Taxes and duties applicable shall be indicated clearly in quotation.
14. Transportation & Transit Insurance are fully in the scope of supplier and the same shall be borne by the party.

10.3. PART-II: PRICE BID

The price bid shall contain schedule of prices and shall be filled in ISRO e-procurement portal. The party has to give the price break up for all the items given in the price bid format attached in **ANNEXURE-II** for bulk cost followed by each material being supplied and fixed/ fabricated in the Multi-purpose fire tender. **However, the overall lowest quotation will be considered for awarding the contract.** No deviations, terms and conditions, assumptions, discounts etc. shall be stipulated in price bid. Department will not take cognizance of any such statement and may at their discretion reject such bids.

A. Bid Submission

1. Offers should be submitted On-line using standard digital signature of class -3 with encryption/decryption options.
2. The tenders authorized online on or before the open authorization date and time will only be considered as valid tenders.
3. Prices shall be mentioned in the space/column provided in the ISRO e-procurement portal only for such purpose.
4. Physical copy of the bid will be accepted only in case if the file size is bigger and not possible to upload the same. In such case, the hard copy shall be submitted within due date. Documents received after due date will not be considered.
5. Prices quoted should be on the basis of F.O.R. Sriharikota.
6. The purchaser will not pay separately for transportation and transit insurance and same shall be included in the cost quoted by the Bidder.
7. All risks in transit shall be exclusively borne by the contractor and the purchaser

8. Shall pay only for such items as are actually received in good condition in Accordance with the purchase order.
9. Bids duly filled in by the Bidder should invariably be submitted as stipulated in the e-procurement portal.
10. Department may open Part – I (Techno- commercial bid) of the bid on the due date of opening at convenience. Price Bid (Part-II) of the technically and commercially acceptable bids shall be opened at a later date.
11. Department reserves the right to reject any or all the Bids without assigning any reasons thereof.

B. Bid Evaluation

Pre-Bid evaluation criteria

- ▶ **The bidder must have at least 5 years of experience in the field of design and fabrication of fire tenders. .**
 - ▶ **The supporting document shall be furnished for evaluation.**
 - ▶ **The bidder shall produce any one of following**
 - a. **One recent (last 5 years) Purchase order (PO) of Rs.1.1 Cr in the field of design and fabrication of fire tenders.**
- (Or)**
- b. **2nos of recent (last 5 years) PO's of Rs.0.80 Cr in the field of design and fabrication of fire tenders.**

The average annual turnover of the contractor shall be Rs.1.70 Cr for last 3 years.

Note 1:-The supporting documents shall be produced for all of the above

Note 2:-The parties who have submitted their bids shall meet the above pre-bid criteria and only such of those bids will be considered for evaluation.

- ▶ The bidder shall provide all the relevant data/information/details required for evaluating the bid technically and commercially. Apart from this, Bidder is free to add any other relevant information.
- ▶ During evaluation, department may request Bidder for any clarification on the bid/ additional documents/ information required. Bidder shall submit all clarifications/additional documents/ information requested in original. If not submitted within the stipulated time department has the right to reject such bids.
- ▶ Techno-commercial discussion shall be arranged with Bidder, if needed. Bidder shall depute his authorized representatives for attending discussions.
- ▶ In case Bid does not fully comply with the requirement of Proposal document and the bidder stipulates deviations to the clauses of the proposal, which are unacceptable to the Department, the Bid will be rejected.
- ▶ Performance of Bidder on similar nature of works executed/under execution shall be taken into consideration before selecting the Bidder for opening his price bid.

- ▶ The party shall quote entire scope of work defined in technical specification document. **Any party quoting only for supply or erection portion alone will not be considered as a successful bidder.**
- ▶ Department shall not be obliged to furnish any information/clarification to unsuccessful bidder as regard non-acceptance of their Bids.

11.0 SPECIFIC REQUIREMENTS

11.1 Time schedule

The delivery of the fire tender along with equipment, accessories and stowage equipment, shall be so scheduled that it shall be possible to receive the fire tender at SDSC SHAR within **6 months** from the date of award of PO. The delivery date schedule is to maintain in such a way that the bidder shall take care of ordering of long lead items like chassis /pump .The successful Bidder shall guarantee the material delivery and commissioning dates. Progress report shall be submitted by the successful Bidder at regular intervals of 1 month on a format prescribed by the purchaser giving the status of approval of drawings, ordering position of equipment and other materials ordered, manufactured, fabricated and delivered to.

- After placement of purchase order, all the documents which are specified in item no: 8.3.1 of this specification document shall be submitted which will be approved by department from time to time for stage clearance with mutual agreement so as to maintain overall delivery schedule of fire tender supply to SDSC SHAR.

11.2 Unit Rates

The Bidder shall quote item wise units and unit price and total units and total price of items and materials to be supplied and under this specification as per **ANNEXURE-II** at Price bid stage. The Bidder shall quote rates of supply of each item separately. The rates shall be valid till handing over the fire tender to SDSC SHAR .Items not featuring in the BOQ but required shall be borne by Bidder and shall be deemed to be included in the bidder's offer. No extra claim for such items shall be entertained after placement of order.

11.3 Performance bank guarantee

PBG at 10% of the value of the Purchase Order shall be submitted through bank guarantee from any of the Scheduled Banks executed on non-judicial stamp paper of appropriate value, and shall be valid for a period of sixty days beyond the date of completion of all the terms and conditions of the purchase order / expiry of warranty period.

