

SPECIFICATION FOR FIRE TENDER WITH PRESSURE PUMP ON 16 TON CHASSIS

Sl. No.	Description	Vendor's confirmation	Deviations if any
01	<p><u>General</u></p> <p>The Water Tender including all accessories should be designed and manufactured as per BIS/ISI.</p> <p>All the equipments & accessories should be fixed on the appliance in a compact & neat manner.</p> <p>The arrangement should be in such a manner that each part is easily & readily accessible for use and maintenance.</p>		
02	<p><u>Chassis</u></p> <p>The Tender should be fabricated on Ashok Leyland 1616 – 4330 mm WB goods chassis. Towing Hook on eye of adequate strength should be provided at the rear end of the chassis.</p>		
03	<p><u>Pump</u></p> <p>Single staged centrifugal type pump capable of delivering 1800 LPM @ 7 kg/cm² shall be provided. The pump shall have a drain plug at the bottom casing.</p>		
04	<p><u>Primer</u></p> <p>The pump shall be fitted with an exhaust ejector primer. The primer shall be capable of lifting water from 7m at a rate of not less than 30cm/sec.</p>		
05	<p><u>Hose Reels</u></p> <p>One normal pressure hose reel shall be provided to facilitate operation of the main pump and should be mounted in such a way it is easily accessible. Working pressure of the hose shall not be less than 14kg/ cm². The hose reel will have geared winding system, plumbing between the pump & hose reels shall have water way of not less than 25mm throughout without any restriction. Hose reel should hold 60 mts. Hose.</p>		
06	<p><u>PTO Unit for pump</u></p> <p>Heavy duty full torque PTO unit shall be fitted behind the engine gear box to drive the pump at rear. The lever of the PTO unit should be fitted behind the engine gear box to drive the pump at rear. The lever of the PTO unit shall be fitted in the driver's cabin. A suitable cooling system shall be inbuilt in the PTO to cool the oil in the PTO. The maximum through torque of the PTO shall be equal to the maximum through torque of the chassis engine.</p>		

07	<p><u>Water Tank</u></p> <p>The water tank should have a capacity of 4500 liters and suitably mounted on the chassis. The tank should be fabricated with 5mm thick MS plate. The tank shall be welded construction and shall be suitably baffled. An inspection hole of 450mm size shall be provided on top. Suitable eyes shall be provided on the shell of the tank to enable it to be lifted off the vehicle for repairs/replacements as necessary. A cleaning hole of 250 mm shall be provided at the bottom of the tank with a 50mm dia drain pipe with a valve and plug connection and shall be taken down to point well below the chassis without reducing the effective clearance. The tank shall have connections to all systems to facilitate the operation. Water level indicator shall be provided close to the control panel. The tank should be connected to the pump with a butterfly valve which should be pneumatically operated with manual over ride facility for ease of operation.</p>		
08	<p><u>Piping & Valves</u></p> <p>All the pipe lines & fitting for water will be of SS. All valves up to 2" size shall be of lever operated design ball valves and all the vales above 3" size shall be of normal butterfly valves.</p>		
09	<p><u>Control panel</u></p> <p>The panel for the water system adequately illuminated shall be provided at rear of the appliance. All other controls like electrical sirens etc shall be provided in the driver's cabin with identification plate.</p>		
10	<p><u>Body work of Tender</u></p> <p>Enclosed accommodation for Driver, Officer-in-charge & 5 men should be provided in the double compartment driver cab. The driver seat shall be adjustable type. All seats should have foam cushions & shall be covered with good quality of rexine. The cabin should be internally lined with a good quality PVC coated aluminium sheets. The outer paneling shall be done from 1.6 mm & internal paneling shall be done from 1.2 mm thickness aluminium sheets. The complete top of the cabin & rear super structure would be covered with 1.6 mm aluminium chequered plates. The doors should be fitted with safety glasses and winding type regulators.</p>		
11	<p><u>Lockers with polling shutters</u></p> <p>Suitable lockers shall be provided for storage of equipments & accessories. The lockers shall be covered with aluminium roller shutters.</p>		
12	<p><u>Special provision for storage of equipments</u></p> <p>For all water fittings like branch pipes etc, quick release type couplings shall be provided which enable the operation to locate the desired equipment instantly.</p>		