11.4 Liquidated damage

Delivery Time is the essence and hence delivery period shall be strictly adhered to this order. If the supplier's defined scope of work is not made by the end of delivery period, liquidated damage will be levied @ 0.5% per week or part thereof subject to a maximum of 10% of value of undelivered stores.

11.5 Security deposit

Party shall submit security deposit, within 15 days of Order Acknowledgement, for 10% of the total order value. Security Deposit shall be obtained through Bank Guarantee or fixed deposit receipt from any of the Scheduled Banks executed on non-judicial stamp paper of appropriate value, and shall be valid for a period of sixty days beyond the date of completion of the Purchase Order. In case the vendor fails to furnish the security deposit within the specified date or extended due date, the Purchase Order/Contract shall be cancelled, and the EMD, if any, made earlier shall be forfeited, and, in addition, appropriate penal action will be taken. Central PSUs/PSEs/Autonomous Bodies/ shall be exempted from the payment of Security Deposit, and instead, an Indemnity Bond shall be submitted by them in lieu of the Security Deposit.

11.6 Validity of Offer

Bid shall remain valid for acceptance for a period of **four months** from the due date of submission of the Bid. The Bidder shall not be entitled during the period to revoke or cancel his Bid or to vary the Bid except and to the extent required by Department in writing. Bid shall be revalidated for extended period as required by Department in writing. In such cases, unless otherwise specified, it is understood that validity is sought and provided without varying either the quoted price or any other terms and conditions of Bid finalized till that time.

11.7 Guarantee

The fire tender shall be guaranteed against any defects or malfunctioning for a period of 12 months from the date of acceptance at SDSC SHAR. For any defects noticed during the guarantee period, replacement rectification should be arranged at free of cost at owner's premises within a reasonable period of time.

11.8 Payment Terms

Our standard payment is 100% by RTGS within 30 days after testing and inspection at manufacturer's site and acceptance of the fire tender including equipment, accessories and stowage equipment at SDSC SHAR. The party has to furnish the bank account details in the invoice for arranging payment. Wherever advance payment is requested, Bank Guarantee from any Nationalized Bank/Scheduled Bank should be furnished. In case of advance payments, if the party is not supplying the material within the delivery schedule, interest will be levied as per the Bank Lending Rate plus 2% penal interest. Interest will be loaded for advance payments/stage payments as per the lending rate of Bank and will be added to the landed cost for comparison purpose. In case of different milestone payments submitted by the parties, a

standard and transparent methodology like Net Present Value (NPV) will be adopted for evaluating the offers.

11.9 Taxes:

Goods and Services Tax (GST) shall be reimbursed at actual as per the provisions of GST act or relevant notifications issued by Government of India from time to time. SDSC SHAR is eligible for concessional rates of GST under as per relevant notifications (presently @5% on supply) as per Government of India, Ministry of Finance vide No. 47/2017, dated 14/11/2017 for procurement made by Department of Space being Public Funded Research Institution. Exemption certificate shall be issued to the contractor for supplies of goods only. The Taxes and duties applicable shall be indicated clearly in quotation.

11.10 Cost of Bidding

All direct and indirect costs associated with the preparation and submission of Bid (including clarification meetings and site visit), shall be to Bidder's account and the Department will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the Bid process.

11.11 Indemnify

The party shall, at all times, indemnify the SDSC SHAR against all claims including claims by any third party relating to stores for infringement of any rights protected by patent registration of design or trademarks. The party shall also take the entire responsibility for adequacy of supplies/services for fulfilment of the Purchase Order.

11.12 Termination of Contract

In case of supply of fire tender is running for a long duration, the SDSC SHAR shall have the right to terminate the Purchase Order with adequate notice and also if the party fails to perform any other obligations under the Purchase Order.

11.13 Secrecy

The party shall take all reasonable steps necessary to ensure that all persons employed in connection with the Purchase Order have full knowledge of the Official Secrets Act and the regulations framed there under. Any breach of the aforesaid conditions shall entitle the SDSC SHAR to cancel the Purchase Order and if necessary to go ahead with the purchase at the risk and cost of the party in addition to any other penal action it may take at its discretion.

11.14 Compliance with security requirements

The party shall strictly comply with the security rules & regulations of the SDSC SHAR. The party shall complete the required formalities including verification of character & antecedents, of the persons engaged or deployed by him, through police or any other authority.

11.15 Force majeure

For the purpose of the contract the term “force majeure” shall mean strikes, lockouts and other conflicts, acts of an enemy, war hostile blockade, disturbance of the public order, stroke of lightning, fire under thunderstorm, flood explosion and acts of god and government acts beyond the reasonable control of the party claiming force majeure. If due to circumstances of force majeure, either of the parties to this contract partially or completely unable to fulfil its obligations in accordance with this contract, the said party shall be obligated to immediately inform the other party of occurrence of the circumstances of force majeure in writing. The party claiming force majeure shall also be obligated to keep the other party informed of the events in the process related to the occurrence of the said force majeure circumstances and of the possible degree of non-fulfilment or delay in fulfilment of the obligations in accordance with this contract. All the obligations of the party that invokes the plea of force majeure shall be suspended as long as the said force majeure circumstances continue to exist and not longer, and the said party shall not be regarded as having committed breach or failure, nor shall be held responsible to make compensation for losses suffered by either party. The terms of fulfilment of the obligation shall be duly extended for the period during which the circumstances of force majeure last. The fulfilment of the obligations shall be resumed immediately after the cessation of the said circumstances of force majeure. If the said force majeure circumstances last for more than sixty days, parties to this Contract shall discuss and agree upon further action. Should the state of non-fulfilment of obligation under the Contract be more than three (3) months and nothing could be done to make a statement about ceasing of obligations of Contract, within not more than three (3) months either party has the right to cancel the Contract mentioned below. The ownership of all materials, parts and unfinished work paid for by the SDSC SHAR shall vest with the SDSC SHAR or transferred to the SDSC SHAR as soon as they have paid for. The amount of compensation payable/recoverable shall be fixed on the basis of evidence produced by party and acceptable by the SDSC SHAR.

11.16 Claims

Claims on account of additional works, not covered under the above scope, if any, may be considered by the SDSC SHAR and shall be settled based on mutual discussion. Claims on account of any additional Taxes & duties payable, which are statutory levies, shall be paid by the SDSC SHAR, at rates prevailing at the time of delivery. In the event of the failure on the part of either party to meet its responsibilities of the PO, the parties of this PO shall negotiate and come to a mutual understanding regarding the payments already made and the schedule of subsequent delivery/payments in accordance with the PO.

11.17 Confidentiality and proprietary right protection

The party shall be obliged to preserve the confidentiality of the proprietary information received, exchanged between each other during the period of the Contract. Technical documentation published and/or claimed for a patent shall be effected by both the parties only on mutual decisions and approval of both the parties, during the existence of this agreement.

11.18 Patent right

The party shall take all possible care and precautions to avoid infringement or use of patents or design rights or any alleged patents or design rights in the execution of this project. However, in the event of any claims made under or any action brought against in respect of such matters as aforesaid, beyond the control of party, SDSC SHAR shall not be responsible to settle any dispute or conduct any litigation that may arise there from, including financial implication.

11.19 Arbitration

Except as otherwise specifically provided in the Contract any disputes or differences including those considered as by only one of the parties out of or in connection with this Contract shall be, to the extent possible, settled amicably between the parties. If amicable settlement cannot be reached, then all disputes shall be referred to Director, SDSC SHAR, ISRO, whose decision shall be binding on both the parties. If this contract is terminated for any reasons, the expenses incurred for conduct of the above work are to reckoned to the extent of the work that is carried out which will be settled by the either of the parties to this contract on mutual agreement within 30 days or such extended period from the date of intimation of termination of contract.

12 SAFETY

The Fire Tender shall be complete with approved safety devices.

13 CODES AND STANDARDS

The codes and standards mentioned herein are to be followed for all the items required for successful completion of project

TABLE 3: CODES & STANDARDS

S.N.	Description	Standard / Code
1	Fire pump	EN1028/BIS/CE
2	Water tank	IS 801
3	Foam Tank	IS 801
4	CS DCP Cylinders	IS 2825-2002, ASME VIII Div. 1
5	Dry Chemical Powder	IS 4308
6	CO2 System	IS 2878

7	Water / Foam Monitors	IS 8442
8	Hose Reel Hose	IS 884 (SAE R2)
9	Pressure Gauge	IS: 3624-1987 (Reaffirmed 2008)
10	SS Pipes (SS316L)	SA312 TP316L
11	SS Pipe Fittings(SS316L)	SA403 WP316
12	SS Bolts, Nuts	For bolts: SA193 Grade B8 and For Nuts: SA194 Grade B8
13	SS Washers	SS
14	SS Gaskets	Spiral Winded, Graphite filled SS 316L without inner/outer compressed rings.
15	SS Butterfly valve	IS: 13095-1991 (Reaffirmed 2013)
16	SS Ball Valves	IS 778-1984/ IS 781-1984
16	SS Flange(Forged Stock)	SA182F 316L
17	Telescopic Mast light	NFPA, SAEJ1455, MIL-STD-810G
18	AKRON/ELKHART/TFT MAKE hand nozzle with pistol grip with 95 gpm flow	BIS/EN/CE
19	AKRON/ELKHART/TFT MAKE hand nozzle with pistol grip with 60 to 200 gpm flow	BIS/EN/CE
20	Self-contained Breathing apparatus	IS10245
21	NOMEX Firemen proximity suits	EN 469/IS/CE
22	Hand operated COMBI tool	IS/EN/CE Marked
23	Aluminum extension ladder (10.5m)	
24	Armored suction hose 125 mm diameter complete with round thread couplings 2.5 m long	
25	Suction metal strainer (for item7)	IS4571
26	Basket strainer (for item 7)	IS 2410
27	Suction wrenches	IS 907
28	3 Way suction collecting head	IS 3582
29	Collecting breechings	IS 4643
30	Dividing breeching with control	IS 904
31	RRL hose,30 m long with 63mm instantaneous Aluminum alloy couplings	IS 905
32	Synthetic hose, 63 mm and 15 m long with instantaneous Aluminum alloy couplings	IS 5131
33	Hose bandages	IS 636