13	<p><u>Electrical system</u></p> <p>All the wiring shall be properly fixed in position & shall be protected against heat, oil & physical injury. All controls for electrical system shall be provided in front of driver's seat. Battery shall be placed in totally enclosed box.</p>		
14	<p><u>Fittings & Accessories</u></p> <p>The following shall be provided on the appliance at suitable location.</p> <ol style="list-style-type: none"> 1. One battery operated siren of 1km range. 2. Two spot lights one in front & other in rear of adjustable type. 3. Two fog lamps. 4. Two blinker type traffic indicators. 5. One removable type search light with 30 mtrs. Cable & tripod stand. 6. Light bar with revolving lights & stobes. 		
15	<p><u>Workmanship & Finish</u></p> <p>The gross vehicle weight of appliance shall not cross gross vehicle weight of chassis manufacture's specifications with all equipments & accessories.</p>		
16	<p><u>Fire Extinguishers</u></p> <p>6 nos. CO₂ Fire extinguisher 22.5 kgs capacity each shall be mounted in lockers on either side of the appliance in a battery of 3 cylinders each connected with a common manifold & hose reel with discharge horn shall be provided.</p> <p>2 nos. DCP Fire extinguishers of 75 kgs capacity each shall be mounted in lockers in either side of the appliance. The extinguisher shall be complete with discharge hose and horn.</p>		
17	<p><u>Painting & Marking</u></p> <p>The entire structure shall be prepared by grinding the welded surfaces, priming the finished material with a zinc rich primer and the finally coated with two pack epoxy based paint. After the completion of paneling, outside surface should be coated with a good quality of paint system preferably DUpont, PPG, starboc etc. The following user name shall be written on both sides with yellow color and shadowed with black borders.</p> <p>BHARAT HEAVY ELECTRICALS LIMITED, BOILER AUXILIARIES PLANT, RANIPET – 632 406.</p>		

18	<p><u>Acceptance Tests</u></p> <p>The following acceptance test shall be given to complete satisfaction of BHEL without any extra cost. The design of the tender shall be in such a way, that it will not affect the chassis characteristics as specified by the chassis manufacturer such as speed, towing circle, acceleration etc.</p> <p>All the testing parameters should be carried out at the manufacturer's premises.</p>		
19	<p><u>Stability</u></p> <p>The stability of the appliance shall be such that when under fully equipped & 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° from horizontal. This test should be carried out at the vendor factory in the presence of the inspecting officers of BHEL.</p>		
20	<p><u>Gradient</u></p> <p>The vehicle shall be tested on a gradient test ramp which has an angle of 1 meter in every 4 meters of distance travelled.</p>		
21	<p><u>Long Running Test</u></p> <p>The rating of the pump should be min. 4 hrs. The pump will be tested for a continuous period of four hours non stop and the water will not be replenished in the radiator during the test. The engine shall not show sign of over heating during this test.</p>		
22	<p><u>Priming Test</u></p> <p>The priming shall be tested subjected to a suction of 7 meters. The priming should be achieved in less than 23 seconds.</p>		
23	<p><u>Hydraulic Test</u></p> <p>All the piping subjected to hydraulic test pressure of 15kg/cm² for a period of min. 10 minutes. All test certificates related to the pressure vessel shall be submitted.</p>		
24	<p><u>Articulation Test</u></p> <p>The vehicle will be tested for articulation and shall not show any signs of stress during the test.</p>		
25	<p><u>Shower Test</u></p> <p>After completion of the fabrication, the vehicle shall be subjected to shower test. The appliance shall not show any signs of leakages during the test.</p>		