		Type A
35	Hose clamps	IS 636 Type B
36	Hose slings	IS 5612 Part 2
37	Light alloy branch pipe	IS 5612 Part 1
38	Nozzle for light alloy branch pipe sizes a) 12 mm b) 16 mm c) 20 mm d) 32 mm	IS/EN
39	Nozzle spanner	IS 903
40	Foam making branch pipe (jet/ spray)	IS 903
41	Fog nozzle with extension applicator	IS 903
42	Hand controlled branch	IS 2097/1983
43	Insulated combination plier	IS 952
44	Rubber gloves pair tested to 20000 V	IS/EN
45	Cropper bolt	
46	Hack saw 300 mm adjustable with 6 spare blades	IS 3650
47	Sledge hammer 1.8 Kg	IS 5200
48	Crow bar	IS 5169
49	Axe felling	IS 841
50	Firemen axe with belt and pouch	IS 704
51	Quick release knife	IS 273
52	Long line, braided type, Nylon or polyester 50m	IS 927
53	Lowering line, braided type, nylon or polyester, 40 m	IS 2084
54	Short line, braided type, 15m long,	
55	Hand held LED lamp	
56	Hand LED torch	
57	Chain saw	IS/EN
58	Canvas buckets	IS/EN
59	First aid box for 10 persons	IS/EN
60	Spanner adjustable	
61	Fire hook	IS/EN
62	Hydraulic jack	IS 6149
63	Foam pick up tube 5m with threaded couplings for foam transfer from barrel	IS 927
64	Industrial safety helmets (yellow)	

TABLE 4: LIST OF APPROVED MAKES

S.N.	Item	Preferred make
1	Vehicle chassis	Mahindra & Mahindra/TATA/Ashok Leyland/ Bharat Benz /Eicher
	Fire Pump	Godiva /Firefly
2	SS Pipes	Ratnamani / Remi /Ratandeeep
3	SS Pipe fittings	Sawan Engg/vadodora/Sangevi Engineerings /Rajmani fitting /RD forge
4	Butterfly valves and ball valves	L&T/AUDCO
5	Butterfly valves and ball valves for DCP system	L&T/AUDCO
6	Paint primer and paints	Asian paints / Berger paints / Goodlass paints / Shalimar paints / Jerlac paints / CDC Carboline / German Polycoats / Grand polymers
7	Pressure gauges	H Guru / Wika / Manometer India
8	Water Monitors & Foam nozzles	AKRON/ELKHART/TFT
9	Fog Guns (HP)	Rosenbauer, Fireco
10	PTO	WEBSTER, SIYAL(OEM)
11	Roller shutters	MCD
12	Heavy duty fan	Remi
13	Driver's seat	Haritha
14	Chain saw	<i>STHIL</i>
15	BA Set	Drager, Scott, MSA
16	Fire Proximity suit	BRISTOL
17	RRL Hose	PREMIER EXTRA
18	Synthetic Hose	PYROPROTECT
19	Hand operated COMBI Tool	HOLMATRO
20	Handheld LED Lamp	ASKA, DETEC, RUDRA, PROLITE, Bright Star.
21	Hand Torch LED	ASKA, DETEC, RUDRA, PROLITE
22	Fog Lamps	Hella
23	VHF Set	MOTOROLA
24	PA System	AHUJA
25	Cables	Orbit / Poly cab / KEI/Finolex

ANNEXURE-I: BILL OF QUANTITY

The Bill of quantity is indicative only and the successful bidder shall supply all the items required for the Multipurpose Fire Tender. **The payment to the successful bidder will be made based on the actuals supplied and accepted at SDSC SHAR.**

SCHEDULE OF QUANTITIES			
S. No.	DESCRIPTION OF EQUIPMENT/ITEMS	UNIT	QUANTITY
1	Supply of vehicle chassis suitable for fire tender, Mahindra & Mahindra / TATA /Ashok Leyland/Bharat Benz/Eicher make built in cabin chassis with 25T GVW capacity, 230-280 BHP, power steering, ABS, Bharat stage-IV certified drive Engine equipment and items as given in Enclosure – 1 which are fire tender specific with fabrication, fitment, fastening and mounting as per the “Technical Specifications for Procurement of Multi-Purpose Fire Tender document”.	Lot	1
2	Supply of Stowage equipment as per Enclosure – 2 ,From Sl.No: 1 to 42 and other Essential supply from Sl.No:43 to 48	Lot	As per Enclosure-2
3	Supply of operational spares for 2 years as per Enclosure-3 (S.No:1 to 28)	Lot	As per Enclosure-3
4	Supply of accessories as per point no 7.0 except OEM supplied items.	Lot	As per 7.0 of Tech Specification Document

SCHEDULE OF QUANTITIES			
S. No.	DESCRIPTION OF EQUIPMENT/ITEMS	UNIT	QUANTITY
1	Centrifugal pump High pressure/Normal pressure type with 6000 lpm flow at 10 bar pressure & 400 lpm flow at 40 bar pressure with built in round the pump foam proportionating system, priming systems and pump panel rear mounted on Multi-purpose Fire tender built on the chassis.	Nos	1
2	SS water tank of 7000 liters capacity with necessary connections & Magnetic float with flap type level indicator.	Nos	1
3	SS Foam tank of 1000 liters capacity with necessary connections & Magnetic float with flap type level indicator.	Nos	1
4	PTO of suitable type and ratio for the rated output of the pump and torque of the drive train, in the vehicle transmission system.	Nos	1
5	Fitting of SS pipelines and pipe fittings of suitable sizes to make necessary connections for firefighting.	LOT	1
6	Deck mounted remote operated water cum foam Monitor with fog/ stream patterns, specified flow throw and maneuverability with necessary SS pipe connections, valves and pressure gauge.	Nos	1
7	Bumper mounted remote operated water cum foam Monitor with fog/ stream patterns, specified flow throw and maneuverability with necessary SS pipe connections, valves and pressure gauge.	Nos	1
8	75 kg DCP system with discharge Hoses and Horns with manifold with pressure control devices and CO ₂ /N ₂ as expellant, operating at 14kg/cm ² with two DCP outlets suitably mounted on either sides of the fire tender.	Nos	4
9	22.5 kg CO ₂ system with manifold with discharge hoses and horns mounted suitably on either side of fire tender.	Nos	4
10	HP Hose reel system with two deliveries 30m and 60m each terminated with high performance water mist spray guns with necessary valves and gauges mounted.	Nos	1
11	Tyre flushing system operated from the driver's cabin with self-primed monoblock pump, necessary pipelines and minimum 2 nozzles per tyre.	Nos	10
12	Telescopic Mast light	Nos	1

13	Body work, Stowage painting and marking as per the given technical specification documents.	Lot	1
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Enclosure-2: LIST OF STOWAGE EQUIPMENT

SI No	Item	Code/IS No	Quantity	Remarks
1	Armored suction hose 125 mm diameter complete with round thread couplings 2.5 m long	2410	4 Nos	
2	Suction metal strainer (Gunmetal)	IS 907	1 No	
3	Basket strainer	IS3582	1 No	
4	Suction wrenches (Universal Type)	IS907	2 pair	
5	3 Way suction collecting head (Gunmetal)	904	2 Nos	
6	Dividing breech with control (Gunmetal)	904	2 Nos	
7	Two Way Collecting breech (Gunmetal)	4643	2 Nos	
8	RRL hose, 63 mm and 30 m long with instantaneous Aluminium alloy couplings (IS 903)	636 Type A	5 Lengths	
9	Synthetic hose, 63 mm and 15 m long with instantaneous Aluminium alloy couplings	636 Type B	10 Lengths	
10	Hose bandages	5612 Part I	6 Nos	
11	Double male coupling	5612 Part II	2 Nos	
12	Double female coupling	IS 902	2 Nos	
13	Hose clamps	5612 Part 1	06 Nos	
14	Hose slings		06Nos	
15	Light alloy branch pipe	903	2 Nos	
16	Nozzle for light alloy branch pipe sizes a) 12 mm b) 16 mm c) 20 mm d) 32 mm	903	2 Nos Each	
17	Nozzle spanner (Gunmetal)	903	4 Nos	
18	Foam making branch pipe (jet/spray)	IS 2097:2012	2 Nos	
19	Fog nozzle with extension applicator	903	4 Nos	

20	Hand controlled branch	903	2 Nos	
21	Insulated combination plier	952	2 Nos	
22	Rubber gloves pair tested to 20000 V	3650	2 pairs	
23	Cropper bolt	5200	1 No	
24	Hack saw 300 mm adjustable with 6 spare blades	5169	1 No	
25	Sledge hammer 1.8 Kg	IS-841:1983	1 No	
26	Crow bar	704	1 No	
27	Firemen axe with belt and pouch	927	5 Nos	
29	Quick release knife	2084	2 Nos	
30	Long line, braided type, Nylon or polyester 50mm circumference 30 m	927	2 Lengths	
31	Lowering line, braided type, nylon or polyester, 50 mm circumference 30 m	IS2084	2 Lengths	
32	Short line, braided type 15m long,	IS1084	2 Nos	
33	Hand held LED lamp rechargeable		2 Nos	
34	Hand LED torch rechargeable		1 No	
35	Petrol operated Chain saw power saw (<i>STIHL</i> Make)	CE	2 Nos	
36	Canvas buckets		1 No	
37	First aid box for 10 persons		1 No	
38	Spanner adjustable (30 cm long handle)	6149	1 No	
39	Fire hook	927	1 No	
40	Hydraulic jack 30T	6149	1 No	
41	Foam pick up tube 5m with threaded couplings for foam transfer from barrel	927	1 No	
42	Industrial safety helmets (yellow)	IS 2925	6 Nos	
Other Essential Supply				
43	Self-contained Breathing apparatus	Nos	2 + 2	2 complete set and 2 spare cylinders
44	NOMEX Firemen proximity suits.(Multi-Layer)	Nos	2	
45	Hand operated COMBI tool	Nos	1	
46	VHF Sets	Nos	1	
47	PA System	Nos	1	
48	Aluminum extension ladder -10.5m	Nos	1	