List of Equipments to be supplied with the Fire Water Tender

<u>S.No</u>	<u>Equipment / Items</u>	<u>Qty</u>
01	Aluminium extension ladder 10.5 mtrs (IS 4571)	1 No
02	a. RRL delivery hose type "A" of IS 636 22.5 M fitted with 63mm couplings (IS903)	180 M
	b. Controlled percolating Hose as per IS8423 in 30M length with couplings (IS903)	150 M
03	a. Hose clamps (IS 5612 Part-I)	25 Nos
	b. Hose bandages (IS 5612 Part-II)	25 Nos
	c. Hose slings	20 Nos
	d. Hose straps	20 Nos
04	PVC Suction hose of 100mm ID in 2.5M length fitted with couplings (IS902)	4 Nos
05	Three way suction collecting head 100mm size (IS 904)	1 No
06	Suction wrenches for 100mm suction coupling conforming to IS:4643	1 pair
07	Suction strainer 100mm size (IS 907)	1 No
08	Basket strainer cylindrical type (IS 3582)	1 No
09	Dividing breaching with control inst. Pattern 63mm (IS 905)	2 Nos
10	Collecting breaching with control inst. Pattern 63mm (IS 905)	2 Nos
11	a. Hydrant – stand pipe – two way (aluminium) IS:5714	1 No
	b. Double female coupling IS 901	2 Nos
	c. Hydrant connection, 63mm double armoured hose 1m long with 63mm } female inst. delivery couplings at both ends IS 901 }	2 Nos
12	Combined key for hydrant, hydrant cover & lower valve IS910	2 Nos
13	Fog nozzle with extension applicator with fog head IS952	1 No
14	Hand controlled branch for 63mm size hose coupling	1 No
15	Branch pipe, universal IS 2871	1 No
16	Branch with revolving head IS 906	1 No
17	Branch pipe IS 903	4 Nos
18	Nozzle sizes 12mm, 16mm, 20mm & 32mm (2 each) IS 903	8 Nos
19	a. Adaptor for 100mm suction female screw coupling & 63mm male instant	2 Nos
	b. Adaptor double female instant: pattern 63mm	2 Nos
	c. Adaptor double male instant: pattern 63mm	2 Nos
20	Nozzle spanners IS 903	2 Nos

<u>S.No</u>	<u>Equipment / Items</u>	<u>Qty</u>
21	Portable electric box lamp with rechargeable accumulator	2 Nos
22	Hand lamp (torch – 4 cells)	2 Nos
23	Flame proof lamp (usable in the presence of inflammable gases or vapours)	2 Nos
24	Self contained Breaching Apparatus Set (compressed air type) complete } With spare cylinder & tool kit }	1 set
25	Portable Fire Extinguisher DCP type, 2 kgs capacity	1 No
26	Portable Fire Extinguisher Foam type, 9 Ltrs. capacity	1 No
27	Foam making branch FB-5X with pick up tube IS 2097	1 No
28	Lowering line-50mm hemp or terylene, 40m long having two ends spliced in } And one end with a running noose, IS 1084 }	1 No
29	Long line 50mm manila, 30m Long IS 1084	1 No
30	Shorst line 50mm manila, 15m Long IS 1084	1 No
31	Canvas buckets	2 Nos
32	First Aid Box for 10 persons	1 No
33	Rubber gloves (in case) IS 4770	1 pair
34	Asbestos gauntlets (in case)	1 pair
35	Axe, Large IS 703	1 No
36	Spade	1 No
37	Pick Axe IS 273	1 No
38	Crow Bar IS 704	1 No
39	Sledge Hammer, 6.5 kgs IS 841	1 No
40	Carpenter's Saw, 60 cms IS 5098	1 No
41	Spanner, adjustable, 30cm long handle IS 6149	1 No
42	Door breaker	1 No
43	Hydraulic jack – 10 ton	1 No
44	Fire hook	1 No
45	Tool kit	1 No
46	Grease Gun ½ kg. size lever type	2 Nos
47	Oil feeder	1 No
48	Can Oil – 2 Ltrs.	1 No
49	Oil can – 10 Ltrs.	1 No
50	Funnel for oil or fuel filling – 250mm	1 No
51	File bastard 30cm IS:931	1 No