Enclosure-3: LIST OF OPERATIONAL SPARES

Sl No	Item	Quantity	Remarks
1	Fuses of all types used in fire tender	01 Packet each	
2	Bulbs for locker & cabin lights	01 no per bulb	
3	Switches for locker & cabin light	01 no per switch	
4	Push pull switches	12 nos.	
5	Blinkering light spare lamp	01 no.	
6	Door handles with locks for below chassis level lockers	01 no per locker	
7	Door handles without locks for below chassis level lockers	01 no per locker	
8	Roller shutter handles and locks	01 set per shutter	
9	Window glass winding handles	01 no per window	
10	PTO engaging mechanism switches and levers	01 set	
11	Pump drive shaft spider joints	01 no per joint	
12	Pump drive shaft centre pad	03 nos.	
13	Pump & Primer sealing (O rings, gaskets, oil seals)	Two sets	
14	Pump delivery flange gaskets	06 nos.	
15	Accelerator cable from pump control panel to drive engine	01 no	
16	Exhaust primer cable	01 no	
17	Pump suction pipe blank cap washer	06 nos.	
18	Hose reel QR sealing	06 nos.	
19	Hose reel drum swivel coupling sealing	06 nos.	
20	DCP container pressure gauge	02 nos.	WIKA make
21	Pump pressure gauge (low & high)	01 each	WIKA make
22	Compound gauge	01 no	WIKA make
23	All pipe line joint gaskets	02 no each	
24	Exhaust primer gaskets	02 sets	
25	Water/ foam pipeline fasteners	01 spare set	Stainless steel
26	Pump drive shaft joint fasteners	01 set	
27	Mast light spare lamps	01 set	
28	Mast light pneumatic control switch	01 no	

ANNEXURE-II: PRICE BID FORMAT

The price bid shall contain schedule of prices and shall be filled in ISRO e-procurement portal. The party has to give the price break up for all the items.

However, the overall lowest quotation will be considered for awarding the contract. No deviations, terms and conditions, assumptions, discounts etc. shall be stipulated in price bid. Department will not take cognizance of any such statement and may at their discretion reject such bids.

SCHEDULE OF QUANTITIES						
S. No.	DESCRIPTION OF EQUIPMENT/ITEMS	Unit	Quantity	Unit rate	Taxes & other costs	Total cost
1	Supply of vehicle chassis suitable for fire tender, Mahindra & Mahindra / TATA /Ashok Leyland/Bharat Benz/Eicher make built in cabin chassis with 25T GVW capacity, 230-280 BHP, power steering, ABS, Bharat stage-IV certified drive Engine with the following equipment and items which are fire tender specific with fabrication, fitment, fastening and mounting as per the items given in Enclosure – 1 of Technical Specifications for Procurement of Multi-Purpose Fire Tender document.	Lot	1			
2	Supply of Stowage equipment as per Enclosure – 2 ,From Sl.No: 1 to 42 and other Essential supply from Sl.No:43 to 48.	Lot	As per Enclosure-2			
3	Supply of operational spares for 2 years as per Enclosure-3 (S.No:1 to 28)	Lot	As per Enclosure- 3			
4	Supply of accessories as per point no 7.0 except OEM supplied items.	Lot	As per 7.0 of Tech Specification			

	TOTAL COST					
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ANNEXURE-III: VENDOR COMPARISON CHECKLIST

Contractor shall fill the following checklist and submit with the offer. Deviations from point wise confirmation shall be spelt out clearly.

Sl. No	Evaluation elements	Reference Page No. & Sl. No	Confirmation (Yes or No)	Deviations, if any
1	Scope of work and Detailed scope of work	Page No. 03		
2	Bill of Quantity	Page No.33 Annexure-I		
3	Pumping system ,priming ,Water& foam tanks	Page No. 03 to 06		
4	Fabrication and erection work	Page No. 06		
5	Dry chemical powder system, body work and stowage	Page No.8		
6	Material of construction , & workmanship and finish	Page No.12 &13		
7	Performance and acceptance testing & accessories	Page No. 14		
8	General Conditions, Inspections and stage wise inspection	Page No. 15 to 18		
9	Instructions to the Bidder	Page No. 20 & 21		
10	Special Instructions to the Bidder	Page No.22 & 23		
11	Unpriced Price bid format	Page No.38 Annexure-II		
12	Codes and standards	Page No. 29,30 & 31		
13	List of Approved Makes	Page No. 32		

ENNEXURE- IV: PROCEDURE FOR MECHANICAL CLEANING, DEGREASING, PICKLING, PASSIVATION AND PAINTING

SS TANKS (WATER & FOAM)					
1	Mechanical Cleaning:				
	All metallic surfaces inside and outside having scales and foreign materials and all welded surfaces have to be cleaned. This can be done by scrubbing with metallic brush (Stainless steel) followed by buffing to get a polished surface. The loose scales and powders obtained from the above process can be cleaned by blowing, sucking or washing, with water. Mechanical cleaning and buffing shall be carried out after stress relieving, but before hydro test.				
2	Pickling and passivation				
	Shall be carried out as per the following method for the tanks after buffing and hydro testing.				
	<table border="1"> <thead> <tr> <th>Tank Outer Surface</th> <th>Tank Inner Surface</th> </tr> </thead> <tbody> <tr> <td>Swabbing method using Barium sulphate as an acid carrier</td> <td>Filling/ Swabbing method</td> </tr> </tbody> </table>	Tank Outer Surface	Tank Inner Surface	Swabbing method using Barium sulphate as an acid carrier	Filling/ Swabbing method
Tank Outer Surface	Tank Inner Surface				
Swabbing method using Barium sulphate as an acid carrier	Filling/ Swabbing method				
3	Method of Degreasing, Pickling and passivation.				
a)	Degreasing:				
	Degreasing has to be done by soaking with two hot detergent solution of Lissapol at 60 Deg.C to 70 Deg.C for at least 2 hours till satisfaction.				
b)	Pickling:				
	Pickling is to be carried out with solution containing Nitric Acid 15% by volume, Hydro-Fluoric Acid (HF) 2% by volume and balance potable water. Temperature : Ambient Duration : 1 to 2 hours				
c)	Rinsing:				
	Thorough potable water rinsing has to be carried out until all traces of acid are removed from the surface.				
d)	Passivation:				
	Passivation is to be carried out with solution of Nitric Acid 20-25% by volume and balance potable water. Temperature : Ambient Duration : 2 hours				

	Thorough rinsing with potable water is to be carried out till PH of the final rinse water is between 6.5 to 7.5 to minimize residual stain. Surfaces must not be permitted to dry between successive steps of the acid cleaning or passivation and rinsing procedures. The concentration of Iron should not exceed 5% by weight in case of pickling solution and 2% by weight in case of passivation.
4	Preparation of Paste For Swabbing Method
	The pickling and passivation of the outer surface shall be done with a solution as described above and Barium sulphate as carrier (Chloride levels 25 ppm) in the form of paste. For each of pickling and passivation operations, the paste has to be applied on the surface and has to be kept for at least for 2 hours. Paste has to be removed with waste cotton in each operation and finally the surface has to be rinsed with potable water.
5	Checking
	All the relevant tests shall be carried out to ensure proper pickling and passivation as per ASTM A 380
6	Painting:
	<ul style="list-style-type: none"> a) All Stainless Steel plates, sheets, pump parts shall be suitably pickled and passivated by means of filling/ swabbing method. b) All metal surfaces including steel material shall be applied with a coat of epoxy primer of minimum thickness 100 ± 10 microns followed by polyurethane finish paint (of Fire red colour-shade No 536 of BIS-5) of minimum thickness 50 ± 10 microns, so that to get an overall Dry Film Thickness (DFT) of minimum 160 microns. c) The chassis and under carriage including support legs of water tank shall be applied with suitable anti-rust intermediate primer (Zinc chromate).



Satish Dhawan Space Center SHAR

Welcome, Materials Master (isro)

31 August 2017,
17:16:08 IST

[MAIN VIEW](#)

[HELP](#)

Preview For STANDARD TERMS AND CONDITIONS

Page Destination: Tender Header **Format Type :** Normal

. :

GOVERNMENT OF INDIA

DEPARTMENT OF SPACE

SATISH DHAWAN SPACE CENTRE

PURCHASE DIVISION

Tele No.08623-225023/225174/225127

Fax No.08623-225170/22-5028

e-Mail ID : hps@shar.gov.in, hasan@shar.gov.in, sselvan@shar.gov.in

STANDARD TERMS & CONDITIONS

1.OFFERS SHALL BE SENT ONLINE ONLY USING STANDARD DIGITAL SIGNATURE CERTIFICATE OF CLASS III WITH ENCRYPTION / DECRYPTION. THE TENDERS AUTHORISED ONLINE ON OR BEFORE THE OPEN AUTHORISATION DATE AND TIME ONLY WILL BE CONSIDERED AS VALID TENDERS EVEN THOUGH THE BIDS ARE SUBMITTED ONLINE.

2.THE TENDERER MUST AUTHORISE BID OPENING WITHIN THE TIME STIPULATED IN THE SCHEDULE BY SDSC SHAR. OTHERWISE THE ONLINE BID SUBMITTED WILL NOT BE CONSIDERED FOR EVALUATION. PHYSICAL COPY WILL NOT BE CONSIDERED EVEN THOUGH IT IS RECEIVED BEFORE THE BID SUBMISSION DATE.

In case of two-part tenders, parties shall submit their offers as follows:-

1) Part-I – Techno-commercial Bid

(No price details shall be mentioned in this bid and shall not upload the details of price along with the techno-commercial bid)

2) Part-II – Price Bid

In view of Two Part Tender, the Offers submitted contrary to above instructions will be summarily rejected.

3.In case, the tenderer is not interested to participate in the tender, the tenderer shall submit regret letter giving reasons, failing which future enquiries will not be sent.

4.**Offer Validity:** The validity of the offers / tenders should be 90 days (in case of single part tender) and 120 days (in case two part tender) from the date of opening of the tenders. Tenders with offer validity less than the period mentioned above, will not be considered for evaluation.

5.**GST** - GST and/or other duties/levies legally leviable and intended to be claimed should be distinctly shown separately in the tender. GST details are given below

GSTIN: 37AAAGS1366J1Z1

LEGAL NAME : SATISH DHAWAN SPACE CENTRE SHAR

VALIDITY FROM:29/08/2017

TYPE OF REGISTRATION:REGULAR

6.**Customs Duty** - SDSC-SHAR is eligible for 100% Customs Duty exemption as per Notification No. 050/2017 539 (b) Dt: 30.06.2017. This may be taken into account while quoting for import items, if any.

In case tenderers offering items considering customs duty exemption, they should also indicate the bill of materials and price, separately, with Customs Duty component and terms and conditions thereto.

8.**Advance Payment** - Wherever advance payment is requested, Bank Guarantee from any Nationalized Bank/Scheduled Bank should be furnished. In case of advance payments, if the party is not supplying the material within the delivery schedule, interest will be levied as per the Prime Lending Rate of RBI plus 2% penal interest.

Interest will be loaded for advance payments/stage payments as per the prime lending rate of RBI and will be added to the landed cost for comparison purpose. In case of different milestone payments submitted by the parties, a standard and transparent methodology like NPV will be adopted for evaluating the offers.

9.**Liquidated Damages** - In all cases, delivery schedule indicated in the Purchase Order/Contract is the essence of the contract and if the party fails to deliver the material within the delivery schedule, Liquidated Damages will be levied @ 0.5% per week or part thereof subject to a maximum of 10% of total order value.

10.**Performance Bank Guarantee** - Performance Bank Guarantee for 10% of the order value should be furnished in the form of Bank Guarantee from nationalized/scheduled bank or by Demand Draft valid till warranty period plus sixty days as claim period.

11. **Security Deposit** – Security Deposit for 10% of the order value is mandatory, if the ordered value is Rs.5.00 lakhs and above. Party shall furnish the Security Deposit in the form of Bank Guarantee from nationalized/scheduled bank or by Demand Draft valid till completion of the contract period plus sixty days towards claim period for faithful execution of the contract.

12. **BANK GUARANTEE FOR FIM:** Supplier has to submit Bank guarantee for equal value of Free Issue of Materials (FIM) issued by the Department from Nationalised / Scheduled Bank valid till receipt and acceptance of supply and satisfactory accounting of FIM plus sixty days as claim period.

13. The delivery period mentioned in the tender enquiry, IF ANY, is with the stipulation that no credit will be given for earlier deliveries and offers with delivery beyond the period will be treated as unresponsive.

14. The Department will have the option to consider more than one source of supply and final orders will be given accordingly.

15. The bidders should note that conditional discounts would not have edge in the evaluation process of tenders.

16. Non-acceptance of any conditions wherever called for related to Guarantee/ Warranty, Performance Bank Guarantee, Security Deposit, Liquidated damages are liable for disqualification.

17. Wherever installation/ commissioning involved, the guarantee/warranty period shall reckon only from the date of installation and commissioning.

18. Purchase/Price Preference will be extended to the MSMEs under the Public Procurement Policy for MSMEs formulated under the Micro, Small and Medium Enterprises Development Act, 2006 and instructions issued by Government of India from time to time. Vendors who would like to avail the benefit of MSME should clearly mention the same and submit all the documentary evidences to substantiate their claim along with tender itself.

19. The drawings, specifications, end use etc., given by the Centre/Unit along with the tender enquiry are confidential and shall not be disclosed to any third party.

20. **SPECIAL CONDITIONS FOR SUBMITTING QUOTATIONS IN FOREIGN CURRENCY BY THE INDIAN AGENTS**

The Tenderer should submit the following documents/information while quoting:-

a) Foreign Principal's proforma invoice/quote indicating the commission payable to the Indian Agent and nature of after sales service to be rendered by the Indian Agent.

b) Copy of Agency agreement with the Foreign Principal and the Indian Agent, precise relationship between them and their mutual interest in the business.

c) Registration and item empanelment of the Indian Agent.

d) Agency Commission will be paid only Indian Currency.

e) Compliance of the tax laws by the Indian Agent.

21. **High Sea Sales**- Against High Sea Sale transactions:

a. Offers shall be on all inclusive basis including delivery upto Sriharikota at the risk and cost of the supplier. Customs Clearance is the responsibility of the supplier and at his cost and risk.

b. 100% payment will be made within 30 days after receipt and acceptance of the items at our site.

c. GST as applicable

d. Customs Duty Exemption Certificate and other relevant documents required for Customs clearance will be provided.

e. High Sea Sales Agreement furnished by the supplier in accordance with the terms and conditions of our purchase order will be signed and issued by SDSC-SHAR.

22. The following information/ documents are to be submitted wherever applicable.

1. Product Literature

2. Core banking account number of SBI, RTGS Details

3. PAN No. in quotation and invoices

4. GST Registration details.

5. In case of MSME, registration details / documents from Competent Authority.

23. **EXCLUSION OF TENDERS**

The following tenders shall be summarily rejected from the procurement process

a. Tenders received from vendors who have not qualified in terms of their registration.

b. Tenders received against publishing of a limited tender in the CPP portal.

c. Tenders of vendors who have been removed from the vendor list or banned/debarred from having business dealings.

d. Unsolicited tenders from vendors.

e. The tenders which materially depart from the requirements specified in the tender document or which contain false information.

f. The tenders which are not accompanied by the prescribed Earnest Money Deposit.

g. The tenders of vendors who have not agreed to furnish Security Deposit, Performance Bank Guarantee and Liquidated Damages.

h. The validity of the tenders is shorter than the period specified in the tender enquiry.

i. The tenders received from vendors or their agents or anyone acting on their behalf, who have promised or given to any official of the Centre/Unit/Department, a gratification in any form, or anything of value, so as to unduly influence the procurement process.

j. The tenders received from vendors, who, in the opinion of the Centre/Unit, have a conflict of interest materially affecting fair competition.

k.The tenders received from Indian agents on behalf of their foreign Principals/OEMs (in cases where the Principals/OEMs also submit their tenders simultaneously for the same item/product in the same tender).

l.In case two or more tenders are received from an Indian agent on behalf of more than one foreign Principal/OEM, in the same tender for the same item/product.

m.If a firm quotes 'NIL' charges / consideration, the bid shall be treated as un-responsive and will not be considered.